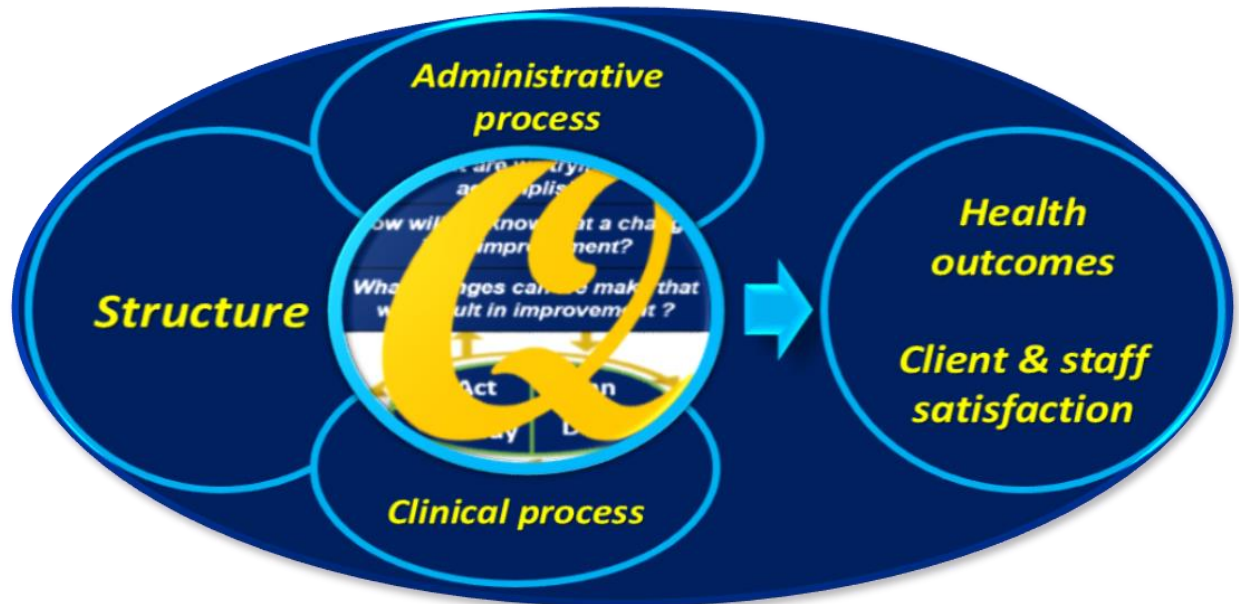




FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA
MINISTRY OF HEALTH

ETHIOPIAN HOSPITAL SERVICES TRANSFORMATION GUIDELINES

Volume 2, September 2016



ETHIOPIAN HOSPITALS MANAGEMENT INITIATIVE

Federal Democratic Republic of Ethiopia
Ministry of Health

**ETHIOPIAN HOSPITAL SERVICES
TRANSFORMATION GUIDELINES**

Ethiopian Hospital Management Initiative

Version 1.0

Forward

The earliest modern efforts to improve the quality of government hospitals throughout Ethiopia began in 2006 with the Ethiopia Hospital Management Initiative (EHMI) which resulted in the creation of the Ethiopian Hospital Reform Implementation Guidelines (EHRIG). EHRIG was built on both the Business Process Reengineering (BPR) and Hospital Blueprint efforts, as well as the Masters in Hospital and Healthcare Administration (MHA) degree programme. Subsequently, the country developed a hospital performance monitoring system based on achievement of key performance indicators (KPI) and the Ethiopia Hospital Alliance for Quality (EHAQ) to spread best practices and promote collaborative learning in government hospitals nationally. EHAQ has focused on patient satisfaction, labour and delivery management, and provides a national framework for continuous quality improvement in hospitals across Ethiopia.

The Ethiopian Hospital Services Transformation Guidelines (EHSTG) build on and expand the Ethiopian Hospital Reform Implementation Guidelines (EHRIG) and are consistent with the Health Sector Transformation Plan (HSTP). The EHSTG, which is consistent with the national focus on quality improvement in health care, contains a common set of guidelines to help hospital Chief Executive Officers (CEOs), managers, and clinicians (care providers) in steering the consistent implementation of these transformational systems and processes in hospitals throughout the country. The EHSTG focused on selected management and clinical functions, including new individual service specific chapters for Emergency Medical, Outpatient and Inpatient Services, Nursing and Midwifery, Maternal, Neonatal and Child Health and Teaching Hospitals' Management. These guidelines also incorporate recent lessons from the operationalization of the EHRIG, as well as, new national initiatives such as the Guidelines for the Management of Federal Hospitals in Ethiopia, Hospital Development Army (HDA), Clean and Safe Hospital (CASH), and Auditable Pharmaceutical Transaction and Service (APTS).

It is expected that the guidelines will continuously evolve as new evidence emerges regarding improved hospital care and practices that are better tailored to particular needs and circumstances of different tiers of public hospitals.

Hon. Minister Kesetebirhan Admasu (MD, MPH)
Minister of Health, Federal Democratic Republic of Ethiopia

Message from Medical Service General Directorate

The implementation of Ethiopian Hospitals Reform Implementation Guidelines (EHRIG) for Ethiopia and health sector provides a unique opportunity of improving the quality of care given by hospitals. I'm delighted to highlight that since the launching of EHRIG in May of 2010, 138 hospitals have implemented the guidelines, which is encouraging.

These new guidelines are quite comprehensive and have undergone a series of consultative workshops and meetings with critical stakeholders, and their inputs have proven to be invaluable. Thank you all!

Moreover, EHSTG is aligned with the Ministry of Health's 5 year "Health Sector Transformation Plan" is expected to significantly contribute to the agenda of the health sector's transformation.

I want to acknowledge all stakeholders who contributed to the development of these guidelines and encourage all leaders of the health delivery system and staff to utilize this important document maximally.

Daniel G/Michael Burssa (MD, MPH)

Director General, Medical Service General Directorate

MESSAGE FROM THE DIRECTORATE

Since its launch in 2010, the successful implementation of Ethiopian Hospitals Reform Implementation Guideline has led to marked improvement in the administrative processes of hospitals which helped their systems to be responsive to clients' needs.

Passing through a series of consultative workshops and experts inputs, the Ethiopian Hospital Services Transformation Guidelines (EHSTG) build on and expand the Ethiopian Hospital Reform Implementation Guidelines (EHRIG), incorporating recent lessons from the operationalization of the EHRIG and new national MOH initiatives introduced between 2010 and 2015.

EHSTG guidelines and accompanying operational standards are intended to support the efforts of hospitals in fulfilling a minimum standards for client satisfaction.

Being consistent with the Health Sector Transformation Plan (HSTP) and focuses on selected management and clinical functions of hospital operations and it is believed that hospitals will adopt the EHSTG operational standards comprehensively and bring all services under its umbrella.

In addition, the EHSTG guidelines in accompany with the HSTQ operational manual, are going to be the main tools to transform the administrative and clinical process of hospital functions. Using these tools, the Ministry of Health has prepared to launch a nationwide quality improvement initiatives which is going to be operationalized and catalyzed through the EHIAQ platform.

It is, therefore, hoped that all hospitals will take advantage of these guidelines and initiate quick and time bound actions as per the road map placed in the National Quality Strategy.

I must appreciate the efforts and initiatives of all experts and partners involved in the preparation and finalization of these guidelines. I especially acknowledge proactive role and initiative taken by CHAI staff members who were part of all the process of development besides making substantial technical contributions in it.

I also deeply appreciate the commitments of all staffs of Health Service Quality Directorate of the ministry for finalizing these guidelines after a series of consultative meetings and workshops.

Ayele Teshome(MD, OB/GYN)

Director, Health Service Quality Directorate

Federal Ministry of Health

Acknowledgements

The Federal Democratic Republic of Ethiopia Ministry of Health would like to acknowledge the following individuals and their organizations for their participation in technical working groups and contributions in the development of this document.

Hospital Leadership, Management and Governance:

Alemayehu Birhanu	CHAI
Dereje Ayele	MSH/LMG
Tiliku Yeshanew	USAID/HFG/Abt
Mebratu Massebo	USAID/HFG/Abt

Liaison, Referral and Social Services Management

Dr. Ayele Teshome	FMOH
Yakob Seman	St. Peter Hospital
Abebaw Derso	CHAI

Emergency Medical Services Management

Dr Helena Hailu	FMOH
Dr Assefu W/Tsadik	TASH
Dr. Aklilu Azazhi	TASH
Tollosa Dida	St. Paul's HMMC

Outpatient and Inpatient Services Management

Dr. Ayele Teshome	FMOH
Yakob Seman	St. Peter's Hospital
Abebaw Derso	CHAI
Dr. Daniel Mersa	St. Peter's Hospital
Dr. Birhane Redae	St. Paul's Hospital

Medical Records Management

Sem Daniel	FMOH
Wondwossen Shiferaw	FMOH
Antenehn Mekuria	Tulane University
Dr. Girma Tedassa	Tulane University

Nursing and Midwifery Care Services

Sr. Gezahign Denekew	FMOH
Birhane Gebrekidan	AAU
Yoseph Tsige	AAU
Lia Kena'a	Private
Abebaw Derso	CHAI
Tateke Abata	EMA
Aster Dawit	Menilik Nursing Collage

Maternal, Neonatal and Child Health Services

Dr. Ayele Teshome	FMOH
Dr. Munir Kassa	JHPIEGO
Dr. Abebaw Siraw	JHPIEGO
Dr. Dagnev Muluneh	WHO

Laboratory Services

Helen T/Birhan	FMOH
Atsbaha Gebregziabher	EPHI
Habtamu Asrat	EPHI
Ratalegn Geleta	EMLA
Yakob G/geberiabher	National Blood Bank
Zezelem Messele	CHAI
Zelalem Getachew	FMOH
Markos Paulos	FMOH

Pharmacy Services

Regassa Bayissa	FMOH
Ayalew Adinew	USAID/SIAPS
Belete Ayalneh	School of Pharmacy, AAU
Dawit Teshome	School of Pharmacy, AAU
Edmealem Ejigu	USAID/SIAPS
Elias Geremew	USAID/SIAPS
Hailu Tadeg	USAID/SIAPS
Sufyan Abdulber	FMOH
Yaregal Benti	FMOH

Radiological and Imaging Service Management

Esayas Mesele	FMOH
Dr. Ashenafi Abera	St. Paul's Hospital
Dr. Asmeraw Gisila	TASH
Dr. Ayele Teshome	FMOH

Rehabilitative and Palliative Care

Nicola Ayers (PhD)	DFID
Zelalem Getachew	FMOH
Fikre Mekuria	Alert Center

Infection Prevention and Patient Safety

Molla Godif	FMOH
Atkure Defar	EPHI
Dr. Negash Seyoum	JPIEGO
Dr. Abera Reffisa	ICAP

Federal and Teaching Hospitals Management

Dr. Andualem Deneke	TASH
Dr. Abraham Endeshaw	JPIEGO
Dr. Dessalegn Tegabu	FMOH

Markos Paulos FMOH

Alemayehu Birhanu CHAI

Medical Equipment Management

Mulugeta Mideksa CHAI

Dr. Frehiwot Woldehanna AAU-AAIT. CBM

Bereket Endrias FMOH

Demeru Yeshitila JPIEGO

Wondafrash Million FMOH

Facility Management

Gobena Godana FMOH

Asnake Wakjira TASH

Bemnet Gebriel TASH

Azeb Lemma FMOH

Human Resource Management

Tesfakros Arefe FMOH

Serkelem Girma FMOH

Health Financing and Asset Management

Mebratu Massebo USAID/HFG/Abt

Tarkegne Abate USAID/HFG/Abt

Asfaw Bekele USAID/HFG/Abt

Clinical Governance and Quality Improvement

Dr. Ayele Teshome FMOH

Habtamu Milkias FMOH

David Ansu Conteh CHAI

Dr. Tadele Bogale Jhpiego

Dr. Abiyou Kifle IHI

Monitoring and Reporting

Habtamu Milkias FMOH

David Ansu Conteh CHAI

Mahlet Asayehagne H/Silasse FMOH

The ministry is grateful to all above individuals and partners that have participated in the production of these guidelines. Special thanks go to our colleagues at the Clinton Health Access Initiative for their substantial contributions and support throughout the development of these guidelines as well as their dedicated efforts in support of our health reform efforts in so many other capacities.

Additional Contributors

FMOH Led Core Team

Additionally, we recognize the support of the FMOH led Core Team members, whose support was central to the preparation, coordination and facilitation of pre chapter guidelines' development workshop briefs, consultation documents, review of drafts and stakeholder contributions, addressing the editorial team's comments and recommendations and the enrichment of chapters to ensure the two volume documents. Members of the FMOH Led Core Team are:

Dr. Ayele Teshome	FMOH
Habtamu Milkias	FMOH
Markos Paulos	FMOH
David A. Conteh	CHAI
Abebaw Derso	CHAI
Alemayehu Berhanu	CHAI
Dawit Tatek	Yale University GHFI
Mebratu Massebo	USAID/HFG/Abt

Editorial Team

We would especially like to acknowledge the contribution of the editorial team for their meticulous review of all chapters for font type and size, sentence clarity, consistency and correctness in English language and logic. Their review included a critical review of the chapters to ensure that the standards, implementation guidance, implementation checklist and indicators are aligned and consistent in terms of content covered. Among these editors, we extend special thanks to David Ansu Conteh, Salem Fisseha and Dr. Nicola Ayers for editing the first set of chapters and David Ansu Conteh for the subsequent and final editorial of all chapters with the Yale GHFI Team for the pre-print formatting of the document.

Lastly, the review of the EHRIG and HPMI which led to the development of the EHSTG contained in this document would not have been possible without the inspiration and ongoing FMOH and RHBs' leadership support in ensuring these guidelines are availed for the transformation of public hospital services across Ethiopia. It was only through their leadership and matched financial support that this effort was possible.

Review Workshop Participants

We would also like to extend our deepest gratitude for the valuable input, contribution & comments of the following individuals whose fervent participation & efforts during the final review and revision process of these documents has been elemental.

Dr Ayele Teshome	FMOH/HSQD
Habatamu Milkiyas	FMOH/HSQD
Dr. Robel Wondemagegenehu	FMOH/HSQD
Markos Pawlos	FMOH/HSQD
Yakob Seman	St Peter Specialized Hospital
Mebratu Masebo	Abt Associates
Dr Eyob Gebrehawariat	FMOH/WHO
Dr. Atlibachew Teshome	FMOH/HSQD
Sr Gezashegn Denekew	FMOH/HSQD
Molla Godif	FMOH/HSQD
Sr Aynalem Tadesse	FMOH/HSQD
Abiy Dawit	FMOH/HSQD
Andargachew Abebe	FMOH/HSQD
Bedri Ahemed	FMOH/HSQD
Esayas Mesele	FMOH/HSQD
Mahelet Asayhegn	FMOH/HSQD

Contents

Chapter 11	Radiological and Imaging Service Management
Chapter 12	Rehabilitative and Palliative Care
Chapter 13	Infection Prevention and Patient Safety
Chapter 14	Federal and Teaching Hospitals Management
Chapter 15	Medical Equipment Management
Chapter 16	Facility Management
Chapter 17	Human Resource Management
Chapter 18	Health Financing and Asset Management
Chapter 19	Clinical Governance and Quality Improvement
Chapter 20	Monitoring and Reporting

11

**Radiological and Imaging Service
Management**

Table of Contents		Page
Section 1	Introduction	11-1
Section 2	Operational Standards for Medical Equipment Management	11-1
Section 3	Implementation Guidance	11-2
3.1	Radiology Unit, Equipment and Personnel	11-2
	3.1.1 Radiology Unit	
	3.1.2 Personnel	
3.2	Radiology Maintenance, Calibration and Quality Control Test	11-3
3.3	Radiology Unit Rooms and Layout	11-4
3.4	Professional Supervision	11-5
	3.4.1 Professional Competence	
3.5	Review of Appropriateness of Request and Patient Preparation	11-6
	3.5.1 Requests	
	3.5.2 Review of the Request	
	3.5.3 Patient Preparation	
3.6	Performance of the Radiology Examination	11-7
	3.6.1 Performance of the radiology examination: general	
	3.6.2 Performance of the Radiology Examination – Administration of Contrast	
3.7	Interpretation and Reporting	11-8
	3.7.1 Interpretation and Reporting the Results.	
	3.7.2 Remote Reporting	
	3.7.3 Communication of Radiology Findings and Reports	
	3.7.4 Consultation with Referrers	
3.8	Safety	11-10
	3.8.1 Safety of the Radiology Unit Environment	
	3.8.2 Infection Control	
	3.8.3 Radiation Safety	
	3.8.3.1 ALARA Principle	
	3.8.3.2 Compliance with Radiation Safety Legislation	
	3.8.3.3 Waste Management	
	3.8.3.4 Use of Contrast Media	
	3.8.3.5 Sedation and Anaesthesia	
3.9	Patient Management	11-12
	3.9.1 General	
	3.9.2 Patient Identification and Records	
	3.9.3 Correct Patient, Site and Procedure	
	3.9.4 Discharge Procedure	
	3.9.5 Patient Consent	
	3.9.6 Privacy Policy	
	3.9.7 Patient Consent to Use of Information	

Section 4	Implementation Checklist and Indicators	11-14
4.1	Assessment tool for Operational Standards	11-14
4.2	Implémentation Checklist	11-14
4.3	Indicators	11-15

Source Documents	11-16
-------------------------	--------------

Tables

Table 1	Radiology Unit's required Rooms
Table 2	Implementation Checklist
Table 3	Implementation Indicators

Abbreviations

Section 1 Introduction

Radiology service was introduced in Ethiopia 3-4 decades ago starting with radiography and sonography and followed by the other more advanced modalities. Currently most radiological modalities are available in the country particularly in major cities both in public and health facilities.

However, there are no comprehensive national guidelines with standards of practice for radiological services in most public health facilities. Radiological services have inherent patient safety and humanity of care issues related to the exposure of radiation, sedation, anesthesia, magnetic field, patient privacy and confidentiality. It is envisaged that the systems and processes detailed in this chapter will improve the quality of service delivery and patient satisfaction, minimize patient risk and protect patient privacy.

This chapter incorporates the Ethiopian Standard Agency and the Ethiopian Radiation Protection Authority guidance and standards set by all relevant federal and regional directives, laws and legislations.

The main objectives of this chapter are to provide a set of operational standards for health facilities to ensure that the radiology unit will support and ensure the delivery of safe, high quality diagnostic radiology and interventional radiological services, provide a framework to implement and maintain continuous quality improvement, improve the ease of access and timely availability of radiology services, provide a guidance in keeping patient confidentiality, recording and reporting of all radiology service activities, and provide a comprehensive guidance on radiology services of radiation to vulnerable groups (children, pregnant women).

Section 2 Operational Standards for Radiology and Imaging Services

1. The hospital has a separate well designed and equipped radiology unit and qualified personnel that oversees radiological and imaging services.
2. The radiology unit has all the necessary layout and infrastructure, personnel and equipments as per FMHACA and ERPA standards.
3. All radiological and imaging equipment users are appropriately trained on the operation and maintenance of such equipment with standard operating procedures readily available to the service providers.
4. The hospital has established procedures for the maintenance, calibration, capability, quality control testing and functionality of all radiological and imaging equipment.

5. The hospital has and implements written policies, procedures, protocols and guidelines for the delivery of all radiological services, interpretations and timely reporting of results for all patients.

6. The hospital has a paper or computer based system for recording and reporting of all radiological and imaging procedures carried out and for archiving all patients' results that are periodically audited for quality assurance, service improvement and expansion.

Section 3 Implementation Guidance

3.1 Radiology Unit, Equipment and Personnel

3.1.1 Radiology Unit

The hospital should have a radiology unit with an assigned or responsible unit head who will be a member of the hospital senior management. The unit must be organized based on the national standards set by the Ethiopian Radiation Protection Authority and the Ethiopian Standard Agency and should be periodically evaluated to avoid any possible safety issues.. The unit should ensure that all personnel in the unit are oriented on and familiar with all available policies, protocols, guidelines and procedures.

The unit is expected to support and advise all clinical departments and other clinicians on all radiological services being delivered by the unit. The unit must avail the following major preconditions: 24 hour water and electricity supplies, toilets for males and females with hand washing facilities, adequate service rooms, line telephone, waiting areas with all safety measures.

The radiology unit of the hospital must develop and have both strategic and annual plans with allocated budget approved by the hospital senior management and the head of the unit will be accountable for its implementation. For radiologic service quality improvement activities, improved patient satisfaction and service expansion, the radiology unit may establish a separate advisory committee comprising of representatives from clinicians, administration and finance chaired and being accountable for hospital senior management.

The radiology unit and mainly the head of the unit should ensure all staff working in the unit are familiarized and aware of both the strategic and annual plans with allocated budget of the unit. The radiology unit's documented general performance evaluation meeting chaired by the unit head should be conducted in a weekly bases.

The hospital should provide a clear job description for the radiology unit head signed by the chief clinical officer or chief executive officer of the hospital. The nomination and the

assignment of the unit head shall be merit based and approved by the senior management. His/her performance shall be evaluated every six months by the chief clinical officer based on his/her or the unit's approved annual plan and other achievements.

3.1.2 Personnel

The radiology unit maintains current job descriptions for all positions, which define the responsibilities and authorities of personnel according to their qualifications. All radiology unit personnel should be oriented on and aware of the radiology unit's policies and procedures in relation to the confidentiality and security of patient personal information. The unit also records internal or external training that its personnel undertake to gain or retain competence in the application of systems and equipment used in the service and conducts regular performance reviews for its medical radiology personnel to support their professional and quality improvement.

The radiology unit has a radiologist, radiology technologist/radiographer and nurse, as required for the service standard and whose license registration is current. The unit should also have administrative personnel with training appropriate to the size and scope of the service. The unit implements a policy to encourage and support participation in CPD activity of all radiologists, radiographers and nurses in order that they may keep abreast of rapidly changing practice in this area of medicine.

3.2 Radiology Maintenance, Calibration and Quality Control Test

One of the many challenges the radiology units hospitals have been facing are inappropriate and non-functional equipment, absence of regular calibration and quality control testing for all medical equipment procured by or donated to the hospital. These challenges have exerted significant negative impacts on the safety and quality of radiologic care services being provided by most health facilities across the country.

Thus, the hospital, and mainly the radiology unit, are expected to have a clear plan and design a comprehensive mechanism through which all medical equipment availed for radiology services is periodically maintained, calibrated, their functionality checked and quality control testing done by qualified and licensed personnel.

For any radiological medical equipment safety, maintenance, calibrations, quality control test, commissioning, decommissioning and other related issues, the hospital management and mainly the radiology unit are responsible and expected to abide with and implement all directives, protocols, guidelines and standards set by the Ethiopian Radiation Protection Authority (ERPA), Ethiopian Standard Agency (ESA) and the medical

equipment management chapter of this guideline (EHSTG). *Please refer to Medical Equipment chapter for more information.*

The radiology unit and mainly the head of the unit should ensure the regular monitoring, maintenance, calibration, testing for safety and quality of all radiological medical equipment. S/he should oversee the development of a detailed plan with specific dates and times for maintenance of each equipment to ensure better monitoring of its implementation. It is recommended that one of the radiology unit clinical staff shall be a member of the hospital medical equipment management committee.

3.3 Radiology Unit Rooms and Layout

Based on the scope of the hospital and maintaining the efficiency and equitability of the service provision, all radiological services should be availed and provided by the radiology unit of the hospital in an area that is accessible and convenient for both the patients and other clinical departments of the hospital. Based on the Ethiopian Radiation Protection Authority (ERPA) and Ethiopian Standard Agency (ESA) directives and standards, all radiology units' design must be organized for the hospital to deliver patient-centered, efficient and equitable diagnostic and/or interventional radiology services. The unit should always strive to ensure/ optimize the comfort of the patient population (waiting room & wash rooms), the privacy of patients (changing rooms) and accommodating designs for special needs required by the patient population of the hospital (wheel chair accessibility of the service unit and wash rooms). The hospital radiology unit shall at least have the following minimum rooms:

Table 1 Radiology Unit's required Rooms

S/No	Types of Rooms	Minimum required number of Room	Size
1	Digital X-Ray room	1 + 1	The sizes of all rooms must be according to the standards set by the Ethiopian Radiation Protection Authority (ERPA).
2	Fluoroscope room	1	
3	CT room (optional)	1	
4	MRI room (optional)	1	
5	Mammography room	1	
6	Angiography room	1	
7	Ultrasound room	2 + 1	
8	Patient toilet rooms for male and female	2 + 2	
9	Patient dressing room for male and female	2 + 2	
10	Waiting room/area	1	
11	Reporting room	1	

12	Doctors room	1	
13	Duty room	1 + 1	
14	Staff room	1	
15	Film/archive room	1	
16	Store room	1	
17	Conference room	1	

3.4 Professional Supervision

The radiology unit prepares professional supervision protocols to ensure that the radiologist's professional supervision requirements are satisfied through either:

- personally conducting all or particular tasks associated with the relevant component of the radiology service; OR
- direct (face-to-face) supervision of the other members of the radiology team as the relevant component of the radiology service is undertaken; OR
- task delegation through the implementation of and adherence to appropriate written protocols to be followed by members of the radiology team, under the radiologist's direction and;
- When tele-radiology or remote reporting services are provided they are done in accordance with appropriate written protocols under the direction of its radiologist/s.

The professional supervision protocols are clearly written, readily available and implemented at the site at which the examination takes place as well as at the reporting site.

3.4.1 Professional Competence

The radiology unit makes professional supervision arrangements so that

- all personnel involved in a medical radiology examination are appropriately qualified and experienced according to the specific requirements of the examination and
- ,where personnel are not considered to be sufficiently experienced, appropriate supervision protocols are in place to support the personnel and ensure the safety and quality of the patient's examination.

The guidance above applies to both to the trainee radiologist and student radiographers.

3.5 Review of Appropriateness of Request and Patient Preparation

3.5.1 Requests

The radiology unit works with medical records and clinical departments so that the following information is provided in requests prior to a radiology examination being undertaken:

- Patient name, date of birth
- Study requested
- Clinical indication for the examination
- Date of request
- Signature and printed name of requesting health professional, and their contact details

3.5.2 Review of the Request

The radiology unit prepares procedures:

- For reviewing requests which ensure that the requested examination is appropriate to the needs of the referrer and the patient.
- For a request containing insufficient information to determine the appropriateness of the request, the radiology unit prepares procedures which ensure that all reasonable attempts are made to obtain the required information as necessary from the referring practitioner, and/or consultation with the patient to clarify information provided in the request is carried out as necessary.
- Upon the review of requests by delegated medical radiology team members, the radiology unit prepares a means to readily contact the radiologist for discussion and, if necessary, alteration the conduct of the radiology examination.
- Information is recorded relevant to the study/ies being performed on each patient and is obtained by the medical radiology team prior to the examination. Depending on the examination, this information may include the presence of any allergies, pregnancy status and previous studies.
- When patients are undergoing special examinations such as MRI, angiography, prostate biopsy and examinations requiring the use of contrast, additional specific information is obtained and recorded.
- The radiology unit makes protocols for informing patients prior to an examination being performed, of the examination to be performed, the associated risks (where applicable, Ex. contrast), and provision of an appropriate form of consent commensurate to these risks.
- When reviewing requests and preparing for radiology of pediatric patients, every effort is made to:

- a) Use a non-ionizing radiation modality, providing it will obtain the required radiology data for diagnosis; and
- b) Make minimal use of sedation and anesthesia during radiology procedures.

When it is determined from the clinical information provided in a request that a different diagnostic radiology examination or modality would be more appropriate, or an additional examination is necessary, the appropriate test/s is performed and all reasonable steps are taken to contact the requesting practitioner and patient informed consent is obtained before providing the substituted or additional examination or modality.

3.5.3 Patient Preparation

The radiology unit provides information on pre-examination preparation required by patients for particular examinations to patients and referrers. Radiology unit puts in place procedures to confirm correct patient preparation has been completed prior to a radiology examination, and include provision for patients who are inappropriately prepared.

3.6 Performance of the Radiology Examination

3.6.1 Performance of the radiology examination: general

The radiology unit develops documented professional supervision protocols under the professional supervision of the radiologist for the performance of radiology examinations. These protocols address:

- Where it is known the radiologist is not available to provide appropriate additional input for particular modalities or examinations as detailed in the protocols, the medical radiology team members do not proceed with an examination.
- For examinations which require sedation of the patient, an appropriately trained radiologist must be available to immediately personally attend the patient and the safety requirements are met.
- Radiographic factors, positioning, sterile tray set-up, and after care according to the relevant examinations and/or modalities performed at the service.
- These protocols also address medical emergencies.
- And Radiology protocols for pediatric patients are optimized to obtain the required radiology data while delivering the lowest radiation dose possible and with minimal use of sedation and anesthesia.

3.6.2 Performance of the Radiology Examination – Administration of Contrast

The radiology unit develops professional supervision protocols which deal with:

- Administration of contrast which screen all patients for history of relevant contrast allergy, current medications.
- Risk factors that increase the likelihood of contrast-induced renal impairment, and medical conditions that may result in life threatening complications from contrast administration.
- Determining when the radiologist responsible for overseeing the study must be contacted for advice before contrast is administered.
- Determining the dose and type of contrast medium that is administered, by whom it is administered (the task of administering contrast is only delegated to personnel who are trained in venipuncture), and under whose authorization.
- Proper recording of administration of contrast to a patient, including the batch number of the contrast administered..

3.7 Interpretation and Reporting

3.7.1 Interpretation and Reporting the Results

Radiology unit develops a system where primary diagnosis is only performed on images which are of acceptable diagnostic quality to the reporting radiologist.

The radiology unit develops a reporting format which includes at least the following:

- A title (e.g. Radiology Report)
- Name and address of the radiology unit, and location/site where the radiology procedure(s) was performed if different to the address on the report
- Referrer's name
- Date of issue of the report
- Unique identification of the patient (i.e. full name and date of birth, or medical record number)
- Date of radiology procedure(s)
- Identification of the modality used
- Radiology procedure(s) results and, where appropriate, the units of measurement
- Record/s of the administration of any medication and/or contrast
- Opinions and interpretations
- Comparison with prior studies where these prior studies are available and relevant
- Name of reporting radiologist

The unit develops reporting protocols addressing issues of:

- provision of verbal and written reports to referring medical practitioners ;

- countersigning reports created by a colleague, whereby the radiologist only does so if he/she is satisfied that the content of the report is correct and;
- Making an amendment or addendum to a report, must be identified as such on the report and under whose authority it has been made.

If preliminary reports are prepared, the radiology unit puts in place a process for reconciling any differences between preliminary and final reports and for ensuring that this is communicated to the referrer.

3.7.2 Remote Reporting

The radiology unit develops protocols for transmission of radiology data which are made available at the transmitting and receiving sites appropriate to the scope of examinations being performed. These protocols are specific to each examination type being performed and include references to the following:

- The examination Acquisition method including resolution Compression type and level for each examination Image orientation
- Image sequence selection
- Urgency of examination
- Transmission time
- The number of images in the series.
- The personnel responsible for the examination at the examination capture site.

Patient data is identifiable and contains the following information:

- Full name
- Unique identifier
- Date and time of examination
- Diagnostic radiology service name
- Type of examination
- Compression type and level
- Patient notes (including the request for the patient's examination which is transmitted either by facsimile or electronically)
- Annotations including side markers.

And where data transfer occurs, compression levels are selected according to radiology unit quality requirements based on test pattern analysis, and are subject to ongoing clinical image review by the radiologist.

3.7.3 Communication of Radiology Findings and Reports

The radiology unit prepares a documented policy for report turnaround times which sets out expected turnaround times for defined urgent and non-urgent findings.

If there are urgent and significant unexpected findings, there is a protocol which ensures that:

- the reporting radiologist uses all reasonable endeavors to communicate directly with the referrer or an appropriate representative who will be providing clinical follow-up;
- a record of actual or attempted direct communication is maintained by the radiology unit; and
- the reporting radiologist co-ordinates appropriate care for the patient if they are unable to communicate such findings to the referring clinician.

3.7.4 Consultation with Referrers

The radiology unit prepares and implements a policy for consultation with referrers, including the provision of information to referrers regarding radiology strategies which are appropriate for particular clinical problems.

3.8 Safety

3.8.1 Safety of the Radiology Unit Environment

When equipment is found to be defective it is taken out of service and clearly labelled as being non-functional. It should not be returned to service until it has been repaired and shown by calibration and/or checks to meet relevant acceptance criteria.

3.8.2 Infection Control

The radiology unit documents & implements all policies and procedures for all infection control issues, including sterilization/ disinfection and hand hygiene. *Please refer to the Infection Prevention and Patient Safety chapter for more guidance.*

3.8.3 Radiation Safety

3.8.3.1 ALARA Principle

- The radiology unit prepares radiation safety policies, procedures, and radiology protocols that apply the ALARA ('as low as reasonably achievable') principle to each radiological procedure that is performed.

- The radiology unit records patient doses and aggregates these annually in order to establish Radiology unit's dose reference levels (DRLs).
- These Radiology unit's DRLs are reviewed annually to determine the need for dose optimization activity.
- Radiology unit DRLs are also reviewed against national DRLs where these are published.

3.8.3.2 Compliance with Radiation Safety Legislation

- The radiology unit retains all records required under relevant radiation safety legislation.
- It retains records of any corrective action notices issued by radiation safety regulatory bodies, and the corrective action taken.
- It retains records of any corrective action the service itself deems necessary to comply with the requirements of relevant radiation safety legislation and the corrective action taken.

3.8.3.3 Waste Management

The radiology unit implements procedures addressing the storage and disposal of contaminated/medical waste and the use of laundry and linen services, which comply with the relevant regulatory/legislative requirements. *Please refer to the Infection Prevention and Patient Safety chapter for more guidance.*

3.8.3.4 Use of Contrast Media

The Radiology unit produces & implements a procedure for the safe use of contrast media which incorporates:

- Appropriate storage and use of contrast media.
- Clearly identifies staff member who ensures that resuscitation equipment and drugs etc. are present and in a state of readiness.
- A documented plan of management for likely adverse events due to contrast reactions, which includes as a minimum.
- A prominently displayed documented procedure describing the management of reactions.
- Identification of personnel responsible for managing the treatment of contrast reactions.
- A protocol for transfer of a patient to an acute care facility if required.

3.8.3.5 Sedation and Anesthesia

- The radiology unit produces and implements policies and procedures on the safe management and use of sedation and anesthesia addressing issues of availing

- personnel who are adequately trained and authorized to select patients for, administer sedation to and manage sedated patients.
- Recording drugs used for sedation and anesthesia, the person administering the drugs and the management of these patients.
 - Administering general anesthesia which requires trained anesthetists with assistance.

3.9 Patient Management

3.9.1 General

The radiology unit develops & puts in place patient management policies and procedures which address:

- patient transportation,
- reception,
- patient comfort,
- patient preparation,
- falls prevention,
- privacy,
- clinical handover and
- post-procedure observation and discharge; and
- Importantly the early identification and management of patients at increased risk of, or who are critically ill.

3.9.2 Patient Identification and Records

- The radiology unit develops a patient identification system which uniquely identifies each patient (ex. full name and date of birth or full name and medical record number).
- It maintains the correct patient identification on all records, including reports.
- Examination records include patient identification, the date and, where necessary, time of the study and the hospital name imprinted on them.
- The identity of the person who performed the study is made available either on the image or other associated records such as the worksheet, request form, etc.
- When images are provided with a report, a record is made of the method of transfer (portable media, film, electronic transmission or other) and of the person to whom the images were provided (i.e. patient or referrer).

3.9.3 Correct Patient, Site and Procedure

The radiology unit implements a 'time out' protocol so that:

- prior to a procedure being performed the medical radiology personnel performing the examination confirm that the correct procedure is being performed on the

correct site of the correct patient, and that this process is documented in the patient's record; and

- Where a component of the correct patient, correct site, and correct procedure is found to be incorrect, corrective action is taken and is documented in the patient's record.

3.9.4 Discharge Procedure

The radiology unit implements a procedure which ensures that patients who have been sedated or placed under anesthetic are discharged in the care of a responsible adult after appropriate recovery. Such patients are provided with clear instructions concerning driving, operation of equipment etc.

3.9.5 Patient Consent

The radiology unit provides comprehensive information to patients on the radiology procedure to be performed prior to it being undertaken.

The information includes:

- Pre-treatment preparation and/or instructions
 - Post-treatment and/or discharge instructions
 - Fee information
 - Risks
 - Involvement of students/trainees
 - The role of the person performing each stage of the examination.
- The radiology unit meets or is developing capacity to meet the communication needs of patients with language barriers in providing such information & it maintains records of patient consent.

3.9.6 Privacy Policy

The radiology unit implements a privacy policy which:

- governs the use of patient personal information within the service and its disclosure to other parties;
- complies with other laws and any applicable codes of practice governing personal privacy, confidentiality of clinical information and data protection in the relevant jurisdiction;
- is publicly available; and
- Allows the patient to access their clinical records.

3.9.7 Patient Consent to Use of Information

The radiology unit implements a procedure for seeking the consent of patients to the proposed use of their personal information. The method by which consent is sought is consistent with the radiology unit's privacy policy, and sets out in plain language the proposed uses of personal information (which includes images, reports and requests).

The radiology unit seeks patient consent for the use of the patient's personal information:

- In image review and clinical audit
- For reporting to referring providers and others involved with the patient's care
- Onward referrals
- Storage in tele-radiology systems
- Providing images and reports on request to clinical providers subsequently caring for the patient.

The radiology unit implements, or is working towards implementation of a process for recording patients' consent in the service's information system.

Section 4 Implementation Checklist and Indicators

4.1 Assessment Tool for Operational Standards

In order to determine if the Operational Standards for Radiological and Imaging Services have been met by the hospital an assessment tool has been developed which describes criteria for the attainment of a Standard and a method of assessment. This tool can be used by hospital management or by an external body such as the RHB or FMOH to measure attainment of each operational Standard. The tool is presented in the *Assessment Handbook*.

4.2 Implementation Checklist

The following Table can be used as a tool to record whether the main recommendations outlined above have been implemented by the hospital. This tool is not meant to measure attainment of each Operational Standard, but rather to provide a checklist to record implementation activities.

Table 2 Implementation Checklist

No	Checklist	Yes	No
1	The hospital has a radiology unit and provides 24hrs/7days service		
2	The radiology unit has a head who is a member of SMT and hospital medical equipment committee		
3	The hospital received past year ERPA certification to provide radiologic services		
4	The radiology unit has strategic and annual plan		
5	The radiology unit has adequate utilities		
6	The radiology unit has protocol on radiology safety principles		
7	The radiology unit has developed and implemented patient management protocols		
8	The radiology unit has implemented medical equipment preventive and curative maintenance systems		
9	The radiology unit has developed and implemented SOPs for the common diagnostic and therapeutic procedures in the hospital		
10	The radiology unit implements Quality improvement activities to improve the quality of services provided in the unit		

4.3 Indicators

Further to the above, the Radiology and Imaging services maybe monitored using the following indicators to assess the effectiveness or the implementation of the rehabilitation service.

Table 3 Implementation Indicators

	Indicator	Formula	Frequency
1.	Proportion of radiology unit workers who received radiologic safety related orientation in the last quarter	# of radiology unit workers who received radiologic safety related orientation in the last quarter / total number of radiology unit workers in the last quarter * 100%	Quarterly
2.	Number of QI projects performed in the radiology unit	Total number of QI projects performed by the radiology unit based on the identified gaps	Quarterly
3.	Proportion of client complaints in the past month	# of clients who raised complaint in the past month / total # of clients who received service in the radiology unit in the past month * 100%	Monthly
4.	Proportion of equipments preventive maintenance plans	# of preventive maintenance plans executed in the past	Monthly

	executed in the past month	month / total # of preventive maintenance plans in the past month * 100%	
--	----------------------------	--	--

Source Documents

1. IANZ. New Zealand Code of Radiology Management Practice. IANZ; 2011: Available from: www.ianz.govt.nz/services/accreditation-2/accreditation/radiology/.
2. ANZCA. PS09: Guidelines on Sedation and/or Analgesia for Diagnostic and Interventional Medical, Dental or Surgical Procedures. ANZCA; 2010. Available from: www.anzca.edu.au/resources/professional-documents/pdfs/ps09.2010.guidelines-on-sedation-and-or-analgesia-for-diagnostic-and-interventional-medical-dental-or-surgical-procedures.pdf.
3. ANZCA. PS55: Recommendations on Minimum Facilities for Safe Administration of Anaesthesia in Operating Suites and Other Anaesthetising Locations. ANZCA; 2012. Available from: www.anzca.edu.au/resources/professional-documents/pdfs/ps55.2012.recommendations-on-minimum-facilities-for-safe-administration-of-anaesthesia-in-operating-suites-and-other-anaesthetising-locations.pdf.
4. ARC. Equipment and Techniques in Adult Advanced Life Support. ARC; 2010. Available from: www.resus.org.au/policy/guidelines/section_11/equipment_and_techniques_in_aals.htm.
5. Samei E, et al. AAPM On-line Report No. 03: Assessment of Display Performance for Medical Imaging Systems. AAPM; 2005. Available from: www.aapm.org/pubs/reports/OR_03.pdf.
6. RANZCR. A Guideline for the Use of Image Compression in Diagnostic Imaging. RANZCR; 2010. Available from: www.ranzcr.edu.au/component/docman/doc_download/574.a-guideline-for-the-use-of-image-compression-in-diagnostic-imaging.
7. Standards Australia. AS 4700.2.2007: Implementation of Health Level Seven (HL7) Version 2.4 - Pathology and medical imaging (diagnostics). Standards Australia; 2007: Available from: <http://infostore.saiglobal.com/store/Details.aspx?ProductID=317486>.
8. Standards Australia. AS 4700.2.2004: Implementation of Health Level Seven (HL7) Version 2.3.1 - Pathology orders and results. Standards Australia; 2004: Available from: www.saiglobal.com/shop/script/details.asp?DocN=AS0733758460AT.
9. ARC. Guideline 8: Cardiopulmonary Resuscitation. ARC; 2010: Available from: www.resus.org.au/policy/guidelines/section_8/cardiopulmonary_resuscitation.htm.
10. RANZCR. Recommendations for Imaging in Children in Non-Dedicated Paediatric Centres. RANZCR; 2012. Available from: www.ranzcr.edu.au/component/docman/doc_download/1675.paediatric-imaging-guidelines.

12

Rehabilitative and Palliative Care Service Management

Table of Contents		Page
Section 1	Introduction	12-1
Section 2	Operational standards for Rehabilitative & Palliative Care	12-1
Section 3	Implementation Guidance	12-1
3.1	Organization of Rehabilitation and Palliative Care Services	12-1
3.2	Rehabilitation and Palliative Care work force plan	12-2
3.3	Provision of resources	12-2
3.4	Rehabilitation and Palliative Care process	12-3
Section 4	Implementation Checklist and Indicators	12-6
4.1	Assessment tool for Operational Standards	12-6
4.2	Implementation Checklist	12-6
4.3	Indicators	12-7
Source Documents		12-8
Appendix		
Appendix	Rehabilitation service assessment form Assessment Form	
Tables		
Table 1	Rehabilitative and Palliative Care Checklist	
Table 2	Rehabilitative and Palliative Care Indicators	

Section 1 Introduction

This chapter provides information about two relatively new separate hospital services; rehabilitation and palliative care. Rehabilitation of people with disabilities is a process aimed at enabling them to reach and maintain their optimal physical, sensory, intellectual, psychological and social functional levels. Whilst, palliative care is an approach that improves the quality of life of patients and their families facing the problem associated with life-threatening illness, through the prevention and relief of suffering. This is achieved by treating pain and other problems, physical, psychosocial and spiritual. Rehabilitation and palliative care should be set up as separate services using the information below.

Section 2 Operational standards

1. The hospital should have a rehabilitation and palliative care service with necessary equipment, aids and appropriate human resources.
2. With regard to rehabilitation, the hospital should at least provide a physical therapy/physiotherapy service and if possible, occupational, speech and Prosthetics Orthotic Technology.
3. With regard to palliative care services, the hospital should at least provide good pain and symptom control for both in and out patients.
4. The hospital should have a written standard operational procedure and patient record management for all rehabilitative and palliative care services.
5. The hospital should establish a mechanism for referral and transfer of rehabilitation and palliative care services through in-patient and outpatient and in the case of palliative care, linkage to services that provide home-based care.

Section 3 Implementation guidance

3.1 Organization of Rehabilitation and Palliative Care Services

It is recommended that a rehabilitation team leader works in parallel with other team leaders, i.e. emergency team, in-patient, outpatient to deliver an overall clinical service. A rehabilitation team may consist of physiotherapists, occupational therapists, orthopedic appliances, medical social workers, health education practitioners and speech therapists. In the same way, a palliative care team leader works in parallel with other team leaders, to deliver an overall clinical service. A palliative care team may consist of physicians, nurses, pharmacists, dieticians, social workers and spiritual leaders.

Both rehabilitation and palliative care require teamwork and a multi-disciplinary approach. Regular planning clinics are required to discuss patient cases as well as regular ward rounds with the team. Furthermore, patients can be seen in outpatient clinics run by rehabilitation and palliative care staff.

Each rehabilitation and palliative care professional is responsible for the following:

- Collaborate with patient and their family and carers
- Work with rehabilitation/palliative care team, to form overall goals and plan for patient
- Make referrals to specialized rehabilitation/palliative care professionals and other clinical staff and community services.
- Collaborate with other health care professionals in teaching, consulting, management and research activities.

3.2 Rehabilitation and Palliative Care work force plan

The hospital should establish a rehabilitation and palliative care workforce that:

- Identifies priority areas of patient need and establishes procedures for collaboration with other rehabilitation and palliative care health care professionals and cross-referral in the unit.
- Takes the skill mix of professionals into consideration
- Establishes procedures to refer patients to specialized services.

3.3 Provision of resources

Hospitals should ensure that both rehabilitation and palliative care healthcare professionals have access to and are trained on how to use equipment and resources correctly and efficiently. Rehabilitation and palliative care healthcare professionals are responsible for keeping up to date about current equipment and resources available for hospital use.

Standard equipment and consumables that should be available for rehabilitation services include:

- Physiotherapy mats
- Massage couch
- Splinting materials
- Balance boards
- Mirror
- Walking rail/ parallel bars, adult and pediatric
- Sticks
- Crutches
- Walking aids/ walking frames (adjustable)
- POP cutter
- Pulley

- Chair and table
- Plastic apron
- POP
- Orthotics

With regards to palliative care, an important aspect is good pain and symptom control. To ensure this, the hospital should have a supply of morphine and other relevant palliative care drugs (see Appendix 1).

3.4 Rehabilitation and Palliative Care process

The rehabilitation and palliative care process is a systematic and holistic approach to care, which is patient-centered. Both services involve assessment and referral to the pertinent health care professional. In this section, firstly the patient journey for rehabilitation will be described and then secondly, palliative care.

A. Rehabilitation Process



After the patient has been referred to the rehabilitation service via central triage or inpatient or outpatient services, the patient arrives at the rehabilitation department where the patient's relevant information will be recorded to ensure that he/she is referred to the appropriate practitioner. Resources required for Patient Reception:

- Patient registration management system (books, charts, computing system)
- Assessment tools

Once the appropriate practitioner (s) have been identified. The rehabilitation staff need to make a full and detailed assessment and identify the patient's specific problems.

The following factors should be considered when making a diagnosis:

- Activity of daily living (ADL) limitation
- Deficit in the functioning of limbs and cognitive systems
- Emotional stress
- Problems with pain
- Change in behavior
- Delayed development
- Withdrawal from family, community, etc.

All care and treatment to patients must be documented on the rehabilitation care plan. The aim of plan of care is for the patient to return to his or her optimum independence. This care plan should be specific to the patient's problems or needs. Factors to be considered when implementing care include:

- Therapeutic relationship
- Adaptive techniques
- Promoting independence through functional therapy
- Education of patient and family
- Managing pain
- Diversion therapy
- Provide prosthesis and Orthoses
- Design, fabricate and supply splints

The particular rehabilitation health care professional involved in the patient's care should implement the rehabilitation care plan. Implementation of the care plan should be documented on the follow up sheet and/ or patient's chart.

As rehabilitation is a dynamic process that involves changes in patients' health status over time, the plan of care needs to be continuously evaluated. As problems are resolved, new goals and activities related to the patient's condition should be reassessed.

The aim of the treatment is to encourage the individual patient to optimum independence. Once this is reached, the patient is then discharged from the service. If further specialist treatment is required, the patient is referred on to the appropriate service. The therapist in charge of the patient's care is responsible for written and verbal communication to other health care professionals and services; all communication should be documented in the rehabilitation care plan.

B. Palliative care process

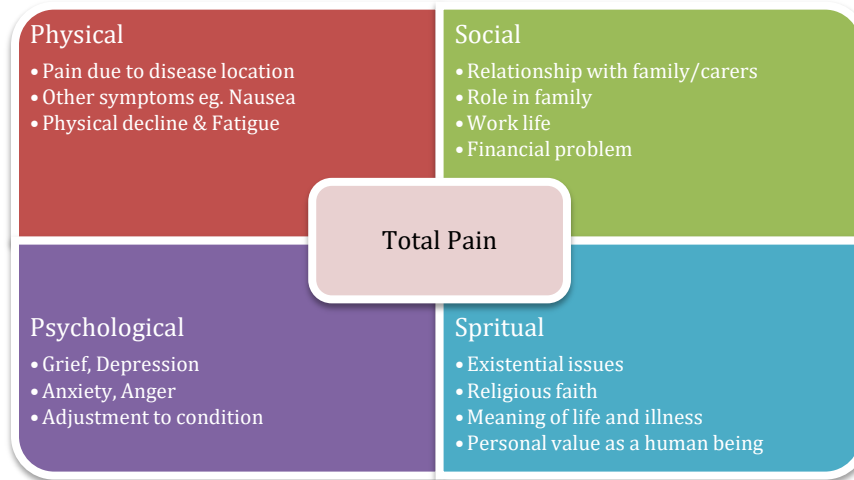
Palliative care is a holistic approach which is patient centered. It involves assessment, treatment and support for the patient and their family. It also offers bereavement care for the patients' loved ones after death. The diagram below describes the patient and family journey:



A palliative care patient is referred to the palliative care service by other clinical services either through inpatient or outpatient services. Once the palliative care team has received the referral, the palliative care professional will either receive the patient on the ward or in a palliative care outpatient clinic. If an inpatient, the palliative care professional will either assess the patient on the ward in the palliative care room. The palliative care professional will make a full and detailed assessment and identify the patient's specific problems.

The following factors need to be considered when making a full assessment. Firstly, the different components of 'Total Pain' should be assessed. Pain is not only a physical

ailment but has psychological, spiritual and social components (see diagram). A baseline pain assessment score should be obtained during the initial assessment (pain is the 5th vital sign) and should be reassessed regularly by the palliative care team.



- *The concept of pain first described by Cecily Saunders*

Other factors to consider when making an assessment:

- Activity of daily living (ADL) limitation
- Dietary needs
- Emotional distress
- Withdrawal from the family, community, etc.
- Economic factors
- Family needs

All care and treatment to patients must be documented on the palliative care plan. The aim of the plan of care is for the patient and family to receive quality care as they cope with a life-threatening illness. This care plan should be specific to the patient's problems or needs. Factors to be considered when implementing care include:

- Good communication between staff, patient and family
- Place of care: hospital or home
- Psychological support required for carers

The palliative care health care professional involved in the patient's care should implement the palliative care plan. Implementation of the care plan should be documented on the follow-up sheet and/ or patient's chart.

Caring for patients with a life-threatening illness is a dynamic process that involves regular change in health status. Therefore, the plan of care needs to be continuously evaluated. As problems are resolved new goals and activities related to the patient's condition should be reassessed. As patients deteriorate they may require end of life care and this should be detailed in the palliative care plan. Patients may continue to be cared for in the hospital or may be discharged and can be followed up in the palliative care outpatient clinic or referred to community services, such as home care as available.

Members of the palliative care team may be involved in organizing and managing care for patients in the community. The palliative care professional in charge of the patient's care is responsible for written and verbal communication to other health care professionals and services and are to document all communication in the palliative care plan.

Palliative care provides support for the patient until the end of life and also continues to support the family through bereavement. If family members are struggling either physically, psychologically or spiritually with the death of their loved one, the palliative care team can see them in the palliative care outpatient clinic and assess and provide support for specific concerns, e.g. complicated grief.

Section 4 Implementation Checklist and Indicators

4.1 Assessment Tool for Operational Standards

In order to determine if the Operational Standards for Rehabilitative Care Services have been met by the hospital an assessment tool has been developed which describes criteria for the attainment of a Standard and a method of assessment. This tool can be used by hospital management or by an external body such as the RHB or FMOH to measure attainment of each operational Standard. The tool is presented in tool is presented in the Assessment Handbook.

4.2 Implementation Checklist

The following Table can be used as a tool to record whether the main recommendations outlined above have been implemented by the hospital. This tool is not meant to measure attainment of each Operational Standard, but rather to provide a checklist to record implementation activities.

Table 1 Checklist

No	Checklist	Yes	No
1.	There is a designated area in the hospital, including area for rehabilitation and palliative care services according to standards outlined		
2.	Relevant equipment and resources have been procured		
3.	Trained rehabilitation and palliative care professionals have been recruited and employed		
4.	Essential palliative care drugs are available in the hospital		
5.	There are written guidelines for the assessment, implementation and evaluation of rehabilitation and palliative care services		
6.	The hospital provides physical therapy/physiotherapy		

	services.		
7.	The hospital provides pain and symptom control for both inpatient and outpatient		
8.	Rehabilitation and palliative care treatment protocol have been developed		
9.	Standard operating procedures for both rehabilitation and palliative care services have been developed		
10	The hospital has a mechanism for linking palliative care patients with community and home based care palliative care services		

4.3 Indicators

Further to the above, the Rehabilitation and Palliative care service maybe monitored using the following indicators to assess the effectiveness or the implementation of the rehabilitation service.

No	Indicator	Formula	Frequency
1.	Number of patient seen at rehabilitation service centre	Total number of patients seen in a given period	Monthly
2.	Number of patients re-referred back to rehabilitation service after two weeks of discharge	No. of re-referrals*100/Total number of patients seen	Quarterly
3.	Number of patients seen at Palliative care service	Total number of patients seen in a given period	Monthly
4.	Consumption of analgesics according to the WHO pain management ladder	No. of patients prescribed morphine & other drugs per WHO pain management ladder	Monthly

Source Documents

1. Harding, R. and Higginson, I. J. (2005) 'Palliative Care in sub-Saharan Africa', *The Lancet*, 365, pp. 1971-77.
2. Federal Ministry of Health (2015) National Palliative Care Guidelines (draft copy)
3. Namukwaya, E. (2011) 'Hospital Based Palliative Care', *Africa Health*, 7, pp.31-32.
4. Palliative Care Report (2012) Developing Palliative Care. Key Lessons learnt from Kenya and Malawi.

Appendix

:

Appendix: Pain Assessment

Assessment of Pain

Pain should be considered as the **5th vital sign**. A proper assessment of pain is essential for successful management. Patients often have more than one type of pain.

Important consideration in pain assessment

- Pain is subjective and two patients may report severity differently from each other
- Despite the fact that pain is specific to each person, patients can usually accurately and reproducibly indicate the severity of their symptom by using a scale
- Scales enhance the ability of patients to communicate the severity of their pain to health care professionals and the ability of clinicians to communicate among themselves
- Scales also allow the clinician to assess the effect of medications

Suggested tools for Pain Measurement in Adults

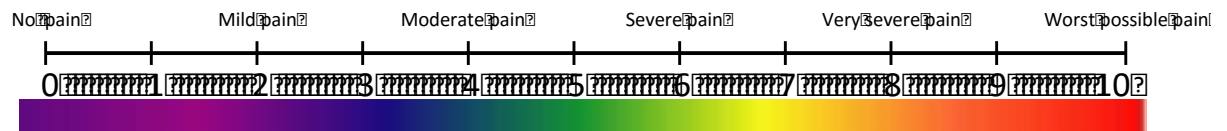
1. Numeric Pain Rating Scale

The health worker asks the patient to rate their pain intensity on a numerical scale that ranges from 0 (indicating 'no pain') to 10 (indicating the 'worst possible pain').

Procedures

- a) Explain to the patient about what you are going to do (eg. 'I want to assess your pain level to help us properly manage the pain')
- b) Ask the patient 'please rate your pain in a scale from zero to 10 (0 = no pain and 10 = worst Possible pain). You can use a scale like below

Numeric Pain Rating Scale



- c) Record the patient scored pain level on the necessary form to make treatment decisions, follow-up, and compare between examinations

2. The hand scale

The hand scale ranges from a clenched hand (which represents 'no hurt') to five extended digits (which represents 'hurts worst'), with each extended digit indicating increasing levels of pain.

Note: it is important to explain this to the patient as a closed fist could be interpreted as worst possible pain in some cultures

- Explain to the patient about what you are going to do (eg. 'I want to assess your pain level that will help us properly manage your pain')
- Show your hands to the patient and ask 'please rate your pain level. You should show your hands like below or use the drawing use a scale

Five-finger score

Ask the patient to show how bad the pain is with their hand



- Multiply the result by two to score the pain to 0 to 10 and record on the necessary forms (if the patient reports hurts whole lot mean four figures the result will be recorded as $4*2= 8$ on the routine observation form).

Pain Measurement in Children

There are three ways to assess pain in children

- Ask the child
- Ask the parent or caregiver ;Ask about previous exposure to pain, verbal pain indicators, usual behavior or temperament
- Observe the child: FLACC scale

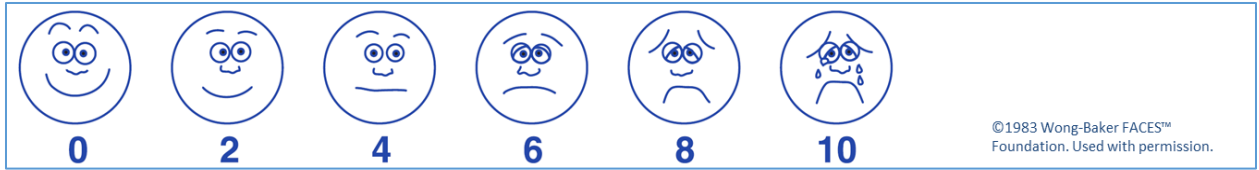
Note* the child is the best person to report their pain

Suggested tools for Pain Measurement in children

1. Faces scale

***Use in children who can talk (usually 3 years and older)**

- Show the Child the Following picture and explain to the child that each face is for a person who feels happy because he has no pain, or a little sad because he has a little pain, or very sad because he has a lot of pain



- b. Ask the child to pick one face that best describes his or her current pain intensity
- c. Multiply number of the pain level that the child reports by two and record on the necessary form to make treatment decisions, follow-up, and compare between examinations

2. FLACC Scale

- Use in children less than 3 years of age or older children who can't talk
- Use it like an APGAR (Appearance, Pulse, Grimace, Activity, Respiration) score, arriving at a score out of 10

Procedure

- a. Observe the child carefully and give points based on the following table

FLACC Scale

CATEGORIES	SCORING		
	0	1	2
Face	No particular expression or smile	Occasional grimace or frown, withdrawn, disinterested	Frequent to constant quivering chin, clenched jaw
Legs	Normal position or relaxed	Uneasy, restless, tense	Kicking or legs drawn up
Activity	Lying quietly, normal position, moves easily	Squirming, shifting, back and forth, tense	Arched, rigid or jerking
Cry	No cry (awake or asleep)	Moans or whimpers, occasional complaint	Crying steadily, screams or sobs, frequent complaints
Consolability	Content, relaxed	Reassured by occasional touching, hugging or being talked to, distractible	Difficult to console or comfort

Each of the five categories: (F) Face; (L) Legs; (A) Activity; (C) Cry; (C) Consolability, is scored from 0–2 which results in a total score between 0 and 10 (Merkel et al. 1997)

Permission 2: Reproduced with permission from the Regents of the University of Michigan, © 2002

- d. Record the summation of observation on the necessary form to make treatment decisions, follow-up, and compare between examinations

Pain in the Elderly

- Chronic pain is common among the elderly
- Dementia and problems communicating often make assessment of pain challenging
- Compliance with medications can also be a challenge

- Impaired vision
- Limited mobility
- Memory problems

Many patients who appear cognitively impaired may still be able to provide useful information concerning pain

- Interview caregivers: patterns of particular behaviors may have developed that indicate pain (e.g. placing a hand on the forehead for a headache)
- Review medical record for known pain-inducing pathology
- Observe facial expression, body posture, vocalizations, appetite, interactivity

Utilize Pain Assessment in Advanced Dementia (PAINAD)

Pain Assessment in Advanced Dementia (PAINAD) Scale

- Observe the patient carefully and give points based on the following table

Items	0	1	2
Breathing independent of vocalization	Normal	Occasional labored breathing. Short period of hyperventilation	Noisy labored breathing. Long periods of hyperventilation. Cheyne-Stokes respiration
Negative vocalization	None	Occasional moan or groan. Low level speech with a negative or disapproving quality	Repeated troubled calling out. Loud moaning or groaning. Crying
Facial expression	Smiling or inexpressive	Sad. Frightened. Frown	Facial grimacing (an ugly or disapproving facial expression)
Body language	Relaxed	Tense. Distressed pacing. Fidgeting	Rigid. Fists clenched. Knees pulled up. Pulling or pushing away. Striking out
Consolability	No need to console	Distracted or reassured by voice or touch	Unable to console, distract, or reassure

- Record the sum on the necessary form to make treatment decisions, follow-up, and compare between examinations

Appendix : Essential Palliative care medicines list

Drug Name	Properties	Clinical Uses	Alternative Drugs
Paracetamol	Non opioid Analgesic Antipyretic	Fever Pain	
Aspirin	Non opioid Analgesic Antipyretic Anti- inflammatory	Pain Fever Sore mouth	
Ibuprofen	NSAID	Pain (esp. bone pain) Fever Anti inflammatory	Diclofenac Indomethacin
Tramadol Codeine	Weak opioid Analgesic	Pain	Low dose morphine
Morphine liquid	Strong opioid Analgesic	Pain Introduction Breakthrough pain Difficulty swallowing children Breathlessness Severe Diarrhea	Morphine slow release tablets
Morphine (slow release tablets)	Strong opioid	Pain Severe diarrhea	Morphine Liquid
Dexamethasone	Corticosteroid Anti- inflammatory	Painful swelling and inflammation Poor appetite	Prednisolone
Amitriptyline	Tricyclic Antidepressant	Neuropathic pain (nerve pain)	Carbamazepine Phenytoin
Amitriptyline	Tricyclic Antidepressant	Depression	Imipramine
Hyoscine Butyl Bromide (Buscopan)	Antimuscarinic Antispasmodic	Abdominal pain (Colic)	Propantheline
Diazepam	Benzodiazepine Anticonvulsant	Muscle spasm Seizure Anxiety, sedation	Lorazepam
Phenobarbitone	Anticonvulsant	Seizure	Diazepam
Metoclopramide	Antiemetic	Vomiting	Haloperidol Domperidone Promethazine
Metoclopramide	Pro-kinetic	Abdominal Fullness	
Chlorpromazine	Antipsychotic	Hiccups	Metoclopramide Nifedipine

Appendix: Rehabilitation service assessment form Assessment Form

Patient# _____ Provider _____

PHYSICAL THERAPY INITIAL EVALUATION FORM

PATIENT INFORMATION

DATE _____

NAME _____ OCCUPATION _____
(LAST) (FIRST)

BIRTHDATE _____ AGE _____ HEIGHT _____ WEIGHT _____ lbs

HOME/CELL PHONE _____ EMPLOYER _____

CURRENTLY EMPLOYED? YES NO MODIFIED

REHAB INFORMATION

1. CHIEF COMPLAINT/AILMENT/INJURY _____

2. DATE OF INJURY _____ DATE OF SURGERY _____

3. BRIEFLY DESCRIBE HOW YOU WERE INJURED

4. HAVE YOU RECEIVED THERAPY FOR THIS CONDITION? YES NO WHEN? _____

HOW MANY VISITS? _____

5. HAS YOUR CONDITION BEEN GETTING: WORSE SAME BETTER

6. ARE YOUR SYMPTOMS: CONSTANT OR INTERMITTENT

7. MARK THE NUMBER THAT BEST CORRESPONDS TO YOUR PAIN:

AT BEST: 0 1 2 3 4 5 6 7 8 9 10 (EXCRUCIATING PAIN)

AT WORST: 0 1 2 3 4 5 6 7 8 9 10 (EXCRUCIATING PAIN)

8. WHAT DECREASES/MAKES YOUR CONDITION BETTER? (MARK ALL THAT APPLY)

BENDING	MOVEMENT	REST	BETTER IN AM
SITTING	STANDING	HEAT	BETTER AS DAY PROGRESSES
RISING	WALKING	ICE	BETTER IN PM
CHANGING POSITIONS	LYING	MEDICATION	N/A CAST JUST REMOVED

9. WHAT INCREASES/MAKES YOUR CONDITION WORSE? (MARK ALL THAT APPLY)

BENDING	MOVEMENT	REST	SNEEZE
SITTING	STANDING	STAIRS	DEEP BREATH
RISING	WALKING	COUGH	MEDICATION
PROLONGED POSITIONING	LYING	WORSE IN AM	WORSE IN PM
WORSE AS DAY PROGRESSES	N/A CAST JUST REMOVED		

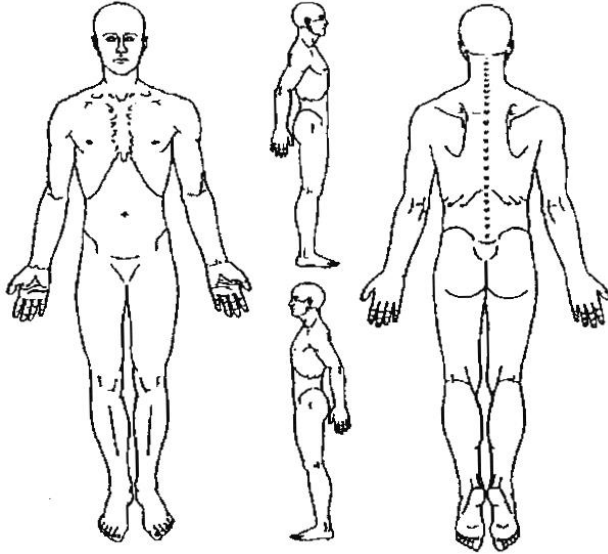
10. PREVIOUS MEDICAL INTERVENTION (MARK ALL THAT APPLY)

X-RAY MRI CATSCAN INJECTIONS OTHER _____

11. WHAT ARE YOUR GOALS TO BE ACHIEVED BY THE END OF THERAPY?

Patient# _____ Provider _____

DRAW IN AREAS OF PAIN ON BODY DIAGRAMS USING APPROPRIATE SYMBOLS. If you are completing this form on the computer, print form after completion and mark the diagram with a pen.



SEVERE PAIN *****
MODERATE PAIN 0000000
DULL ACHE □□□□□□
RADIATING PAIN ▣▣▣▣▣▣
NUMBNESS/TINGLING XXXXXX

MEDICAL INFORMATION (MARK ALL THAT APPLY) **THIS INFORMATION IS CONFIDENTIAL AND REMAINS PART OF YOUR CHART

- | | | |
|--|--|---|
| <input type="checkbox"/> DIFFICULTY SWALLOWING | <input type="checkbox"/> MOTION SICKNESS | <input type="checkbox"/> STROKE |
| <input type="checkbox"/> ARTHRITIS | <input type="checkbox"/> FEVER/CHILLS/SWEATS | <input type="checkbox"/> OSTEOPOROSIS |
| <input type="checkbox"/> HIGH BLOOD PRESSURE | <input type="checkbox"/> UNEXPLAINED WEIGHT LOSS | <input type="checkbox"/> ANEMIA |
| <input type="checkbox"/> HEART TROUBLE | <input type="checkbox"/> BLOOD CLOTS | <input type="checkbox"/> BLEEDING PROBLEMS |
| <input type="checkbox"/> PACEMAKER | <input type="checkbox"/> SHORTNESS OF BREATH | <input type="checkbox"/> HIV/HEPATITIS |
| <input type="checkbox"/> EPILEPSY/SEIZURES | <input type="checkbox"/> HISTORY OF SMOKING | <input type="checkbox"/> HISTORY OF ALCOHOL ABUSE |
| <input type="checkbox"/> HISTORY OF DRUG ABUSE | <input type="checkbox"/> DIABETES | <input type="checkbox"/> DEPRESSION/ANXIETY |
| <input type="checkbox"/> MYOFASCIAL PAIN | <input type="checkbox"/> FIBROMYALGIA | <input type="checkbox"/> PREGNANCY |
| <input type="checkbox"/> CANCER | | |

PREVIOUS SURGERIES: _____

OTHER: _____

MEDICATIONS:

ALLERGIES: _____

13

Infection Prevention and Patient Safety

Table of Contents		Page
Section 1	Introduction	13-1
Section 2	Operational standards	13-2
Section 3	Implementation Guidance	13-3
3.1	Management of CASH and IPPS Activities	13-3
3.1.1	IPPS Committee’s Scope of Work	
3.1.2	IPPS Plan	
3.1.3	CASH and IPPS Strategies	
3.1.4	Commodities and Supplies	
3.2	Standard Precautions	13-6
3.2.1	Hand Hygiene	
3.2.2	Safe Surgery and Safe Practices in the Surgical Unit	
3.2.2.1	Organization of the Surgical Unit	
3.2.2.2	Safe Surgery for Patients	
3.2.2.3	Safe Practices to Protect Staff	
3.2.3	Safe Infection Practices	
3.2.4	Healthcare Waste Management	
3.2.5	Hospital Cleanliness and Housekeeping	
3.2.6	Toilet, Handwashing and Shower Facilities	
3.3	Laundry Service	13-18
3.4	Processing Instruments and Reusable Items	13-20
3.5	Traffic Flow	13-21
3.6	Infection Prevention in the lab	13-22
3.7	Transmission Based Precautions	13-22
3.8	Occupational Safety	13-27
3.9	Monitoring and Surveillance	13-29
3.9.1	Monitoring	
3.9.2	Surveillance of and Research on Nosocomial Infections and Occupational Hazards’ Exposure	
3.9.3	Documentation and Data Use	
3.10	Infection Prevention/Patient Safety/CASH Training	13-32
Section 4	Implementation Checklist and Indicators	13-34
4.1	Assessment tool for Operational Standards	13-34
4.2	Implementation Checklist	13-34
4.3	Indicators	13-39
Source Documents		13-41

Abbreviations

ART	Antiretroviral therapy
CASH	Clean and safe health care facilities
CDC	U.S. Centers for Disease Control and Prevention
CEO	Chief executive officer
HBV	Hepatitis B virus
HAI	Healthcare acquired infection
HP	Healthcare personnel
HCV	Hepatitis C virus
HCW	Healthcare waste
HCWM	Healthcare waste management
HEPA	High efficiency particulate air
HIV	Human immunodeficiency virus
IMAI	Integrated Management of Adolescent and Adult Illness
IMNCI	Integrated Management of Newborn and Childhood Illnesses
IP	Infection prevention
IPPS	Infection prevention and Patient safety
MDT	Multidisciplinary team
MRSA	Methicillin Resistant Staphylococcus Aureus
OSHA	Occupational Safety and Health Administration
PEP	Post exposure prophylaxis
PIHCT	Provider Initiated HIV Counseling and Testing
PPE	Personal protective equipment
STI	Sexually transmitted infections
TB	Tuberculosis
WHO	World Health Organization

Tables

Table 1	The 3 HCW Categories
Table 2	IPPS Checklist
Table 3	IPPS Indicators

Section 1 Introduction

Health care facilities should provide safe, effective, patient-centered, timely, efficient and equitable quality of service. Ensuring hospital cleanliness and safety is an important determinant of quality of care and patient satisfaction. Creating a clean and safe hospital provides comfortable and safe health care environment for patients, attendants, visitors, staff, students, community, and for the surrounding environment. The potential for the transmission of infections in the health care setting is high. Both those receiving and providing care in a hospital are at risk of acquiring and transmitting infections through exposure to blood, body fluids or contaminated materials and polluted air.

The term most commonly used to describe the type of infection acquired in a healthcare setting is healthcare acquired infections (HAIs). Healthcare acquired infections are defined as infections that are acquired in any healthcare setting by a patient who was admitted for a reason other than that infection. Healthcare provided in a clean environment is safer care and an important aspect of reducing healthcare acquired infections (HAIs). The patient population is often sick, immunocompromised and more susceptible to infections and is also more likely to transmit infections to others. Healthcare workers may be exposed to infection through the provision of care. Invasive clinical procedures and the use of instruments and sharps expose healthcare workers to needle stick injuries and in turn to potentially infectious agents.

Ensuring infection prevention and control and patient safety with the aim of preventing the transmission of infectious agents is the only way to reduce the occurrence of HAIs, and demonstrate a hospital's commitment to the well-being of patients and staff by minimizing the likelihood of HAIs. Moreover, hospitals must ensure that the safety of employees, patients and visitors is upheld by preventing the acquisition and transmission of infections. The prevalence of infectious diseases such as tuberculosis (TB), human immunodeficiency virus (HIV), hepatitis B (HBV) and hepatitis C (HCV) and other infectious diseases in Ethiopia heightens the urgency for health facilities to implement clean and safe health facilities (CASH) and a comprehensive infection prevention and patient safety (IPPS) programme which includes:

- Effective IPPS programme management
- Staff engagement and involvement
- Provision of necessary equipment and supplies
- Monitoring and surveillance and
- Training

Recently the Federal Ministry of Health (FMOH) began implementing the clean and safe hospital (CASH) initiative which encompasses both infection prevention and patient safety and has the ultimate goal of creating safe healthcare environment. This initiative is bringing significant changes in staff and patient attitudes towards infection prevention and patient safety, resulting in a comparative change on the cleanliness of hospitals since the initiative's launch.

Implementing an IPPS programme will a) help improve the quality of patient care and b) save lives and valuable resources in the long-term. This chapter outlines the key components of a comprehensive hospital IPPS programme.

Section 2 Operational Standards for Infection Prevention and Patient Safety

1. The hospital has strategies and operational plan for IPPS as well as a management system to monitor and evaluate the activities.
2. Hand hygiene practice is implemented and facilities are provided at all service points at all time
3. All the necessary commodities and supplies of IPPS are routinely available and utilized at the designated service areas.
4. The hospital has ensured that safe surgical procedures and practices are in place to minimize risks to clients and providers
5. Safe injection practices are implemented to minimize risk to all surrounding community and management of adverse event related to injection are in place.
6. The hospital practices health care waste management following the national IPPS guidelines
7. The hospital ensures the cleanliness and housekeeping activities
8. The hospital ensures the availability of adequate and functional toilets, hand washing sinks and showers
9. The hospital ensures Adequate and functional laundry service
10. All reusable medical equipment are processed according to the national IPPS guidelines
11. The hospital has a procedure in place to regulate traffic flow
12. The hospital has a monitoring system to ensure safety of food and water served in the premises.
13. The hospital has a clients' education system to for IPPS improvement.
14. The hospital ensures all the post exposure and preventive interventions and procedures are in place in case of occurrence of occupational risks.
15. The hospital develops hospital acquired infections tracking and monitoring system

Section 3 Implementation Guidance

3.1 Management of CASH and IPPS Activities

Effective management is essential to create an effective infection prevention and patient safety (IPPS) programme. There are two tiers of management of IPPS programme: direct management of IPPS activities by a designated individual(s); as well as senior level management from the Chief Executive Officer (CEO), Senior Management Team and the Governing Board.

Effective management is essential to creating an effective IPPS programme. There must be direct management of CASH and IPPS activities by a designated individual(s); as well as senior level management from the Chief Executive Officer (CEO), Senior Management Team and the Governing Board.

Hospitals should have a designated person or persons to oversee day to day IPPS activities. Their roles and responsibilities in relation to IPPS activities should be described in their job description and each should be allocated sufficient time in their work schedule to fulfill their

IPPS duties. Resources permitting, it is recommended that one person is designated to coordinate overall IPPS activities as his/her primary responsibility. This person could be a nursing staff member, environmental health worker or any other staff member who has been trained in IPPS principles

In addition to a full-time IPPS designate, the hospital should also have an Infection Prevention and Control Committee charged with overall coordination and monitoring of the hospital's infection prevention and control work. The committee should be multi-disciplinary and representative of the hospital staff and should have no more than 5-8 members. Committee members should be individuals who are interested and engaged in infection prevention work and are able to direct hospital staff to implement the IPC programme and incorporate IPPS strategies into their daily work responsibilities.

Hospital staff from key areas should be represented on the IPPS committee. Representatives from the following areas should be considered for membership on the hospital's infection prevention committee:

- Inpatient, outpatient and emergency case teams
- Environmental Health
- Nursing
- Medical
- Housekeeping
- Administration (CEO, or another senior manager)
- Pharmacy
- Laboratory
- Laundry
- Kitchen
- Instrument processing unit
- Occupational health and safety
- Quality Management (e.g. Incident officer)
- Finance/procurement
- General facility management

Having the appropriate people participate in the committee can empower individuals to take ownership of the programme and can assist in assuring the long-term sustainability of the programme.

Senior level management should support the IPPS committee's efforts by:

- Monitoring the IPPS committee's overall activities
- Ensuring that equipment and supplies needed for IPPS activities are available
- Reviewing committee reports (e.g. on healthcare acquired infections prevalence) and acting on actionable items
- Encouraging staff adherence to and involvement in IPPS activities

This core group of hospital leaders can guide the infection prevention programme by identifying areas of critical need, prioritizing areas to focus the programme, and committing funds to make the programme successful.

3.1.1 IPPS Committee's Scope of Work

The IPPS committee and the designate(s) are responsible for coordination of the hospital's overall IPPS activities as well as development of an operational plan for infection prevention activities.

If there is a person selected to work on IPPS activities full time, his/her responsibilities should be clearly delineated in a job description. The committee should also have a TOR that outlines the roles and responsibilities of all members. The TOR should include the frequency of meetings as well as the process for recording and reporting information. It is recommended that the committee meets regularly, at least once a month. The team should select a chairperson who will be responsible for coordinating the IP committee's activities (calling meetings, disseminating minutes etc) and a secretary to record meeting minutes. The committee's main responsibilities are to:

1. Define the hospital's annual infection prevention and control plan
2. Monitor and evaluate the performance of the infection prevention programme by assessing implementation of the plan and adherence to practice
3. Establish a programme for the surveillance of HAIs
4. Review HAI surveillance data
5. Report findings on HAI surveillance and performance of the IPPS programme to management and other staff and identify areas for intervention.
6. Ensure, in collaboration with relevant staff, appropriate staff training in infection prevention guidelines.
7. Ensure, in collaboration with relevant staff, the consistent and adequate supply of personal protective equipment and other IPPS supplies and equipment.
8. Create a sense of individual responsibility for IPPS amongst all staff

3.1.2 IPPS Plan

A number of national guidelines exist which outline infection prevention policies and practices including the Federal Ministry of Health's *Infection Prevention and patient safety Guidelines for Healthcare Facilities in Ethiopia*. These documents should serve as a resource to hospital staff, particularly staff engaged in infection prevention activities. However, the successful implementation of IPPS programme requires an operational plan that defines how the national guidelines will be implemented at hospital level.

The IPPS plan should define the infection prevention policies of the hospital, how those policies will be implemented and by whom. The plan should outline all of the activities to be included in the hospital's infection prevention programme. At a minimum the plan should address the hospital's policies and procedures for:

- Standard precautions
- Transmission based precautions
- Equipment and supplies for activities, including personal protective equipment

- Monitoring and evaluation of activities
- IPPS training

3.1.3 IPPS Strategies

Hospitals should have their own strategies and methods to achieve the IPPS objectives.

The strategies shall consider

- All staff, community and business organizations involvement
- Establish management structure at all levels
- Sustained advocacy and communication
- Making hospital cleanliness a standing agenda on all hospital forums
- Using public figures and political leaders
- Experience sharing and scale up of best practices
- Recognize good performing hospital wards/units/individuals

3.1.4 Commodities and Supplies

Commodities and supplies of IPPS includes personal protective equipments, consumables, cleaning materials and equipments: gloves, gowns, aprons, masks/respirators, protective eyewear (face shield, goggles), caps, protective shoes, detergents etc

Supply

Hospitals should make certain that there is a sufficient supply of all commodities and supplies for IPPS like personal protective equipment for all hospital staff. Regular supply should be provided when there is increased demand or need for replacement of worn out items. All fluid resistant long sleeve aprons, goggles and face shield should be available in procedure rooms and where splash of fluid is anticipated. Different sizes of surgical gloves should be procured and distributed based on the size demands of staff working in procedure rooms. Rubber footwear should be provided in procedure room where sharps accidental fall is anticipated.

Utilization

The hospital should monitor staff use of all personal protective equipment to ensure consistent utilization. All re-useable personal protective equipment should be cleaned or washed based on standard cleaning procedure described in guidelines. All fluid resistant long sleeve apron, goggles and face shield should be routinely used when in procedure rooms and where splash of fluid is anticipated. All staff should adhere to recommendations of when to use each PPE and when not to use. Short aprons should not be worn in areas of heavy splash of infectious fluids is anticipated.. Rubber footwear should be regularly worn in procedure room where sharps accidental fall is anticipated. Masks and eyewear or face shields should be worn when performing any task where an accidental splash into the face is likely (e.g., performing cesarean section or vaginal delivery or when cleaning instruments). If face shields are not available,

goggles or glasses and a mask can be used together. Staff should obey the proper use of mask, changing as appropriate or discarding when needed. Caps should be used to keep the hair and scalp fully covered so that flakes of skin and hair are not shed into the wound during surgery.

3.2 Standard Precautions

Standard precautions are a set of recommendations to minimize the spread of infections in a health care setting. Healthcare workers should apply the principles of standard precautions with each encounter with a patient and consider every person, patient or staff, as potentially infectious or susceptible to infection.

Most HCAs can be prevented through readily available and relatively inexpensive strategies. The elements of standards precautions include implementation of recommended practices regarding:

- Hand hygiene
- Personal protective equipment
- Safe work practices (such as safe injection practice, safe practice in the operating room)
- Safe house keeping
- Disposal of health care waste management
- Processing of instruments and linens

3.2.1 Hand Hygiene

Ensuring Proper Hand Hygiene Practices

Proper hand hygiene is one of the important interventions to avert healthcare facility acquired infections. It is showed by researches that if there is proper hand washing practices among healthcare providers a significant proportion of healthcare facility acquired infections can be averted from happening. Due to this fact hand hygiene is one of the recognized components of standard precautions.

Practicing proper hand hygiene doesn't need very complicated knowledge and skills. It can be properly practiced with easily available materials and supplies. The central issue to be remembered in hand hygiene is attitudes and practices of healthcare providers have towards practicing proper hand hygiene at proper time and proper place with proper techniques. So if the healthcare providers' attitudes towards proper hand hygiene practices are properly dealt with health facilities can implement proper hand hygiene and reap the positive results from this practice simply with basic knowledge and skills available and the materials and supplies can be availed easily. Accordingly Ethiopian hospitals are expected to ensure proper hand hygiene practices among their healthcare provider staff.

Basic principles to be followed concerning hand hygiene

There are very important basic principles in relation to proper hand hygiene. If these principles are followed consistently hand hygiene practices can be implemented effectively. Some of the important basic principles to be followed are:

- Guidelines on hand hygiene have to be followed
- Guidelines on hand hygiene have to be properly disseminated and promoted
- Best practices on hand hygiene have to be benchmarked
- Every staff members have to be involved
- The culture of providing positive feedbacks has to be developed
- Necessary supplies have to be available at service areas
- There has to be a culture of rewarding role models of proper hand washing
- Basic orientation/training has to be given to all hospital staff

Necessary infrastructures for proper hand hygiene

To practice proper hand hygiene among healthcare providers there are basic infrastructures which must be fulfilled by the hospital as a prerequisite. The basic infrastructures (minimum requirement) which should be put in place by hospitals for proper hand hygiene are:

- Functional hand washing sinks
- Functional water container (if there is no running tap water)
- Water tanker for reserve water during water supply interruptions
- Functional drainage system

Necessary supplies for proper hand hygiene

There are vital supplies which are needed for proper hand hygiene practices without which healthcare providers can't practice hand hygiene. It is expected from hospitals to ensure the continuous supply of these vital supplies. The vital hand hygiene supplies to be put in place continuously by hospitals at hand washing area are:

- Continuous supply of water
- Detergents (bar soap, liquid soap)
- Antiseptic soaps for operation rooms
- 2-4% chlorohexidine for operation rooms
- 7.5-10% povidone iodine for operation rooms
- Alcohol solution to prepare alcohol based hand rub
- Glycerin to prepare alcohol based hand rub
- Personal hand towel/disposable paper towels

Hand Hygiene Promotion

Hospitals have to have consistent proper hand hygiene promotion system. Promotional works are needed to change attitudes of hospital staffs and clients towards proper hand washing. To have effective promotion work hospitals have to:

- Prepare and post sign which clearly show hand washing areas of service points
- Develop posters which show when to wash hands and post them in visible areas of service points, corridors and compound
- Develop posters of hand washing techniques (including alcohol based hand rub) and post them at hand washing areas
- Select quarterly observed “Hand Washing Days” on which proper hand washing role models are rewarded
- Prepare promotional posters using pictures of role models of proper hand washing and post them in visible areas of the hospital
- Prepare audiovisual materials on hand washing and display them at waiting areas for patients

Monitoring hand washing practices in the hospital

The core issue of proper hand hygiene is consistently practicing hand hygiene appropriately. The other issues discussed above are the means to achieve this important end which is practicing proper hand hygiene. The hospital establishes systems and develops necessary tools and procedures to monitor proper hand washing practices.

For effective hand hygiene practices monitoring the hospital:

- Develops hygiene practices monitoring checklist (in interview and observation form)
- Conducts quarterly assessments using the developed checklists
- Identify strengths and gaps/challenges
- Disseminate the identified strengths and challenges to the staff on “Hand Washing “ day
- Prepare improvement plan and share the prepared plan to responsible bodies who are expected to implement the planned action items
- Properly document all monitoring activities

3.2.3 Safe Surgery and Safe Practices in the Surgical Unit

The surgical unit is inherently a high risk area. Providers are exposed to blood and injuries from the use of sharp instruments used to perform surgeries. Patients are also at risk of acquiring infections as a result of the procedures performed. Standard precautions described above must be adhered to by all surgical unit staff. Described below are additional **safe practices** to minimize the risk to patients and staff in the surgical unit.

3.2.3.1. Organization of the Surgical Unit

The surgical unit should have well delineated areas: unrestricted, transition, semi-restricted and

restricted areas. All three areas should be clearly marked. The **unrestricted area** is the area at the entrance and is isolated from other areas of the surgical unit. Staff, patients and materials are supplied to the surgical unit through this entry point. The **transition zone** is where staff dressing rooms and lockers are located. Staffs change into their surgical attire in this area. Only authorized staff should enter this area.

The **semi restricted area** includes preoperative and recovery rooms, storage space for sterile and high-level disinfected items, and corridors leading to the restricted area. Support activities (e.g., instrument processing and storage) for the operating room can occur here. Traffic in this area should be limited to authorized staff and patients at all times. Clean, closed shoes should be worn by staff to protect against fluids and dropped items (ex. Sharps). Staff working in this area should wear surgical attire and a cap. The area should be separated by doors limiting access to the restricted area of the surgical unit.

The **restricted area** consists of the operating room(s) and scrub sink areas.

- Never store instruments and other items in the operating room.
- Limit traffic to authorized staff and patients at all times.
- Keep the door closed at all times, except during movement of staff, patients, supplies and equipment.
- Scrubbed staff must wear full surgical attire and cover head and facial hair with a cap and mask.
- Staff should wear clean, closed shoes that will protect their feet from fluids and dropped items.
- Masks are required when sterile supplies are open and scrubbed staffs are operating.
- Patients entering the surgical unit should wear clean gowns or be covered with clean linen, and have their hair covered.

3.2.3.2. Safe Surgery for Clients/Patients

A. Surgical Antisepsis

There should be appropriate facilities for surgical hand scrub: antiseptic soap, clean water, soft brush or sponges (not hard brushes), and 60-90% alcohol and glycerin. It is advisable to post steps of surgical hand scrub near the scrubber's sink and instruct the staff to adhere to the recommended hand scrub techniques. The hospital should have a regular supply of antiseptics for surgical hand scrub and skin preparation for surgery. All types of antiseptics should be regularly supplied to all procedure rooms. This includes, but is not limited to, alcohol (ethyl or isopropyl) 70%, chlorohexidine 2-4%, iodine preparation 3%, iodophors 7.5-10%. Hospital staff should be monitored for the proper use of each antiseptic solution.

Antiseptics should be poured into a small, reusable container for daily use. Gauze or cotton wool should not be stored in antiseptics. Antiseptic solutions should not be filled on top of the existing solution in the dispensers. Containers/dispensers with antiseptic solutions should be emptied and washed with soap and water every time before refilling. There should be an established routine schedule for preparing new solutions and cleaning containers. Reusable containers should be labeled with the date each time they are washed, dried, and refilled. Concentrated antiseptic solutions should be stored in a cool, dark area.

Before the operation, the patient's skin (at the incision site) should be washed with soap and water and cleansed with an antiseptic agent in order to minimize the number of microorganisms on the skin or mucous membrane. Shaving hair at the operative site should be discouraged. (If necessary, trim hair close to skin surface immediately before surgery).

B. Safety Checklist

The hospital surgical unit should routinely utilize surgical safety checklist to minimize risks to clients.

3.2.3.3 Safe Practices to protect staff

Before each operation, the surgical team performing the surgery should review how sharps will be handled during the operation. This will help minimize the number of sharps injuries. The team should try to use the "least dangerous instrument or device that will effectively accomplish the task, while at the same time minimizing the risks to the patient and surgical team.

3.2.4 Safe Injection Practices

a) Safe injection practices

Medication by injection form is of huge magnitude in hospitals. Most of medications given by injection are unnecessary and can be reasonably avoided. The risk burden from unsafe injections is also huge. The risks from unsafe injection are not only to recipient patient but also to healthcare providers and the community around the facility at large. Unsafe injections have the potential to expose patients, healthcare providers and other community members to many types of infectious diseases some of which are life threatening. But these risks can be significantly minimized by ensuring injection safety in hospitals. It is very feasible for any hospital to ensure injection safety with available basic knowledge and skills and affordable costs.

b) Basic principles on injection safety

Hospitals have to adhere to some basic principles to ensure injection safety at their injection and medication rooms. Hospitals have to follow the following principles:

- Eliminating unnecessary injections is the best way of preventing risks of unsafe injections

- One needle and one syringe for one injection principle has to be followed
- recapping of needles has to be avoided
- Educating patients and the community at large on pros and cons of medication by injection is an important intervention

c) Supplies and other inputs needed to ensure injection safety

There are important inputs which are needed to ensure injection safety in hospitals. Hospitals ensure the availability of the following to make injections in their medication rooms safe:

- Basic orientation/trainings for hospital staff members
- Standard operating procedures of safe injection implementation
- New and sterile injection devices
- Necessary personal protective equipment in medication rooms
- Necessary supplies for antiseptic purposes
- Necessary infrastructure and supplies for proper hand washing
- Sharp containers
- Waste containers for non-sharp wastes
- Equipment and supplies for instrument processing

d) Expected activities from healthcare providers

The following activities are performed by healthcare providers who administer injections to make those injections safe:

- Properly washing hands before applying necessary PPE
- Utilizing the appropriate PPE
- Giving the right injection medication for the right person, with the right dose and right time
- Properly utilizing sharp containers and other waste containers
- Disposing medical wastes generated in medication room according to national medical waste management guidelines
- Ensuring proper documentation of activities in the service area

NB. For detailed technical information on injection safety, please refer National Medical Waste Management Guidelines and National IPPS Reference Manual.

3.2.5 Healthcare Waste Management

Healthcare facilities produce waste that is potentially harmful to public health and the environment. Healthcare workers, patients, waste handlers, waste pickers (scavengers), and the general public are exposed to health risks from infectious waste (particularly sharps), chemicals, and other special HCW. Improper disposal of HCW, including open dumping and uncontrolled burning, increases the risk of spreading infections and of exposure to toxic emissions from

incomplete combustion. Proper management of HCW through an integrated, effective waste management system can minimize the risks both within and outside healthcare facilities.

Therefore, health care waste should be disposed in a manner that poses minimal hazard to patients, visitors, healthcare workers and the community. Infectious waste materials shall be treated properly to eliminate the potential hazard to human health and environment. Health facilities should ensure that HCWs are safely managed along the waste stream.

3.2.5.1 Waste Management Procedures and principles.

The management of health care multi-step process involving:

- Waste Minimization
- Segregation
- Handling
- Collection
- Storage
- Transportation
- Treatment and Disposal

Waste Minimization

In a proper HCW management system, the first step is waste reduction or minimization. It helps to ensure good sanitation of the health facility and the safety of workers and communities by reducing the quantity of wastes generated. Waste minimization also reduces the environmental impact by decreasing air pollution and the landfill capacity needed for disposal. Significant reduction of waste generated in health care facilities may be encouraged by implementing: source reduction such as by avoiding or reducing unnecessary injections, by having improved waste reuse/recycling practice and good management and work control practices (rational use of different reagents, medical equipments and materials, etc), and proper waste segregation system.

Principles:

All health care workers should avoid use of extra items in order to limit the amount of generation of used disposable wastes. Further efforts should be made to eliminate unnecessary injections to reduce the amount of hazardous health-care waste that needs to be treated, and eliminate unnecessary injections to reduce the amount of hazardous health-care waste that needs to be treated.

A. Segregation

Segregation denotes the separation of waste into a range of classes according to its character. Ideal, separating of waste by type (non-infectious, sharps waste and infectious waste) must be done at the place where wastes are generated. Segregation must take place immediately and at the source where the waste is generated. Waste must never be re-sorted. The facility should have proper ensuring mechanism that proper segregation techniques are used and that infectious HCW

is not mixed with non-infectious waste. Segregation or separating mechanism and color coding of the containers are presented on the below table.

The 3 categories of HCW shall be segregated into color coded containers as follows

Table 1 The 3 HCW Categories

Segregation Category	Color-coded container	Non-color coded bins
Non-infectious waste/ General waste	Black bin	Bins should be labeled non-risk waste
Infectious waste	Yellow bin	Bins should be labeled infectious waste
Sharp waste	Yellow safety box	The box should be labeled biohazard waste.

Note:

In the absence of color coded bins, it is possible to place waste segregation system using labeled waste bins with an infectious and non-infectious symbol or text on the side of the bins. However, such bins should not be used for liquid waste and any other waste types. To maximize efficiency and safety, these three waste categories must be handled and disposed of separately throughout the main steps of waste management: segregation, collection, handling, storage, transport, treatment, and disposal.

Location of segregation containers

Safety boxes:

- A safety box should always be located within arm’s reach of any place where an injection is given.
- Safety boxes may be transported on a trolley with injection equipment and other medical equipments in patient wards when health care worker perform medical and surgical procures that involves use of sharps. Health care workers never left the safety box in patient room after they finished their activity.
- Safety boxes should not be placed in high traffic areas (ex. corridors outside patient rooms or procedure rooms) where people could bump into them or be stuck by someone carrying sharps to be disposed of.

- Don't place containers on the floor or anywhere where they could be knocked over or easily reached by a child.
 - Infectious waste bins.
- Yellow infectious waste bins should be located in all procedural rooms where infectious waste is generated. Infectious waste bins should not be located in public areas.
 - Non-infectious waste garbage bins.
- Black garbage bins should be located in all rooms where waste may be generated. Garbage bins should be located in all public areas.

For further implementation guidance see the latest health care waste management guideline.

B. Handling

When handling waste, waste management staff should wear protective clothing at all times. Wearing PPE reduces risk from sharps and protects against exposure to blood and other bodily fluids, and splashes from chemicals. PPE that is recommended to be worn when handling waste includes:

Dust mask, Face shield when there is high suspect of splashes and spills, Heavy duty, gloves, Plastic apron, clothes that cover the body, Heavy duty, boots, Head cover, goggle and other appropriate PPEs.

C. Collection

Schedule

- At a minimum, the infectious waste bins should be collected each day.
- Safety boxes should be collected when $\frac{3}{4}$ full or daily depend on the waste generated. One safety box can contain up to 100 syringes.
- Garbage bins should be collected each day.
- No infectious bag or bin should be collected unless it is labeled with its point of production and content.

D. Storage

Each facility should have a specially designated room for waste storage that is closer to the waste it is generated before final disposal. The room should be used only for storage of safety boxes and infectious waste until final disposal. Infectious waste should not be stored for more than two days before being treated or disposed. Safety boxes may be stored for up to one week before incineration or transport. The frequency of incineration should be based on the amount of sharps waste produced and on incinerator capacity. The storage room should be totally enclosed, locked, and inaccessible to the public, animals, rodents, birds and insects. The storage room should be good in lighting and ventilation

E. Transport

On-site transport

A trolley, bin, or wheel barrow may be used for transporting safety boxes and bins. The collected waste should not be left even temporarily anywhere other than at the designated storage room. Containers should be covered with lids during storage and transport. Carts should be used for transporting bags of infectious waste within the facility

Transport to Off-site Disposal

The waste should be placed in rigid, leak-proof containers before being loaded. Containers should be covered with lids during transportation. When transporting plastic bags of infectious waste, care should be taken to prevent tearing the bags. The vehicles should carry adequate supply of plastic bags, standard protective clothing, cleaning tools and disinfectants to clean and disinfect in case of any spillage. Vehicles used for transporting infectious waste should not be used for any other purpose, if it is a must disinfecting by (0.5% chlorine solution) prior to use must be done. Records should be kept to document all transport of medical waste.

F. Disposal

Until there will be access to proven, environmentally safe and advanced options for the management of health-care waste, incineration may still be seen as an appropriate final disposal method.

Disposal Options listed in decreasing order of preference.

- **Sharps waste:**

- Incineration using either properly built brick incinerator or another incinerator
- Transport to off-site incinerators, if there is centralized treatment service
- Closely working with neighboring facility for final disposal if the system is better available in that facility.
- On-site burial is the last option if the facility doesn't have incineration mechanism.

- **Infectious waste:**

- On-site burial – these type of wastes must be disinfected with proper way before go to the final disposal, as they can cause infection even after final disposal.
- On site incineration provided that the incinerator is standard incinerator and capable of destroying such wastes

- **Non-risk waste:**

- Collection by municipal truck to landfill disposal
- On-site secured burning

G. Incineration

All incinerators should be inspected and maintained by an environmental health professional on a regular basis, and report of the inspection should be provided to hospital management. Incineration must follow standard operating procedures, including proper loading, preheating, and control, according to the design of the incinerator. Dangerous materials must not be

incinerated, including: PVC plastics, some blood bags, IV bags, IV tubes, heavy metals such as mercury (e.g., broken thermometers), batteries, x-ray materials, aerosol cans, glass vials. Incinerator operators must remove ash from the ash chamber and grate before using the incinerator. Ash should be put in an ash pit or waste pit.

3.2.6 Hospital Cleanliness and Housekeeping

Maintain a clean and safe health facility is essential to provide quality care for patients. Proper cleaning will reduce the number of microorganisms in patient care areas and will help to minimize the risk of exposure to infectious agents to patients, families, caregivers, visitors and hospital staff. Hospitals may provide the housekeeping service through its own staff or, or may contract out services to an outside vendor. However, regardless of how the service is provided and by whom, the hospital must ensure that standards are met and the guidance adhered to.

A. Work plan

The housekeeping department should develop operating procedures or work plan on the cleaning process and schedule for each unit (clinical vs. administrative areas). The provided procedures are meant to serve as a guide for hospitals in devising their own cleaning schedule and procedures. Further detailed guidance can be found in Infection Prevention Guidelines for Healthcare Facilities in Ethiopia.

B. Supplies

The hospital should have a regular supply of all necessary cleaning materials. At a minimum each Hospital should provide the following:

- **Disinfectants and detergents, bleach, powder detergents e.g. Omo**
- **Mops, cloths for dusting, brooms, soaps, buckets**
- **Personal** protective equipments for cleaning staff and alcohol for hand rub preparation.

The head of the department should plan for and request supplies to meet monthly consumption needs.

C. Procedures

Non clinical (Administrative) areas with no patient contact require normal domestic cleaning including sweeping, dusting and washing floors and windows with detergent.

All patient care areas should be cleaned based on the CASH audit tool schedule by wet mopping, scrubbing or dusting and or scrubbing using disinfectant cleaning solutions. The cleaning solution should be prepared according to the guidance outlined in the Infection Prevention Guidelines for Healthcare Facilities in Ethiopia.

Staff should be trained/ oriented on how to prepare cleaning solutions and procedures for preparing the solution should be posted in an area visible to the cleaning staff.

The hospital should conduct a cleaning audit using the CASH audit tool to ensure all patient areas and toilets are clean properly and regularly.

The hospital compound should be visibly tidy and free from none functional items (old cars, machines, etc).

The pattern of cleaning should be done according to Infection Prevention Guidelines for Healthcare Facilities in Ethiopia. That is from least soiled area to most soil and from high to lows areas. Any areas visibly contaminated with blood or body fluids should be cleaned immediately. Dry sweeping is not recommended.

Isolation rooms and other areas that have patients with known transmissible infections should be cleaned with a detergent/disinfectant solution at least daily.

All patient care areas, including horizontal surfaces and all toilet areas should be cleaned twice a day.

D. Unpleasant odor control:

Unpleasant odor that can be occurred in all clinical service areas including toilets and placental pits should be avoided by ensuring the cleanliness and adequate ventilation.

3.2.7 Toilet, handwashing and shower facilities

The IPPS Committee should conduct a needs assessment to identify and ensure

- **Availability and functionality of hand wash sinks, toilets and showers**
- **Availability of adequate water supply at all clinical service units**
- **Availability** of adequate lighting (artificial and natural) at all clinical service areas

The assessment should be done periodically (at a minimum quarterly) to ensure that any new needs are identified.

A. Hand washing facility,

It is important that all wards within a hospital have properly functioning sink. At a minimum, there should be a sink in each patient care service units/rooms. Facilities should be accessible to patients, staff and visitors. Larger wards or those with more than one entrance are recommended to have a minimum of two sinks with plumbing. There should also be a functional sink at each patient area, clinical room, and nursing station. Investments must also be made to ensure existing sinks work properly and preventive maintenance is done. Repairs should be scheduled as necessary. Sinks should be cleaned and disinfected regularly.

Toilets and showers

The hospital should have a functional adequate toilets and showers proportional to the number of patients. One toilet for 20-24 inpatient and outpatient clients should be available

The toilets should be visibly clean, odorless and ensure the privacy of clients. Toilets should be cleaned and disinfected regularly.

3.3 Laundry Service

The laundry plays a key role in the function of the hospital and in preventing the spread of infection and ensuring patient. The unit is responsible for transporting linens from wards and other patient areas to the laundry, laundering the linens and returning items to respective areas. These procedures ensure the provision of clean linens and clothing for patients and staff alike. Hospitals may provide the laundry service through its own staff or, or may contract out services to an outside vendor. However, regardless of how the service is provided and by whom, the hospital must ensure that standards are met and the guidance adhered to. Larger hospitals with a high volume of work should have large capacity machines that can handle a high volume of linens and/or an increased number of machines Heavy-duty washers/dryers are recommended for a large hospital with high patient load. The hospital should provide leak proof plastic containers with a lid or leak proof plastic bags at each procedure room to store soiled linens and to prevent spills from soiled linen until they are transported to the laundry. The laundry should also at a minimum–have two separate carts to transport clean and soiled linens to and from the laundry as well as storage shelves to store clean linens before they are returned to the appropriate work area. Waste generated from the laundry should be decontaminated and have a proper.

It is recommended that each unit/work area should be allotted with a designated shelf to allow separation of linens by case teams and ensure accurate management of linens. Linens should be checked regularly for holes and/or threadbare areas. Repairs, replacement or disposal should be done based on the assessment.

A. Work plan

Each hospital laundry should develop an operating procedure or work plan for laundry services. The plan would give guidance on the segregation of linen at the ward level, transport of linens to and from the laundry, cleaning procedures, operation of machines, segregation of linen by the laundry staff after washing, storing of linen and transport to different case teams/wards, registration of incoming and outgoing linen and shifts for working hours.

Laundry space set up

The laundry space should be adequate with separated rooms for soiled and clean linens and has to have at least three machines (washing, ironing and. drying).The waste generated from the laundry should be decontaminated and be properly managed. There must be hand washing facility there.

B. Supplies

The laundry should ensure that there is always an available supply of detergent and bleach.

C. Procedures

Linens with visible contamination by blood, body fluids, secretions and excretions are categorized as “soiled” or “contaminated”. Other used linen is termed “used”. These two categories should be segregated and treated separately at the laundry service area. Linen should be handled with minimum agitation to avoid aerosolisation of pathogenic microorganisms. Soiled/contaminated linens should be placed in leak proof bags or containers to avoid any spills or drips of blood, body fluids, secretions or excretions during transportation. Linen from an isolation room should not be sorted, shaken, or handled excessively. As a general rule all linens used in a procedure should be considered infectious, even if there is no visible contamination.

Linens should be disinfected by using hot water and/or bleach. Heavily soiled linen should be washed separately from non-soiled linens. Staff handling linens should ensure that they wear personal protective equipment at a minimum such as boots, heavy-duty gloves, eye protection, aprons and masks to protect against splashes. Staff should also be monitored to ensure the proper use of personal protective equipment. Wash linen (sheets, cotton blankets) in hot water and detergent, rinse and dry preferably in a dryer or in the sun. Wash wool blankets in warm water and dry in the sun, or in dryers at cool temperatures. Check all items for cleanliness and rewash if needed. Linens being supplied to the operating rooms/theatres and high-risk areas, e.g. burns units should be autoclaved.

Mattresses and pillow with plastic covers should be wiped over with a detergent. Mattresses without plastic covers should be steam cleaned (if available) if they have been contaminated with body fluids. Pillows should be laundered using standard procedures described above.

Staff should be trained and/or oriented on the laundering process.

The hospital should ensure that appropriate measures are put in place to protect staff from these and other hazards. For example, the floor should be kept clear of water, and personal protective equipment should be provided to protect laundry staff against exposure to contaminated materials.

3.4 Processing Instruments and Reusable Items

Based on guidance given in *Infection Prevention Guidelines for Healthcare Facilities in Ethiopia*, the hospital should outline clear procedures on how instrument processing should be done. Instrument processing protocols should be posted in procedure rooms and all staff responsible for instrument processing should be trained/oriented on the process. In addition, all staff responsible for decontamination should be trained on how to prepare 0.5% and 0.1% chlorine solutions from different concentrations of bleach. Instructions for preparing chlorine solutions should be posted in the procedure rooms and staff instructed to follow the outlined procedures.

Each hospital should have a consistent supply of bleach (with a visible labeling of the concentration of chlorine), brushes (preferably tooth brushes), three plastic containers (one for each step in the process of soaking in 0.5% chlorine solution, washing with soap (detergent) and water, and rinsing with clean water) and personal protective equipment for each procedure room.

Stop watches should be provided for each procedure room to ensure compliance to timing for each step in the decontamination and/or cleaning process.

There are four main Instrument processing steps: decontamination, cleaning, sterilization and high level disinfection

A. Decontamination

Decontamination must be done before cleaning. Fully immersing in 0.5% chlorine for 10 minutes must be done to inactivate HIV, HCV and HBV and vegetative organisms. The standard formula must be applied in preparing 0.5% chlorine solution for decontamination. The container used for decontamination must be plastic made to prevent form corrosion.

B. Cleaning

Physical removing and mechanical reduction of the number of microorganisms, of infectious agents, especially endospores and other organic matters should be done during cleaning. Cleaning though use of detergent or soaps and brushing must be done for effective sterilization and high level disinfection. Use liquid soap is good for effective cleaning. Cleaned instruments should be dried, packed or wrapped if necessary, and labeled before go to sterilization.

C. Sterilization

The hospital should have functioning autoclaves and dry heat ovens for sterilization of medical equipment. There should also be a supply of 2-4% glutaraldehyde or 8% formaldehyde for chemical sterilization of plastic items. Proper packing should be applied before following the procedure. In case of chemical sterilization removing of objects from the solution with sterile forceps, rinsing all surfaces three times with sterile water, and air-drying must be done. Mechanical, chemical and biological indicators can be used to control the well-functioning of the process. Mechanical indicators are most commonly used. This would include checking adherence to recommended time, temperature and pressure. Chemical indicators are often used as supplement to mechanical indicators.

D. High level disinfection

HLD can only be used when there is **No** sterilization system. Steamer pans and boilers should be in place for high level disinfection purposes. Steaming, Boiling and chemical HLD can be applied. Instructions how to perform HLD should be posted in the procedure rooms and staff instructed to follow the outlined procedures.

Storage of sterilized equipment

All sterile items should be stored in an area and manner to protect the packs or containers from contaminants such as dust, dirt, moisture, animals, and insects. The storage area of sterile items for the hospital is best located next to or connected to the place where sterilization occurs. The space should be in an area separate, enclosed, with limited access and should be used only to store sterile and patient care supplies. Sterilized instruments should be re-sterilized again if anything happen on the package before 30 days.

3.5 Traffic Flow

Proper management of patient care areas – flow of patients and visitors– in the hospital is integral to maintaining high standards of infection prevention. Overcrowding can help the spread of infections among patients, staff, and visitors. The organization of the patient and visitor population will not only prevent the unnecessary transmission of disease, but also will allow the hospital to operate in an efficient manner. Clinical and supportive staff must be able to perform their tasks in a hospital environment where distractions are minimized. Furthermore, standards need to be established so that the duties and roles of both staff and patient’s visitors are clearly delineated and understood by all parties involved with patient care. With appropriate patient and visitor control, the hospital can provide quality care in a clean and safe environment.

Each hospital should strive to control the organization of all patient areas and public spaces. The hospital layout should be organized in a way that promotes the efficient movement of traffic throughout the hospital. As much as possible services should be organized close to one another to minimize patient transit time. Hospitals should ensure that waiting areas have ample space and provide a secure, shaded area in which patients can wait for care. Further guidance on hospital layout can be found in *Chapter on Patient Flow* and *Chapter on Facilities Management*.

Patients and visitors should not be allowed to enter into areas of the hospital where they are not receiving a service (for example outpatients should not enter inpatient wards, visitors to inpatients should not go to OPD etc).

Caregiver and visitor control: Putting visitor controls in place serves to prevent confusion and disputes that may arise between visitors and hospital staff, thus enabling more efficient hospital operations. The use of visitation hours and placing limits on the total number of non-hospital staff entering a patient ward area at a given time are both effective methods for controlling caregiver and visitor access. Visiting hours should be established with consideration for when health providers conduct the morning and evening rounds, cleaning staff conducts daily duties, and hospital has meal times. The hospital should establish a system to regulate the number of visitors and caregivers allotted for each patient. Limits should be set on the number of visitors and caregivers allowed to be with a patient at any given time. ID badges or identification cards should be issued to visitors and/or caregivers to assist hospital staff in monitoring patient rooms. To ensure that there is clear communication between a caregiver and the nursing staff, it is suggested that each caregiver sign a contract (see *Chapter on Nursing Care Standards and general facility management*).

3.6 Infection Prevention in the Laboratory

Laboratory workers are exposed to blood, body fluids and other potentially infectious materials through the course of their work. In order to reduce the risk of occupationally-acquired infections laboratory workers must adhere to standard precautions In addition, laboratory staff should:

- Always wear new examination gloves when handling blood, body fluids and/or specimens containing pathogenic microorganisms
- Not eat, drink or smoke in the laboratory
- Not store food in refrigerators used for clinical and research specimens
- Not mouth pipette, but use the appropriate mechanical device
- Never open the centrifuge while it is in motion
- Always cover the end of blood collection tubes with cloth or paper towel, or point them away from anyone's face when opening
- Decontaminate work surface with 0.5% chlorine solution daily or when contaminated with a spill
- Wear protective face shield, masks or goggles if splashes and/or sprays of blood, body fluids or fluids containing infectious agents are possible
- Wear heavy duty or utility gloves when cleaning laboratory glassware
- Wear puncture-resistant, leak proof containers for sharps
- Place infectious waste materials in appropriate waste container (see section on waste management).

Further guidance on safety practices for the laboratory staff can be found in Chapter 9 Laboratory Service.

3.7 Transmission Based Precautions

Transmission-based precautions are sets of extra precautions that need to be employed when routes of the transmission are not interrupted through use of Standard Precautions alone. Each of these precautions should be used in conjunction with Standard Precautions. The hospital should provide private rooms for patients with airborne, droplet or contact transmissions of microorganisms. All providers entering private rooms should be trained or at least well oriented about all types of precautions to apply.

Specific precautions for each type of exposure are outlined below. In general isolation of patients in private room is mandatory and Transport of patient should be limited for essential purposes only. If transport is mandatory the area receiving the patient should be notified about the disease.

3.7.1 Contact Precaution

Contact precautions should be routinely implemented when a patient is known to have a specific disease that is easily transmitted by direct or indirect contact.

Facilities

There should be private room each patient or room for cohosting patients known to have contact transmission. All the necessary equipment and supplies should be available to implement the precaution

Implementation

Disposable gloves must be worn by all hospital staff that enters the room/patient area. All PPE must be disposed of properly when contact with the patient is finished. If disposable gloves are not available then gloves and gowns must be placed for washing and appropriate disinfection. Hand washing using antiseptic soap must occur after removing gloves and other PPE. Medical equipment must *not* be shared between patients. If it is to be shared, then any equipment that comes into contact with a new patient must be disinfected and processed according to the guideline. When cleaning, all surfaces including stationary and portable medical equipments within the vicinity of the patient must be cleaned on a daily basis.

3.7.2 Droplet Precaution

Droplet precautions should be routinely implemented when a patient is known to have a specific disease that is easily transmitted droplets.

Facilities

There should be private room for each patient or for cohosting patients known to have contact transmission. A mask should be providing to all hospital staff and attendants who come within 1 meter (3 feet) of patient.

Implementation

A mask must be routinely worn by all hospital staff who come within 1 meter (3 feet) of patient. The number of visitors should be restricted and susceptible individuals should not enter the room or be assigned to the care of a patient known to be infected with the respective disease.

3.7.3 Airborne Precautions

Airborne precautions should be routinely implemented when a patient is known to have a specific disease that is easily transmitted droplets. Typically, this should apply to most patients who are known to have respiratory infections and measles.

Facilities

There should be a private room for each patient or for cohosting patients known to have contact transmission. A mask should be provided to all hospital staff and attendants entering the room

.

Implementation

The number of visitors should be restricted and susceptible individuals should not enter the room or be assigned to the care of a patient known to be infected with the respective disease. For patient transport, the patient should wear a facial mask to prevent the spread of airborne pathogens. If TB/MDR TB special masks should be worn by staff entering the room. There should be a room air exhausting system or other air filtration mechanisms should be in place. The room should be well designed to ensure proper ventilation.. When cohosting is used during outbreaks, these room/s should be in a well-defined area (a designated room or designated ward),

which can be clearly segregated from other patient care areas in the health care facility used for non-infected/colonized patients.

3.7.2 Food and Water Safety

Food safety should be ensured through the provision of adequate, clean facilities for food preparation and storage. It is imperative that:

- The kitchen should have adequate space, well ventilated, visibly clean and free from debris, dusts, spillages, etc
- Food safety shall be monitored by Head of Kitchen or other senior manager
- Kitchen staffs maintain personal hygiene and health.

Food purchase and storage

A committee consisting of representatives from the kitchen, environmental hygiene and procurement unit should be created to oversee the delivery of food items for the kitchen. Possible committee members could be the kitchen manager, dietician, environmental health professional, and purchaser.

When food items are delivered to the kitchen, the kitchen manager or delegate should check the items to ensure that the food delivered is of the desired quality. If the quality of the food is not acceptable, then the supplier should be informed, “rejected” items returned, and if possible, the supplier should provide replacements that meet the committee’s specifications.

The food items that are delivered to the kitchen have to be properly stored in a separate clean area in the kitchen. Food that is perishable and warm should be cooled before storage.

Food handling and preparation

- There should be separate cutting boards for meat products and non-meat products
- Cooking staff should be oriented on safe handling of food
- Cooking should be done at proper temperature and for the appropriate length of time
- All kitchen staff should follow hand hygiene procedures. Hand hygiene should be practiced at all critical hand washing times. In addition to hand hygiene, kitchen staff should also maintain their personal hygiene. Facilities for bathing should be made available to all kitchen staff.

Cleaning

The kitchen should be cleaned at the end of each day. Waste should be disposed of regularly (see waste management section). Special attention should be given to food preparation areas and cooking equipment and utensils. All kitchen areas, kitchen equipments and utensils should be visibly clean free from dusts, debris, spillages etc.

Safety

Kitchen staff should have access to face masks, hair covers, and plastic aprons at a minimum. Other personal protective equipment should be supplied as necessary. To ensure patient safety

and minimize the risk of infection transmission, kitchen staff should regularly be tested for communicable diseases. Staff should be tested at least every three months for diseases that can be transmitted through unsafe handling of food; for example typhoid fever. Any kitchen staff identified as having an active infection should be quarantined from food handling and preparation until 24-48 hours after symptoms have resolved.

Protective measures should be in place to minimize accidents incurred due to the above listed hazards.

Food temperature should be checked. Hygienic and aseptic conditions should always be checked by the dietician. The guidelines outlined above apply to any food services provided by the hospital. Hospitals may provide the service directly, or may contract out services to an outside vendor. Regardless of how the hospital provides the service, the hospital must ensure that standards are met and the guidance adhered to.

Water safety

The hospital should have a continuous clean water supply. Water used for special services (drinking, cooking and for instrument processing) shall be tested for bacteriological and physical parameters water quality periodically (minimum of quarterly).

Water provided for clients should be treated by either by boiling (20minutes) or using chlorine (0.001 concentration).

3.7.5 Educating Patients, Caregivers and other Visitors Regarding IPPS

1. Client Education on IPPS

Hospital clients have stake in ensuring the cleanness, tidiness and safeness of hospitals; so hospitals have to involve their clients as much as possible in their endeavors to make themselves safe and clean. The capacity of clients has to be built to involve them in IPPS activities. One of capacity building activities arranged by hospitals is educating clients by different education approached.

1.1.Client education approaches

Hospitals implement client education by using the following approaches:

- Audiovisual approach (using radios, TV, CD or DVD)
- By client education materials prepared in languages of the clients and simple language (in forms of brochures, leaflets, flip chart etc.)
- By face to face health education (at service points, waiting areas, social gatherings etc.)
- Using posters, banners and billboards

1.2.Client education materials development

Hospitals have client education materials contextualized to their settings and their clients; so need to adopt/develop client education materials which fit to their clients and epidemiological pictures. To have their own client education materials hospitals have to:

- Identify topics need to be included in client education
- Prioritize the identified topics based on client needs and epidemiologic facts

- Identify education methodologies for each of the identified topics
- Scan the available education materials of the identified topics
- Identify the materials which can be utilized without any manipulation
- Identify the materials which need adaptation to the contexts of the hospitals and clients and adapt them to the needed contexts
- Prepare education materials for those topics which don't have one

1.3. Conducting client education

Hospitals conduct client education on the selected topics by using the identified methodologies and materials. Client educations are conducted as follows:

- Select client educators on all identified topics
- Orient the selected client educators on the issues
- Prepare time tables with detailed schedules
- Arrange conducive education scene (for face to face education, for posters and banners where to post them, for education by brochures, leaflet etc. where to distribute and to whom to distribute, for audiovisual type which audiovisual method to use etc.)
- Conduct educations on the identified topics with the prepared training material, education methodology and selected educator

1.4. Monitoring implementation and effectiveness of client educations

Client educations are provided to build the knowledge of clients on IPPS so that they can get involved in activities to ensure the implementation of IPPS. To attain these end client educations need to be monitored and evaluated for their proper implementation and effectiveness. Hospitals monitor and evaluate their client education activities as follows:

- Hospitals IPPS Committees assign one capable and committed focal person who coordinates client educations
- Hospitals managements establish teams that conduct regular monitoring and evaluation of client education
- Hospitals IPPS Committees in collaboration with M&E teams develop tools for client educations monitoring and evaluation and submit to managements for approval
- Hospitals IPPS Committees set time tables for monitoring and evaluation and submit to management for approval
- The established M&E teams conduct monitoring and evaluation of client education according to the set time table
- Hospitals IPPS Committees and M&E Teams analyze results, identify strengths and gaps, prepare improvement plans and submit to hospitals management for approval of the improvement plans
- Hospitals IPPS Committees disseminate the client education M&E results to hospitals communities.

3.8 Occupational Safety

Hospital staff members maybe exposed to different health risks merely due to their work place. They can be exposed to blood and other body fluids through which infections can be transmitted. They have a potential to be exposed to different kinds of sharp materials which can transmit

infections and can also cause other health problems. Generally hospital staff members are exposed to different kinds of occupational health hazards. They can be exposed to infections like HIV, HBV, HCV etc. or other health hazards like excessive bleeding due to sharp injury.

Hospitals are expected to minimize occupational hazards to their staff members and they have to ensure occupational safety practices. To minimize the occurrences of occupational hazards and ensure occupational safety the hospital has to ensure the availability of preventive services in place. These services can be personal protective equipment, preventive vaccinations and preventive prophylaxis interventions. The following interventions are provided in hospitals to minimize occupational hazards to hospital staff members.

1.1.Post Exposure Prophylaxis of HIV

One of the occupational hazards to which hospital staff members are exposed to is sharp prick which exposes to HIV infection. To minimize this risk hospitals organize post exposure prophylaxis services to their staff members. Hospitals avail this service of post exposure prophylaxis (PEP) 24 hrs. a day and seven days a week and any hospital staff who has risk of exposure to HIV can get the service easily. To avail PEP services effectively hospitals implement the following:

- Assign one service point for PEP
- Make the PEP focal person member of IPPS Committee
- Organize necessary trainings for the assigned focal person on PEP and HIV testing and counseling
- Assign PEP focal person who can be accessed 24 hrs. a day and 7 days a week
- Avail supplies and equipment for HIV testing and counseling for exposed individuals during time of not working time
- Put in place referral linkage system
- Make PEP one attention area of IPPS Committee activities
- Place ARV drugs(starting pack) at PEP service point always and restock it on time to avoid shortages due to stock out
- Establish documentation system for PEP
- Establish reporting system for PEP activities
- Establish PEP programme monitoring and evaluation system

The core issue of PEP is not the initiation of the prophylactic drugs but the completion of the full package. To ensure this the hospital monitors and evaluates the programme on regular bases. So the hospital management monitors PEP implementation by assessing:

- The availability of all input materials
- The continuous availability of PEP services both at regular and non-regular working hours
- The adherence of healthcare workers to the national PEP protocol
- Monthly PEP service uptakes
- Activity plans of PEP focal person
- Monthly reports of PEP focal person to hospital management
- Agendas of IPPS Committee meetings on PEP

NB. For technical details of PEP please refer to National IPPS Reference Manual & National Comprehensive HIV/AIDS Care & Treatment Guidelines

1.2.Preventive interventions for HBV & HCV

Currently there are no public health level prophylactic and treatment interventions in Ethiopian for Hepatitis B and C virus exposures and infections. What are at hand on these infections are prevention interventions.

Hospitals utilize all preventive measures to the maximum to minimize health risks from exposure to HBV and HCV. The following are the major intervention measures used by hospitals to minimize risks to their staff members from HBV & HCV exposure:

- Facilitating vaccination of hospital staff members for HBV
- Ensuring all staff members properly utilize necessary PPE when needed
- Ensuring proper waste management system in the facility to minimize sharp injuries
- Orienting staff members on how to deal with blood and other body fluids strictly
- Ensuring availability of effective primary care services for those who have got exposed

1.3.Other preventive measures to ensure occupational safety

Hospitals put in place all preventive measures which are possible and feasible to minimize occupational risks to their staff members. The following preventive measures are put in place in hospitals to ensure occupational safety for hospital staff members:

- Train/orient all hospital staff members on basic infection prevention and patient safety
- Ensure the availability and utilization of personal protective equipment at all service points
- Ensure proper hand washing practices by all staff members of hospitals
- Properly manage medical wastes according to national guidelines
- Properly implement injection safety
- Establish conducive work environment
- Continuously monitor the status of standard precautions at all service points

3.9 Monitoring and Surveillance

IPPS programme must include routine monitoring and surveillance. The hospital must assess the success of its infection prevention programme by measuring adherence to IPPS PS guidelines as well as identifying and tracking HCAs quarterly, at a minimum.

3.9.1 Monitoring

Hospitals should measure the effectiveness of all components of the IPPS programme including inputs, processes and outcomes: All service areas of the hospital should be regularly supervised to ensure their adherence to protocols, proper performance and consistent use of personal protective equipments during the all procedure

For example:

Inputs: IPPS inputs would include equipment and supplies for hospital staff. Input data can be used to assess the availability, quantity and quality of supplies and equipment needed for IPPS practice. In addition, the hospital should have prepare guiding documents (Terms of reference, Standard operating procedures, Action Plan, Implementation and controlling modalities), for the operation of the practice, Regular documentation of data can also be used to conduct cost analysis and auditing of availability.

Process and Outcomes: This data can be used to assess the safety and effectiveness of a hospital's operations and can be collected through the following methods:

- **Performance and Audit indicators:** The IPPS Committee must develop and monitor performance indicators to assess the progress of the IPPS programmes. Targets should be set for each indicator based on improvements using a percentage scale. For example, a key target may be a 50% improvement in the number of staff observed using proper infection prevention techniques within a given day; or rate of healthcare facility acquired infection, percent of department toilets without bad odor, percentage of functional hand washing facilities in the hospital with supplies.

This will allow the IPPS committee to work towards continual improvements, rather than reaching a particular benchmark.

- **Observation of simulations:** for assessing quality include clinical vignettes and consultation observation. Clinical vignettes involve providing staff with hypothetical cases and recording their response on how they would handle the given cases. Consultation observations involve observing staff as they interact with patients and adhere to national IPPS guidelines.
- **Surveys:** Often used to collect data on facility procedures, for example, hand hygiene procedures being used by facility staff. A checklist can also be used to assess adherence to IPPS guidelines. Surveys are more common as they can be used to collect a large amount of data at once and is easier to implement than continuous reporting.
- **Facility observation:** The IPPS Committee also can conduct unannounced site visits to various case teams on a monthly basis. These site visits would ostensibly be carried out to determine what is working and what is not. This approach could provide a strong incentive for the case teams to maintain a high level of IPPS practices. It would also act as an indicator which the IPPS Committee could use to determine the efficacy of the IPPS programme and implement changes where necessary.

3.9.2 Surveillance of and Research on Nosocomial infection and occupational Hazards' Exposure

Monitoring and measuring healthcare acquired infections can provide valuable information on the effectiveness of the hospital's infection prevention programme. Tracking the number of HCAs or rate of HCAI allows hospitals to assess quality of care and patient safety. In addition, data can reveal areas for improvement or gaps in practice that need to be revised or strengthened. HCAs should be included as one of the indicators in the Balanced Scorecard that is monitored regularly

Continuous risk assessment: Risk assessment must be done on regular bases to see the trend of the occurrence of bad outcomes related to poor IPPS practices. Standard check list should used to gather relevant information on a regular basis.

In devising a surveillance programme the IPPS committee should consider the following:

- Patients and units to be monitored
- Type of infections and relevant information to be collected
- Frequency and duration of monitoring

- Methods of data collection
- Methods for data analysis, feedback and dissemination
- Methods to ensure confidentiality of information

The methods to be used and staff responsible for coordinating and conducting surveillance should be clearly outlined in the hospital's HCAI surveillance protocol. In addition, staff involved in coordinating or collecting HCAI data should include someone trained/oriented in IPPS practice and knowledgeable in data collection and analysis techniques.

Either prevalence or incidence of HCAIs can be tracked. Prevalence studies would be conducted at one point in time and would measure infections that exist on the day the survey is done. Incidence surveys measure number of infections that occur in patients over a defined period of time. For an incidence survey, patients would be tracked throughout the course of their stay in the hospital and the incidence of an infection would be recorded. This method is most effective when conducted for specific infections (surgical site infections) or in specific units (surgical unit or ICU).

Conducting surveillance of HCAIs can be a time consuming and costly undertaking. Therefore when resources are limited, facilities can choose to focus on specific units or specific types of infections. For example, the hospital HCAI surveillance can begin with tracking surgical site infections and/or surveillance of particular invasive procedures such as endoscopy. Various strategies and the methodologies that should be used are outlined in detail in the WHO document: Prevention of Hospital Acquired Infections: A Practical Guide — WHO/CDS/CSR/EPH/2002.12. For further guidance on setting up a HCAI surveillance protocol please reference this document. In addition, a sample data collection tool for monitoring HCAIs is presented in the Appendix H).

3.9.3 Documentation and Data Use

Data can be used to show the savings in cost that preventing HCAIs can bring. In order to show the benefits of reducing HCAIs, simple calculations can be done based on the following assumptions:

1. Assume a hospital acquired infection rate of 20% of the patients admitted: (Note that the literature states that HCAIs can be as high as 40%).
2. Average daily admission of seventeen patients. (Approximate number for a 250 bed hospital.)
3. Assume three additional night's stay in-hospital resulting from HCAIs.

Documentation: The results of the research and surveillance studies should be compiled by a member of the IPPS committee and supporting team in a written report on a regular basis. The report should include details of the study including: time frame, the department(s) included, the number of patients seen by the department(s) within the time frame, number of HCAI detected,

and rate of HCAI. The report should also include analysis of the potential causes of the HCAs, problems identified and recommended solutions. The report should be submitted to the IPPS Committee and Senior Management Team for action or resolution.

Sustaining best practice

Information that is gathered through surveillance can be used to reward individuals or case teams that are performing well. As an added incentive, a “Case Team of the Month” certificate or award could be presented to those units who have significantly lowered the HCAs in their case teams or have implemented innovative changes that could be used as models for other case teams to follow within the hospital. Recognition and reward can go a long way in motivating staff and creating a sense of ownership of IPPS for their work.

3.10 Infection Prevention/Patient Safety/CASH Training

Successful adoption of IPPS standards requires provision of periodic refresher training for all staff. In order to effectively implement IPPS practices, staff must first be informed and educated on current IPPS principles.

The Infection Prevention team should assess training needs of the staff and provide required training in collaboration with the human resource department. Trainings should include general information on IPPS practice and principles as well as practical skills training. Trainings for all staff should include general IPPS principles but should also be tailored and appropriate to staff job functions. Hospitals can contact their respective regional health bureau and partner organizations to provide standardized IPPS trainings for staff—through either on site or off site trainings. In addition, orientation on IPPS can be provided on site by hospital staff. Materials should be adapted from standard training materials and trainers should be trained in IPPS. Further IPPS information can be given to staff through awareness programmes and campaigns.

A motivated and invested hospital workforce is essential to ensuring the sustainability of IPPS policies. As such, successful adoption of infection prevention standards requires that Infection Prevention trainings not only educate hospital staff on IPPS policies, but also motivate the staff to adhere to the IPPS guidelines. Staff ownership can be cultivated by:

- Involving staff by asking their input on IPPS policies
- Assigning a staff member of each case team a role in coordinating and monitoring staff on infection prevention policies
- Providing orientation and sensitization on the importance of IPPS

The following are additional recommendations on what elements should be included in a comprehensive IP training to support implementation of an IPPS programme.

Establish the importance of IPPS with staff: To facilitate staff investment in implementing IPPS policies, the IP committee should ensure that all staff understands that the IPPS policies they are being trained in:

- Prevent the spread of unnecessary infections
- Improve the quality of patient care
- Promote a safe environment for both patients and staff, and
- Ensure that patients have a clean environment so that recovery and length of stay is at an ideal standard.

Use appropriate training techniques: It is necessary that infection prevention policies are clearly understood by all hospital staff. This can be accomplished by using group-based training and demonstrative techniques to ensure that all staff, including low-literate staff, are sufficiently informed on IP practices. **Foster Staff Motivation:** To maximize the benefits of infection prevention training, the following items are suggested to maintain a motivated staff:

- Senior management, physicians, and case team leaders should be role-models in following infection prevention guidelines. They show due diligence in adhering to infection prevention policies
- Make and award certificates of achievement following the IPPS training
- Suggest that letters of recommendation be written and placed on file for staff after good performance evaluations are achieved
- Publicly recognize staff as individuals or in case teams that exemplify “excellence in infection prevention practice”. For example, a “wall of recognition” or “employee of the month” award can be used to create positive reinforcement for staff

Distribute IPPS guidelines throughout hospital: Once training has been completed, materials relating to IPPS guidelines should be posted in both public and private spaces throughout the hospital. The IPPS guidelines should be strategically located in places where IPPS must be practiced, for example, hand hygiene posters should be posted in all hospital bathrooms as a reminder to staff to wash their hands.

Section 4 Implementation Checklist and Indicators

4.1 Assessment Tool for Operational Standards

In order to determine if the Operational Standards for IPPS have been met by the hospital an assessment tool has been developed which describes criteria for the attainment of a Standard and a method of assessment. This tool can be used by hospital management or by an external body

such as the RHB or FMOH to measure attainment of each operational Standard. The tool is presented in tool is presented in the Assessment Handbook.

4.2 Implementation Checklist

The following Table can be used as a tool to record whether the main recommendations outlined above have been implemented by the hospital. This tool is not meant to measure attainment of each Operational Standard, but rather to provide a checklist to record implementation activities.

Table 2 Infection Prevention and patient safety (IPPS) Checklist

S. no	standard	Method of evaluation	Yes	No
1	The hospital has IPPS committee, strategy and operational plan for IPPS and regular follow up of the activities	<ul style="list-style-type: none"> ➤ Interview CEO/medical director to confirm that IPPS committee is in place and functional(check updated and printed TOR of the committee,) ➤ Check regular monthly minutes of the committee ➤ Check the hospital has strategies/ policies ➤ Does the committee has an operational plan on IPPS ➤ Check the activities planned are implemented based on the schedule(check performance reports) 		
2	Hand hygiene practice is implemented and facilities are provided at all service points at all time	<ul style="list-style-type: none"> ➤ Check the presence of hand washing facilities(at minimum with soap , water and functional faucets) at all different service outlets with access to clients and attendants ➤ Check the hospital has continuous water supply at point of use with backup. ➤ Check hand washing posters are posted at a visible location ➤ Randomly Spot check 5-10 staff from different service points washing hands/interview about steps and critical hand washing times. 		

3	All the necessary PPEs are routinely available and utilized at the designated service areas	<ul style="list-style-type: none"> ➤ Check the availability and adequacy of necessary PPE's at(labour ward, OR, procedure rooms/minor OR, Laundry, Housekeeping/waste handlers staff ➤ utilization of PPEs at (labour ward, OR, procedure rooms/minor OR, laundry, TB rooms, housekeeping and waste handling spots 		
4	The hospital has ensured that safety surgical procedures and practices are in place to minimize risks to clients and providers	<ul style="list-style-type: none"> ➤ Check the usage of WHO surgery safe surgery checklist for 5-10 clients. ➤ Check the presence of standard surgical antiseptics at all procedure rooms. ➤ Spot check /interview whether safe practices are implemented in the OR 		
5	Safe injection practices are implemented to minimize risk to clients, staff and surrounding community and management of adverse event related to injection are in place	<ul style="list-style-type: none"> ➤ Check the presence of client education to avoid unnecessary injections ➤ Spot check /interview whether recapping of used syringes is not practiced ➤ Check safety boxes are available at right spot, disposed timely including proper incineration 		
6	The hospital practices health care waste management following the latest national guidelines	<p>Observe for the:</p> <ul style="list-style-type: none"> ➤ Presence of color coded bins ➤ practice of waste segregation, ➤ Presence of primary waste storage area ➤ Presence of well-designed functional incinerator with ash pit and proper use ➤ Presence of fenced and ventilated placenta pit with tight fitting cover(if applicable) ➤ Check /interview if safety boxes are disposed safely (quantified, properly stored and observed) during the incineration. ➤ Proper disposal of liquid wastes check presence of septic tank/ absence of leakage of the 		

		<p>sewerage system (waste should not be discharged without treatment)</p> <ul style="list-style-type: none"> ➤ If treatment plant is available the quality of discharge should be acceptable and checked periodically. 		
7	The hospital ensures cleanliness and housekeeping activities	<ul style="list-style-type: none"> ➤ Cleaning audit should be conducted based on the CASH audit tool schedule ➤ Interventions/solutions are provided to solve the gaps based on the audit finding(check monthly report collected from departments/teams ➤ Check/observe the hospital compound cleanliness and ➤ Check /observe service areas are visibly clean and absence of bad odor and well ventilated 		
8	The hospital ensures the availability of adequate and functional toilets, hand washing facility and showers facility	<p>Check</p> <ul style="list-style-type: none"> ➤ The number of functional toilets are adequate to clients(1 toilet for20-24 clients ➤ Hand washing facilities are available in all service units ➤ Functional showers at all wards ➤ Proper and separate storage of washed lines ➤ Presence of Hand washing facility 		
9	The hospital ensures adequate and functional laundry service	<ul style="list-style-type: none"> ➤ The facility has adequate laundry space ➤ The hospital has at least two functional washing machines with ironing ➤ Separate doors for entrance of dirty and clean linen ➤ Separate storage room for clean linen. ➤ Separated cart for clean and soiled linen ➤ Adequate detergents and disinfectants 		
10	All reusable medical equipment is properly	<ul style="list-style-type: none"> ➤ Check whether proper decontamination procedures are in 		

	decontaminated, sterilized or high level disinfected according to the provision of national IPPS guidelines	<ul style="list-style-type: none"> place ➤ Check functionality and how they operate autoclave and dry heat oven or chemicals for sterilization ➤ Check whether proper high level disinfection procedures are in place ➤ Check whether processed items are properly stored in well-designed rooms. 		
11	The hospital has a procedure in place to regulate traffic flow in procedure rooms, instrument processing areas, and surgical units	<p>Check how the facility handles traffic at procedure rooms as well as in the premises,</p> <ul style="list-style-type: none"> ➤ The facility has zoning restriction at OR ➤ Does the Hospital have defined visiting hours, number of attendants 		
13	The hospital has a monitoring system to ensure safety of food and water served in the premises	<p>Check</p> <ul style="list-style-type: none"> ➤ the cleanliness of the kitchen room ➤ kitchen staff/food handlers should have periodic medical check up ➤ Interview patients/clients that the food served is in hygienic way and spot check the kitchen utility ➤ All water source is lab tested periodically every 3 months. 		
14	The hospital has a clients' education system to inform and empower them so as to actively participate in the health promotion	<p>Check</p> <ul style="list-style-type: none"> ➤ the presence of client education schedule where relevant IPPS contents is included, ➤ Educational materials and supplies related to IPPS 		
15	The hospital ensures all preventive and post exposure interventions and procedures are in place in case of occurrence of occupational risks	<p>Check</p> <ul style="list-style-type: none"> ➤ presence of procedures to follow in case of injuries ➤ documentation of injuries, or incidents ➤ Preventive intervention measures such as hepatitis vaccination for staff and PEP ➤ Check presence of preventive interventions to minimize or avoid injuries. ➤ Check presence of fire safety plan 		

		➤ Presence of assigned occupational safety officer		
16	The hospital develops health facility acquired infections tracking and monitoring system	Check ➤ Recording of surgical site infection ➤ Documented action taken to reduce health facility acquired infections based on observed infection pattern		

4.3 Indicators

In addition, the following indicators may be monitored on a regular basis to assess the effectiveness/outcomes of implementation of the recommendations provided in this chapter.

Table 3 Infection Prevention Indicators

S/N	Indicators	Formula	Frequency	Comment
1.	Healthcare acquired infection rate	Total number of patients with an infection arising >48 hours after admission during reporting period /total number of admissions during reporting period *100	Quarterly	
2.	Surgical site infection	a. Total number and percentage of patients with elective Caesarean section who developed post op wound infection b. total number and percentage of patients with clean surgical procedure who developed surgical site infection	Quarterly Quarterly	
3.	a) Number of occupational exposures reported in the hospital,	a) Total number of occupational exposures during reporting period, categorized by type of exposure b) Total number of non-occupational exposures during reporting period,	Quarterly	

	categorized by type of exposure b) Number of on-occupational exposures reported in the hospital, categorized by type of exposure	categorized by type		
4.	The number of people that started PEP treatment	Total number of people started on PEP treatment during the reporting period	Quarterly	
5.	% of people that completed the PEP treatment	Total number of people that completed PEP treatment during the reporting period/ Total number of people who should have completed PEP treatment during the reporting period*100	Quarterly	
6.	Inpatient satisfaction survey: % of respondents who answered 'always' or 'usually' to the question "During this health facility stay, how often was the room you were sleeping in kept clean?"	Total number of inpatients who respond 'always or usually' to the listed question/ Total number of inpatients respondents*100	Biannual	Survey tool
7.	Outpatient satisfaction survey: % of respondents who answered 'agree' or 'strongly agree' to the	Total number of outpatients who respond 'agree' or 'strongly agree' to the listed questions/ Total number of outpatients respondents*100	Biannual	Survey tool

	question "The outpatient department was clean"			
--	--	--	--	--

Source Documents

1. Admasu, K. (2008). *Assessment of Infection Prevention Practices in Hospitals in Addis Ababa*. MPH Thesis. University of Gondar.
2. Bennett, C., and Rockwell, K. (1995). *Targeting Outcomes of Programmes (TOP): An Integrated Approach to Planning and Evaluation*. Retrieved October 2008 from: <http://deal.unl.edu/TOP/>.
3. Colton, D, (1997). The Design of Evaluations for Continuous Quality Improvement. *Eval.Health Prof.* 20.3:265-85.
4. Centers for Disease Control and Prevention. *Guidance for the selection and use of personal protective equipment in healthcare settings*. Retrieved on December 12, 2006 from www.cdc.gov/ncidod/dhqp/pdf/ppe/PPEslides6-29-04.pdf.
5. Centers for Disease Control and Prevention. (2001). *Guidelines for the Management of Occupational Exposures to HBV, HCV, and HIV and Recommendation for Post exposure Prophylaxis*. Atlanta: CDC.
6. Department of health republic of South Africa. (2007, April). The draft national infection prevention and control policy for tb, mdrtb, xdrtb. Retrieved from WWW.DOH.GOV.ZA/DOCS/POLICY/TB/PART1.PDF on march 3, 2009.
7. Fort A, (2000). Measuring Provider Performance: Challenges and Definitions. *Prime II Better practices*. Retrieved October 2008 from http://www.prime2.org/prime2/pdf/measuring_perf.pdf#search=%22prime%20ii%20measuring%20provider%20performance%22.
8. Federal HIV/AIDS Prevention and Control Office. Federal Ministry of Health, Ethiopia. (2007, October) *Comprehensive HIV Performance Standards for Ethiopia*. Draft.
9. Federal Ministry of Health, Ethiopia. 2005. *Infection Prevention Guidelines for Healthcare Facilities in Ethiopia*.
10. Federal Ministry of Health, Ethiopia. (2009, March). *Healthcare Waste Management Guidelines- Ethiopia*. Facility Guideline and Standard Operating Procedures for Hospitals. Draft.
11. The Global Fund Sixth Call for Proposals Tuberculosis and Prevention and Control. Retrieved on October 14, 2009 from http://www.theglobalfund.org/grantdocuments/6ETHHT_1317_0_full.pdf.
12. Gold, J., Tomkins, M., Melling P., Bates, N. (2004, May). *Guidance Note on Health Care Worker Safety from HIV and other Blood Borne Infections*. Washington DC, USA: The International Bank for Reconstruction and Development/The World Bank.
13. Graves, N., Weinhold, D., Tong, E., Birrell, F., Doidge, S., Ramritu, P., et al. (2007). Effect of Healthcare-Acquired Infection on Length of Hospital Stay and Cost. *Infection Control and Hospital Epidemiology*. 2007 March;28(3):280-92.

14. Hulscher, M. E. et al., (2003). Process Evaluation on Quality Improvement Interventions. *Qual.Saf Health Care* 12.1: 40-46.
15. Joint Commission International. (2002). *Joint Commission International Accreditation Standards for Hospitals*. Second edition. Illinois: Joint Commission Accreditation of Health Care Organizations.
16. Kak, N., Burkhalter, B., & M. Cooper, (2001). Measuring the Competence of Healthcare Providers. *QA Operations Research Issue Paper: Quality Assurance Project*. Retrieved October 2008 from <http://www.qaproject.org/pubs/PDFs/comptence.pdf>.
17. Koll, B., Raucher, B., Nadig, R. HIV Exposure Prophylaxis: 1996-1998. (2000). *American Journal of Infection Control* 28(1).
18. Johannessen, L.M., Dijkman, M., Bartone, C., Hanrahan, D., Boyer, M.G., Chandra, C. (2000, May). Health Care Waste Management Guidance Note. HNP Discussion Note. Washington DC, USA: The International Bank for Reconstruction and Development/The World Bank.
19. Management Sciences for Health. (1998). Performance Management Tool. *Health and Family Planning Manager's Toolkit*. Retrieved October 2008 from <http://erc.msh.org/newpages/english/toolkit/pmt.pdf>.
20. Measure Evaluation: <http://www.cpc.unc.edu/measure>.
21. McDavid J. and Hawthorn, L., (2006) PROGRAMME EVALUATION AND PERFORMANCE MEASUREMENT. Thousand Oaks, CA: Sage Publications.
22. Morbidity and Mortality Weekly Report. (2005). *Updated U.S. Public Health Service guidelines for the management of occupational exposures to HIV & recommendations for PEP*. 2005;54(RR-9).
23. PATH. (2005, October). *TRAINING Health Workers in the Management of Sharps WASTE* Retrieved from: www.path.org/files/TS_sharps_waste_training_pp41-86.pdf on May 15, 2007.
24. PATH. (2006, July). *WASTEHandlers*.
25. Rossi P., Lipsey M., and H. Freeman, (2004). *Evaluation: A Systematic Approach*. Thousand Oaks, CA: Sage Publications.
26. Siegel, J.D., Rhinehart, E., Jackson, M., Chiarello, L., and the Healthcare Infection Control Practice Advisory Committee. (2007, June). *Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings 2007*. Retrieved from <http://www.cdc.gov/ncidod/dhqp/pdf/isolation2007.pdf>.
27. Teitjen, L., Bossemeyer, D., McIntosh, N. (2003). *Infection Prevention Guidelines for Healthcare Facilities with Limited Resources*. Baltimore: JHPIEGO Corporation.
28. USAID: Human Resources for Health: <http://www.hrhresourcecenter.org/>.
29. USAID. *USAID Infectious Disease*. Retrieved on November 11, 2009 from http://www.usaid.gov/our_work/global_health/id/tuberculosis/countries/africa/ethiopia_profile.html.

30. United States Government Accountability Office. Report to the Chairman, Committee on Oversight and Government Reform, House of Representatives. Healthcare Associated Infections in Hospitals. Leadership Needed from HHS to Prioritize Prevention Practices and Improve Data on These Infections. March 2008.
31. United States Department of Health and Human Services. (2001). *Guidelines for the Management of Occupational Exposures to HBV, HCV, and HIV and Recommendation for Post exposure Prophylaxis*. Atlanta: Centers for Disease Control and Prevention.
32. United States Department of Health and Human Services, ed. (2003). *Guidelines for Environmental Infection Control in Health-Care Facilities*. Atlanta: Centers for Disease Control and Prevention.
33. Wagner, C. et al. (1999). A Measuring Instrument for Evaluation of Quality Systems. *Int.J.Qual.Health Care* 11.2: 119-30.
34. Weiss, C. (1998). *Evaluation: Methods for Studying ProgramMEs and Policies*. Upper Saddle River, NJ: Prentice Hall.
35. W.K Kellogg Foundation. (2004). *W.K. Kellogg Foundation Evaluation Handbook*.
36. W.K Kellogg Foundation:
<http://www.wkkf.org/default.aspx?tabid=75&CID=281&NID=61&LanguageID=0>.
37. World Bank. (2008). *Are You Being Served? New Tools for Measuring Service Delivery*. Washington, DC: The International Bank for Reconstruction and Development /The World Bank.
38. World Bank: http://www.worldbank.org/ieg/ecd/me_tools_and_approaches.html.
39. World Health Organization African Region: Ethiopia. *Injection Safety*. Retrieved on October 12, 2009 from http://www.who.int/countries/eth/areas/immunization/injection_safety.
40. World Health Organization. (2002, January). *Guidelines on Prevention and Control of Hospital Acquired Infections*. New Delhi: Regional Office for South-East Asia.
41. World Health Organization. *Hospital Hygiene and Infection Control*. Retrieved on March 3, 2009 from www.who.int/water_sanitation_health/medicalwaste/148to158.pdf.
42. World Health Organization. (2004). *Practical Guidelines for Infection Control in Health Care Facilities*. World Health Organization Regional Office for Western Pacific, Manila, Regional Office for South-East Asia, New Delhi SEARO Regional Publication No. 41 WPRO Regional Publication. Retrieved from http://www.searo.who.int/LinkFiles/Publications_PracticalguidelinSEAROpub-41.pdf on March 3, 2009.
43. World Health Organization. (2003, 8 December). *Practical Guidelines for Infection Control in Healthcare Facilities*. Geneva: World Health Organization.
44. World Health Organization, ed. (2002). *Guidelines on Prevention and Control of Hospital Associated Infections*. New Delhi: Regional Office for South-East Asia.

45. World Health Organization, ed. (2002) *Prevention of Hospital-Acquired Infections: A Practical Guide*- WHO/CDS/CSR/EPH/2002.12. Second ed. Malta: Department of Communicable Disease. Surveillance and Response.
46. World Health Organization, ed. (2004). *Safe Piped Water: Managing Microbial Water Quality in Piped Distribution Systems*. London: IWA Publishing.
47. World Health Organization. (2006). *Health Aspects of Plumbing*. Geneva: WHO Press.
48. World Health Organization. (2008). *Technical Guidance for Global Fund HIV proposals. Broad area: Prevention. Service Delivery area: Injection Safety and related infection control*. Retrieved from:<http://www.who.int/hiv/pub/toolkits/Injection%20safety.pdf> on 12 October 2009.
49. Yuan, C.T., Dembry, L.M., Higa, B., Fu, M., Bradley, E.H. (2009). Perceptions of Hand Hygiene Practices in China. *Journal of Hospital Infection* (71) 157-162.
50. Recommendations of the Advisory Group of Infection's Subgroup on Surveillance of Antimicrobial Resistance and Hospital Acquired Infections (HAI). A Framework for National Surveillance of Hospital Acquired Infections in Scotland.
51. *Draft Infection Prevention Operational Guidelines* (WHO/FMOH). (2008) unpublished.

14

**Federal and Teaching Hospitals' Services
Management**

Table of Contents		Page
Section 1	Introduction	14-1
Section 2	Operational Standards	14-1
Section 3	Implementation Guidance	14-2
3.1	Federal and Teaching Hospitals' management structure	14-2
3.2	Students/interns/residents' orientation	14-4
3.3	Ward round and bedside teachings related patient's dignity and quality of care Concerns	14-4
3.3.1	Protecting confidentiality and dignity	
3.3.2	Use of Skills Lab and Simulator Centers	
3.3.3	Ward rounds/bedside teaching and quality of care	
3.3.4	Multidisciplinary Morning Meeting Sessions	
3.3.5	Record keeping	
3.3.6	Medical certificate and death certificate	
3.4	Skills lab and Simulation center	14-8
3.5	Community practice and field visits	14-8
Section 4	Implementation Checklist and Indicators	14-9
4.1	Assessment Tool for Operational Standards	14-9
4.2	Implementation Checklist	14-9
4.3	Indicators	14-12
Source Documents		14-13
Tables		
Table 1	Implementation Checklist	
Table 2	Federal and Teaching Hospitals Services Management Indicators	
Abbreviations		
CASH	Clean and Safe Hospital	
CEO	Chief Executive Officer	
HRH	Human Resource for Health	
IRB	Institutional Review Board	
NA	Not Applicable	

Section 1 Introduction

Currently the government of Ethiopia promotes a model of full organizational integration where the collective components of the patient care, teaching and research are led by a single CED and a common overarching governing board. Under this model, integration requires having shared vision, collaborative strategic planning, and transparency in business functions that exists between the clinical and academic elements of a teaching hospital.

Teaching processes in hospital setting are complex clinical activities, critical to providing high-quality, safe care for patients in a timely, relevant manner. They provide an opportunity for a coordinated plan of care, while facilitating full engagement of the patient and/or care givers in making shared decisions about care.

Bedside and round teachings as well as, community filed activities have always been the cornerstone of clinical teaching for the health professional. By bedside and round teachings we mean patient-based and patient-orientated teaching and learning; taking place in natural health related environments. The clinical teacher needs to be aware of not just the learner but of the welfare of the patient. Clinical teachers and students need to understand the wider impact of their approaches to ward care, whilst managers bear a responsibility to ensure proper implementations of teaching, patientcare and research activities in a way that can improve patient safety, patient experience, team work and efficient use of resources.

The aim of this chapter is to facilitate implementation of 'Guideline for Management of Federal Hospitals in Ethiopia'' that is approved by Ministry of health and education and ensure quality of patient care and using bedside teaching to the benefit patient care outcome.

Section 2 Operational Standards

1. The hospital has established functional management and governance structure that integrates patient care, medical education and research.

2. The hospital implements an orientation programme for students/interns/residents on hospital policies and procedures prior to clinical attachments.
3. The hospital has established system to ensure care provided and students' practice maintains patients' confidentiality and privacy at all times.
4. The hospital has established protocols/policies and procedures for ward rounds and bedside students' teaching to maximize patients' benefit.
5. The hospital ensures students/interns/residents' patient care provided is supervised by their respective teachers/hospital based instructors at all times.
6. The hospital has established guidelines, memoranda of understanding and procedures for affiliation with other teaching institutions, communities and field activities.

Section 3 Implementation guidance

3.1 Federal and Teaching Hospitals' management structure

The government of Ethiopia currently promotes a model of full organizational integration where the collective components of the patient care, teaching and research are led by a Chief Executive Director (CED) and a common overarching governing board. Under this model, integration requires having shared vision, collaborative strategic planning, and transparency in business functions that exists between the clinical and academic elements of a teaching hospital.

Full organizational integration under unified leadership and governance makes sense for a number of reasons. First and foremost, full organizational integration facilitates strategic focus. Without such focus and discipline, the individual components of the patient care, teaching and research activities may pursue diverse interests, and engage in activities that may add economic or academic value to one or another component but don't optimally advance the overarching shared missions of the combined efforts. Secondly, it facilitates efficient utilization of both financial and human resources. Third, it provides researchers the opportunity to focus on local

problems and patients and the community at large will be benefited from the results of such researches.

The Federal Hospital should establish a governing board in accordance with the FMOH and FMOE's '*Guidelines for the Management of Federal Hospitals in Ethiopia*¹'. The Chief Executive Director (CED) should be nominated by the board and appointed by the Minister of Health or the concerned University President, as appropriate. Direct reports to the CED include the Chief Clinical Director, Chief Academic and Research Affairs Director and Chief Administration and Business Affairs Director. The roles and responsibilities of the aforementioned governing board positions are detailed in the *Guidelines for the Management of Federal Hospitals in Ethiopia*.

The hospital should also have an executive management committee under the CED and composed of all chief directors and senior Management team composed of clinical directors and heads of relevant departments. The teaching/federal hospitals must comply with the following basic principles of quality service, teaching and research activities and other statements contained in the '*Guidelines for the Management of Federal Hospitals in Ethiopia*':

- Ensure the complete and seamless integration of patient care, medical education and research under one institution, resulting in improved quality of patient care and outcomes.
- Federal Hospitals need to be led by boards that are empowered to oversee the core activities of the institutions.
- The functions of the Federal Hospital must be centered on patients and students as major customers.
- All legislations need to accommodate the peculiarities of Federal Hospitals, "*mutatis mutandis*".
- "Departments" are the basic functional units of a Federal Hospital for the patient services, medical education and research. All members of the department are jointly and

¹Federal Ministry of Health and Federal Ministry of Education. '*Guidelines for the Management of Federal Hospitals in Ethiopia* 2015. Addis Ababa, Ethiopia.

individually responsible and accountable for all the three functions of medical care, teaching and research.

- Hospital multidisciplinary teams are the core groups responsible for hospital activities at all levels.
- The federal academic institution board and management need to be adequately represented in the Federal Hospital Governing Board. This linkage between the two boards helps the hospital board to bring agendas of the hospital that require the university board's decision and influence it in a way that benefits the hospital.
- Physician engagement, participation and leadership at all levels ensure ownership, responsibility and accountability.

3.2 Students/interns/residents' orientation

All new students/interns/residents should receive an orientation on hospital policies and procedures prior to any clinical attachment. The orientation should include information about the hospital's structures and accountability or reporting arrangements, policies and procedures. The orientation enables the new students/interns/residents to become familiar with the entire organization as well as their own attachment areas and departments. The orientation should include at least infection prevention and patient safety practices, patients'/clients' information documentation and management, communication with patient and staff, teamwork, patient confidentiality and privacy, professional codes of conduct and other related knowledge and skills needed to perform activities. All students/interns/residents are expected to comply with all relevant policies and procedures of the hospitals at all times. The hospital should have and implements established guidelines on new students/interns/residents orientation.

3.3 Ward round and bedside student teaching related patients' dignity and quality of care concerns

The hospital should develop and implement a written protocol/policy for ward rounds and bedside student teaching to ensure these activities are patient centered and all providers (clinicians) practice and provide care, student teaching and research which maintain patients' dignity, confidentiality and privacy, as well as, ensure the quality and best clinical outcomes for

patients. Such written protocol/policy of care should also include information about patient/family/carer involvement and access to information about their care, including assessments/diagnostic testing, examinations, planning of care regimes, implementation and evaluation of the effectiveness of clinical interventions.

3.3.1 Protecting confidentiality and dignity

In addition to medical knowledge and skills, medical professionals should present psychosocial and humanistic qualities such as caring, empathy, humility and compassion, as well as, social responsibility and sensitivity to people's culture and beliefs. Respecting the patient's trust in the healthcare implies adherence to a set of values, which include acting in a patient's interest, and being responsive to the health needs of patient, while maintaining the highest standards of excellence in the practice of medicine (Professionalism). Confidentiality and dignity are much influenced by the ward layout and available space. All members of the ward round team should be aware of the immediate environment when conducting bedside teaching and ward rounds. Below are the recommended guidelines to ensure patients' confidentiality and dignity are maintained:

- Choose language that sets the tone for partnership
- Common courtesy: ask the patient for permission and introduce teacher, learners and the proposed activity,
- Physical examinations and procedures are performed and practiced with appropriate explanation to the patient and family members/carers.
- Conversations are made in a way that the patient is included and understands, such that the patient is actively engaged in a three-way dialogue with the teacher and learners.
- Ask the patient for feedback on staff (clinicians, teachers and students) communication and clinical skills, attitudes, and bedside manners.
- Ask the patient after the session whether they have any questions, since sensitive issues may have been raised, and
- Ensure that students respect the confidentiality of all information relating to patients.
- Use bedside curtains and ensure they are fully drawn before carrying out any physical examination of a patient to protect visual privacy, and auditory privacy must be respected during discussions.

- The hospital should establish a policy and procedure that determines student to patient ratio to ensure patients/clients comfort and effective student consolidation of theory into practice. That interns ensure students acquire adequate knowledge and skills during practical sessions.

3.3.2 Use of Skills Lab and Simulator Centers

Skills labs and simulation centers are safe ways of teaching health care students in general and medical and nursing students, in particular. These methods are designed to acquaint the student with clinical skills in such a way that they will acquire the skills prior to their application on actual patients.

3.3.3 Ward rounds/bedside teaching and quality of care

Ward rounds and bedside teaching are an integral part of inpatient care which offers the clinical team the opportunity to coordinate care for on-going care planning, implementation and evaluation, thereafter. Quality of care, positive patients' experience and safety should be at the centre of all ward rounds. Mistakes are more likely to occur in a complex, chaotic environment such as in a teaching hospital ward, but a systematic human factor approach to identifying omissions and mistakes can reduce errors. Establishing, promoting and sustaining culture change in relation to ward rounds and bedside teaching require strong clinical leadership and commitment from all healthcare professionals.

Below are the recommended guidelines for ward rounds/bedside student teaching:

- The maximum time for bedside teaching and ward rounds in a given patient should not exceed more than ONE hour. Wherever extra time is deemed necessary for ward rounds/bedsides should be justified and prior patient permission secured.
- Whenever teaching rounds are not conducted, regular rounds should be conducted DAILY for ALL inpatients by the ward specialist /Medical Officer.
- Findings, change in treatments, complains and any other relevant information during ward rounds and bedsides should be documented in the patients' medical records/folder.
- Mechanisms should be in place to ensure seniors/consultants' recommendations/established treatment regimens during bedside teaching and rounds are implemented as detailed in the patients' notes.

- On duty medical officers should visit ALL inpatients atleast, and as a minimum, ONCE every shift.
- Critically ill patients should be routinely monitored by the on-duty Medical officer and should be seen by ward specialist at least, and as a minimum ONCE in each Shift and whenever the need arises/ there is a change in the patient's condition.
- Inpatient medications should ONLY be changed with prior consultation and advice from the on-duty doctor. However; documented standing orders should be carried out.
- Emergencies should be attended immediately and critical situations should be managed, informed and discussed with the on duty physician wherever possible at the earliest. Priority should be given to stabilizing the patient.
- All referrals and consultations should be communicated to the on-duty doctor and to the specialist and documented in the patient medical record/folder.
- All documentations should be accurate and legible.

3.3.4 Multidisciplinary Morning Meeting Sessions

A multidisciplinary morning meeting session is a forum through which members of the multidisciplinary team((MDT)(under/postgraduate students, interns, general practitioners, consultants, nurses, pharmacists, laboratory staff, radiographers, etc) meet, usually in the morning for a short time to review patients' cases prior to the commencement of the day's routine activities, except on weekends and public holidays. The MDT uses such meetings to discuss what going on well/not going well with critically ill patients caresin order to come up with alternative effective care regimes/treatment. Such meeting sessions are also used to discuss cross cutting acute and emerging administrative issues.

One drawback of these sessions is the length of time MDT takes, resulting in increased patients' waiting time to be seen by physicians, which is one of the major sources of patients' compliant and dissatisfaction. **The duration for such morning sessions should not exceed 30 minutes.**

3.3.5 Record keeping

Ward rounds must include a holistic assessment of the patient's needs. Reviews and decisions need to be properly recorded for continuity of care. Proper recording ensures completeness in case of medico-legal issues that may arise. Records should be kept in wards or Medical records room. All documents should be legible including name and signature of the person writing.

- Patient's records should be kept centrally to promote effective communication and team working.
- All key decisions and actions made on the ward round should be clearly documented.

3.3.6 Medical certificate and death certificate

Medical and death certificates are legal documents provided to the patient from a health institution. These should contain information specifying the reason why the certificate is given in relation to the patient's ailment. This official medical document should only be written by qualified hospital personnel.

On the other hand, death certificates are legal documents provided to the family or relatives of a deceased. The death certificate should be signed by at least two medical doctors who confirmed the death and the medical doctor.

3.4 Skills lab and Simulation center

Skills labs and simulation center are upcoming ways of teaching health care students in general and medical and nursing students in particular. These methods are designed to acquaint the student with clinical skills in such a way that they will acquire the skills prior to applying them on the actual patient. Some of the skill training material can be made at the hospital workshops with very limited resources.

3.5 Community practice and field visits

Community practice and field visits are important activities of the teaching and learning process. These could be in health facilities or in the community. When students are sent in other health

facilities and the community the teaching hospital should sign a memorandum of understanding among the receiving/hosting facility and the relevant community health authority.

The below are recommended guidelines;

- a) Students should always be accompanied by their teachers/ instructors.
- b) Orientations should be given to the students on roles and responsibilities in the community.
- c) It is commendable to give the necessary information about the socio-cultural structure, values and other relevant issues before the planned deployment. The academic staff and students should respect the cultures, values, social structures,
- d) All implementation activities in the teaching hospital apply in host health facilities.

Section 4 Implementation Checklist and Indicators

4.1 Assessment Tool for Operational Standards

In order to determine if the Operational Standards for the Federal and Teaching Hospitals have been met by the hospital an assessment tool has been developed which describes criteria for the attainment of a Standard and a method of assessment. This tool can be used by hospital management or by an external body such as the RHB or FMOH to measure attainment of each operational Standard. The tool is presented in tool is presented in the Assessment Handbook.

4.2 Implementation Checklist

The following Table can be used as a tool to record whether the main recommendations outlined above have been implemented by the hospital. This tool is not meant to measure attainment of each Operational Standard, but rather to provide a checklist to record implementation activities.

Table 1 Implementation Checklist

S#	Standards	Verification method	Yes	No
1.	The hospital has established functional management and governance structure that integrates patient care, medical education and research to bring better results.	<ul style="list-style-type: none"> • Check the membership and functionality of the governing board • View the organogram of the hospital • View the JD of CED, CARD, CCD, CAD • View minutes of the executive committee, SMT • Strategic and annual plan 		
2.	The hospital ensures students/interns/residents are oriented on the hospital polices and producers before clinical attachments and are comply with them.	<ul style="list-style-type: none"> • View the orientation guidelines • Interview five students/interns/residents randomly to check if they have taken the orientation before clinical attachments. • Interview department head and ward head nurses for students/interns/residents compliance on policies and procedures 		
3.	The hospital has established system to ensure care provided and students' practice maintains patients' confidentiality, privacy and at all times.	<ul style="list-style-type: none"> • View protocols for conducting teaching on patients. • Interview 10 patient from different wards on their privacy, confidentiality and their involvement on the care process. • Observe patient care areas • check presence of sill labs and simulation centers 		
4.	The hospital has established protocols/policies and procedures for bed side teaching to maximize	<ul style="list-style-type: none"> • Check for presence of protocol • Interview staff for their knowledge of protocol and adherence • Check if student to patient ratio is defined 		

	patients' benefit.	<ul style="list-style-type: none"> • Time spent for bedside and round teachings is defined (shouldn't exceed one hour) • Consultant's recommendation on bedside/rounds are implemented 		
5.	The hospital ensures students/interns /residents' patient care provided is supervised by their respective teachers.	<ul style="list-style-type: none"> • View posted program listing supervisors/teachers for specific unit and for specific date. • Beside the students/interns/residents the hospital assigns a staffs accountable and responsible for all their respective patient care activities at all times. 		
6.	The hospital has established guidelines, memoranda of understanding and procedures for affiliation with other health institutions, communities and field activities.	<ul style="list-style-type: none"> • View the guidelines/MoU for affiliation, community and field activities • Check for mechanism to monitoring implementations of guidelines/MoU 		

4.3 Indicators

In addition, the following indicators may be monitored on a regular basis to assess the effectiveness/outcomes of implementation of the recommendations provided in this chapter.

Table 2 Federal and Teaching Hospitals Services Management Indicators

	Indicator	Formula	Frequency	Comments
1.	Number of Board meetings in reporting period	Total number of board meetings in the reporting period	Quarterly	
2.	Number of executive committee meetings in reporting period	Total number of executive committee meetings in the reporting period	Quarterly	
3.	Number of SMT meetings in reporting period	Total number of SMT meetings in the reporting period	Quarterly	
4.	Patient satisfaction rate	Average score of patient satisfaction	Quarterly	
5.	Average time spent on bedsides teaching	Total time spent on bedside during the last week of the reporting period divided by total number of bedsides conducted during the same period	Monthly	
6.	Student to patient ratio during bedsides and rounds	Average number of medical students attending bedsides and rounds in on patents	Quarterly	
7.	Proportion of community activities and affiliation with signed MoU	Total number of community activities and affiliation divided by Total number of community activities and affiliation with signed MoU	Annually	

Source Documents

1. Federal Ministry of Health and Federal Ministry of Education. 2015. Guidelines for Management of Federal Hospitals in Ethiopia. Addis Ababa Ethiopia.
2. Royal College of Physicians, Royal College of Nursing. Ward rounds in medicine: principles for best practice. London: RCP, 2012. Available at:<http://www.rcplondon.ac.uk/sites/default/files/documents/ward-roundsinmedicine-web.pdf>
3. NSW Department of Health. Multidisciplinary Ward rounds. A Resource, 2011 Available at:http://www0.health.nsw.gov.au/pubs/2011/pdf/multidisciplinary_ward_rou.pdf
4. Institute for Patient and Family-Centered Care. 2015. Applying Patient and Family-Centered Concepts to Bedside Rounds.

15

Medical Equipment Management

Table of Contents		Page
Section 1	Introduction	15-1
Section 2	Operational Standards for Medical Equipment Management	15-2
Section 3	Implementation Guidance	15-3
3.1	Medical Equipment Management Unit	15-3
3.2	Medical Equipment Committee	15-3
3.3	Medical Equipment Maintenance Workshop	15-4
3.4	Medical Equipment Inventory	15-4
	3.3.1 Equipment Risk Classification	
	3.3.2 Spare Parts Inventory	
3.5	Equipment History File	15-9
3.6	Model Medical Equipment List	15-9
3.7	Medical Development/ Operational Plan	15-10
3.8	Procurement of Medical Equipment	15-11
3.9	Equipment Donation	15-11
3.10	Preparing for Equipment Delivery and Commissioning	15-12
3.11	Acceptance Testing and Installation	15-13
3.12	Standard Operating Procedures	15-14
3.13	Calibration Inspection, Testing and Maintenance	15-15
3.14	Disposal of Medical Equipment	15-19
3.15	Training in Equipment Use and Maintenance	15-19
3.16	Budgeting for Medical Equipment Management	15-21
3.17	Medical Equipment Incident Reporting	15-23
Section 4	Implementation Checklist and Indicators	15-23
4.1	Assessment tool for Operational Standards	15-23
4.2	Implémentation Checklist	15-24
4.3	Indicators	15-24
Source Documents		15-26

Appendices

- Appendix A Sample Inventory Data Collection Form
- Appendix B Typical Equipment Lifespan
- Appendix C Sample Medical Equipment Risk Assessment Form
- Appendix D Sample Bin Record Card for Spare Parts
- Appendix E Sample Stock Record Card for Spare Parts
- Appendix F Common Site Preparation Steps for Installation of Medical Equipment
- Appendix G Guidance for Unpacking and Inspecting Equipment Orders
- Appendix H Sample Acceptance Test Log Sheet
- Appendix I Sample Planned Preventive Maintenance Log Sheet
- Appendix J Good Practice Checklist for Corrective Maintenance
- Appendix K Sample Corrective Maintenance Report
- Appendix L Sample Work Order Form
- Appendix M Sample User Training Verification Form
- Appendix N Principles behind Replacement Cost Calculation
- Appendix O Biomedical Equipment Maintenance workshop layout For General and Referral Hospital

Tables

Table 1 Sample Template for Equipment Development Plan

Table 2 Steps to Develop an Equipment Training Plan

Table 3 Medical Equipment Management Checklist

Table 4 Medical Equipment Management Indicators

Figures

Figure 1 The Medical Equipment Management Cycle

Figure 2 The Hidden Costs of Medical Equipment Management

Boxes

Box A Definition of Medical Equipment

Abbreviations

AAMI	American Advanced Medical Instruments
ACCE	American College of Clinical Engineering
BME	Biomedical Engineer
MEC	Medical Equipment Committee
BMES	Biomedical Engineering Service
BMET	Biomedical Equipment Technologist
BMT	Biomedical Equipment Technician (level 4 & 5)
CEO	Chief Executive Officer
CHAI	Clinton Health Access Initiative
CMMS	Computer Maintenance Management System
EDP	Equipment Development Plan
FAMU	Fixed Asset Management Unit
FMOH	Federal Ministry of Health
HT	Healthcare Technology
HTA	Healthcare Technology Assessment
HTM	Healthcare Technology Management
LIS	Lab Information System
MEC	Medical Equipment Committee
MEMU	Medical Equipment Management Unit
MSGD	Medical Service General Directorate
NGO	Non-Government Organization
PACs	Picture Archive Communication System
PHID	Public Health Infrastructure Directorate
PPM	Planned Preventive Maintenance
RHB	Regional Health Bureau
RIS	Radiography Information System
SOP	Standard Operating Procedure
TA	Technical Advisor
TOR	Terms of Reference
WHO	World Health Organization

Section 1 Introduction

There is a recognition that health technology management, including medical equipment, is among areas included in the Healthcare Sector Transformation plan (HSTP) for the next 5 years (2015/16-2019/20(2008-2012 EFY))². Specific areas that require improvement in the coming years include the development of local innovative healthcare technologies through technology transfer and increased local production capabilities.

In Ethiopia, lack of proper management of medical equipment has limited the capacity of health institutions to deliver adequate health care. It is estimated that only 72% of medical equipment found in Addis Ababa public hospitals functional and in some hospital in the region a functional equipment near to 50%³ are.

The rising number of these non-functional equipment are due to Poor equipment handling and utilization, frequent power surges, the age of the equipment, lack of operator training, lack of preventive maintenance, lack of spare parts, lack of maintenance capacity, and minimal knowledge regarding sophisticated equipment are factors that contribute to equipment breakdowns.

As healthcare delivery continues to expand and improve in Ethiopia, and an increasing number of sophisticated medical equipment is introduced, a system capable of supporting and managing these medical technology must be in place. It is very crucial to implement Medical Equipment Management in the hospitals to manage and coordinate the medical equipment management cycle which includes planning and assessment of needs, procurement, training, operation, maintenance, decommissioning and disposal. Activities that ensure the successful management of resources and patient related risk in a healthcare facility.

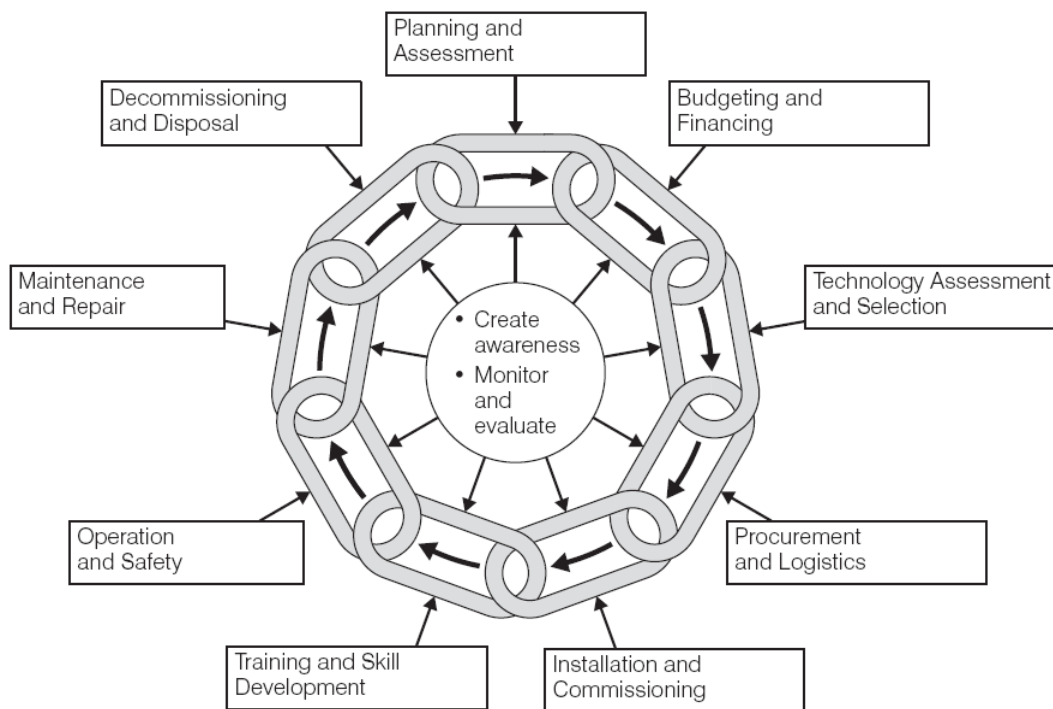
To realize this medical Equipment management in all public hospitals FMOH introduce the previous Medical Equipment Management Guideline and have tried to implement in some hospitals. Due to different reason the implementation was not as it was expected. However the introduction of that guideline creates hospital managers and professionals to have a good understanding of Medical Equipment management importance. To enhance the implementation of the Medical Equipment management chapter and to include the components of HSTP agendas the revision of the previous document is become important.

This chapter outlines procedures that a hospitals should undertake to appropriately manage their medical equipment, allowing for the extension of services while ensuring the safety of its patients.

² The Federal Democratic Republic of Ethiopia Ministry of Health. Health Sector Transformation Plan (HSTP), 2015/16-2019/20(2008-2012 EFY), August 2015. Addis Ababa, Ethiopia.

³ 2015 FMOH annual bulletin

Figure 1 The Medical Equipment Management Cycle



Source: Bird, Caroline, et al. 'How to Manage' Series for Healthcare Technology, Guide 1: How to Organize a System of Healthcare Technology Management. Hertfordshire, UK: TALC, 2005.

Section 2 Operational Standards for Medical Equipment Management

1. The Hospital has in-house biomedical Engineering department or directorate or unit to oversee the entire Medical Equipment Management system that has operational plan as well as a necessary structure and staff
2. The hospital has appropriate medical equipment maintenance workshop as per the national standard, proper calibration, maintenance and measuring tools in adequate manner.
3. The Hospital has a Medical Equipment Management Advisory Committee from multi-disciplinary team to updated the hospital's core Medical equipment list and make diction on disposal of Medical equipment as well as to share ownership
4. The Hospital has computer-based or automated inventory management system that tracks all equipment and spare parts included in the equipment management program.
5. An Equipment History File is maintained for all medical equipment, containing all key documents for the equipment.
6. Equipment acquisition is carried out after proper planning and needs assessments including technical specifications development, procurement and reinstallation inspection.

7. All new equipment's are installed and commissioned in accordance with the manufacturer's specifications and undergoes acceptance testing prior to its initial use to ensure the equipment is in good operating condition.
8. There is a schedule for inspection; testing and preventive maintenance for each piece of equipment as per the service manual and that schedule is appropriately implemented on daily, weekly and monthly bases.
9. All equipment operators and personnel are trained and re-trained on proper application, safety, and maintenance of medical equipment.
10. There is a notification and work order system for corrective maintenance and calibration of medical equipment based on their risk level.
11. The hospital ensures decommissioning including relocation, uses as spare, donation or safe discarding. Proper disposal of medical equipment is carried out according to international, national and regional legislations.

Section 3 Implementation Guidance

3.1 Medical Equipment Management Unit

Each hospital should establish a Medical Equipment Management Unit /MEMU/that is appropriately staffed and led by trained biomedical personnel including the following;

- The hospital should have a workshop which is equipped with the necessary testing, calibration, measuring instruments, maintenance tools, personal protective equipment, computer, printers, reference books, operator and service manuals, and internet access needed to carry out the overall medical equipment management services. Medical Equipment Maintenance Workshop that is separate from the General Maintenance Workshop.
- Establish and maintain paper or computer based medical equipment inventory
- Develop and maintain Equipment History Files for all equipment
- Establish SOPs for equipment use, safety, PPM and troubleshooting procedures
- Establish PPM schedules
- Conduct in house medical equipment maintenance and manage outsource medical equipment maintenance when necessary
- Conduct acceptance testing and installation of new equipment
- The unit Perform Medical Equipment after sales contract management based on the suppliers procurement agreement
- Provide staff in-service training on the correct and safe use of equipment and basic troubleshooting and preventive maintenance measures
- Track equipment inventory, service history, and work orders
- The unit ensures the hospital allocates sufficient funds for regular and incident based maintenance budget, including spare parts.
- The unit develops and maintains a written procedure describing the processes for managing risk, improving safety and quality of technologies.
- The unit establishes automated and centralized documentation system that tracks all equipment and spare parts for planning, budgeting, requisition, reporting and other purposes.
- The unit participates on equipment planning, purchase, installation, maintenance, troubleshooting, and technical support.
- The unit works towards national and international service accreditations.

The number and skill mix of staff within the medical Equipment Management Unit will depend on the size of the hospital. Larger hospitals should employ skilled biomedical Engineer, technicians who are able to undertake corrective maintenance on both small and larger, more complex equipment. However for smaller hospitals it may be more cost effective for the equipment maintenance department to perform simple preventive and corrective maintenance only, and for sophisticated and more complex equipment should be link with the referral system and get support from the next high level hospital Medical equipment Management unit or outsource larger and more complex maintenance work to an external company if needed.

A well-balanced mix of in-house and external service providers is technically and financially sound,

particularly in settings with limited resources. Even the smallest biomedical maintenance departments should oversee the condition and operation of all medical equipment, be the contact point for all equipment and maintenance matters, be responsible for finding the correct solution (calling in technical support from external service providers) and possibly undertake PPM and repair themselves (if properly trained).

The Head of Medical Equipment management unit should be a member of the Hospital management and participate the overall hospital planning and evaluation of the hospital performance and also conduct weekly periodical work-planning meetings MEMU to assess, prioritize and assign outstanding jobs based on the Work Order File.

3.2 Medical Equipment Committee

Each hospital should establish a Medical Equipment Committee (MEC) that advises the management of medical equipment in the facility.

. The MEC is chaired by the medical director of the hospital and the head of medical equipment management unit should be the secretary. Depending on the equipment being discussed by the MEC, specialists from the associated department/case team may also participate on an ad hoc basis. The MEC should be composed of hospital a medical director and representative of nurses, pharmacists, laboratory, administrative personnel and biomedical personnel basis. The selection of members of the MEC should be a clear and transparent process. The Committee should establish Terms of Reference (TOR) that clearly outline the roles and responsibilities of the committee members and should meet on a regular basis as defined in the TOR and as-needed in emergency situations.

The MEC is responsible to:

- a) oversee establishment of a medical equipment inventory
- b) develop a model medical equipment list
- c) monitor the implementation of policies, standards and guidelines for:
 - i. Planning and procurement of medical equipment
 - ii. donation of medical equipment
 - iii. Disposal of medical equipment
 - iv. Review incident reports related to medical equipment

3.3 Medical Equipment Maintenance Workshop

Medical Equipment Maintenance workshop

Hospitals should establish a medical equipment maintenance workshop based on their level (see the annex Workshop Minimum standard layout) that consists of the following:

Maintenance workshop including space for:

- Administration offices

- Electrical/Electronic Work Area
- Biomechanical Work Area
- Test , Measuring equipment, Tools, Spare parts, and Personal Protective Devices Store
- Staff Training Room

3.4 Medical Equipment Inventory

An inventory of Medical device is a detailed itemized list of medical equipment held by the hospital and:-

- Must be continually maintained and updated to reflect the current status of each Medical equipment
- Depending on the level of the hospital and its Medical equipment, different details are tracked and updated as changes occur
- Medical equipment inventory is a list of the technology on hand, including details of the type and quantity of equipment and the current operating status
 - Accessories, consumables and spare parts inventories are directly correlated with the main medical equipment inventory

Data included in Hospital medical equipment inventory are:-

- | | |
|-------------------------------------|--|
| ● Inventory identification number | ● Date inventory updated |
| ● Type of equipment/item | ● Maintenance service provider |
| ● Brief description of item | ● Purchase supplier |
| ● Manufacturer | ● Year of Manufacturing and purchased |
| ● Model/part number | ● Equipment risk classification |
| ● Serial number | ● Estimated life span |
| ● Physical location within facility | ● Availability of trained user and technicians |
| ● Condition/operating status | ● Other info as needed |
| ● Power requirements | |
| ● Operation/service requirements | |

Before establishing a medical equipment inventory the MEC/MEMU should determine which items should and should not be included in the inventory and medical equipment management program based on standard inclusion and exclusion criteria. This should be based on the definition of medical equipment that is presented in Box A. However, the MEC/MEMU may decide to exclude smaller, less expensive and easily replaceable items from the medical equipment inventory and program (for example sphygmomanometers, stethoscopes, etc.) since the effort required to record, maintain and repair these smaller items may not be worth the required manpower and financial resources. The Medical Equipment Strategy should give a clear definition of medical equipment that should be included in the medical equipment inventory and program, and should also state exclusion criteria for items that should not be included.

Box A Definition of Medical Equipment

Medical equipment can be defined as “any instrument, apparatus, implement, machine, appliance, implant, *in vitro* reagent or calibrator, software, material or other similar or related article that is used for:

- Diagnosis, prevention, monitoring, treatment or alleviation of disease or injury,
- Investigation, replacement, modification, or support of the anatomy or of a physiological process,
- Supporting or sustaining life,
- Control of conception,
- Disinfection of medical devices,
- Providing information for medical or diagnostic purposes by means of *in vitro* examination of specimens derived from the human body,

and which does not achieve its primary intended action in or on the human body by pharmacological, immunological or metabolic means.”

Source: GHTF/SG1/N29R16:2005, Global Harmonization Task Force, 2005.

Each hospital should establish an inventory of all medical equipment (following the inclusion and exclusion criteria described in the Medical Equipment guidelines. A small team should be established to set up the initial inventory of medical equipment. The team should be led by the Head of Medical Equipment management who is ultimately responsible to establish and maintain the equipment inventory. Additional equipment maintenance personnel or other staff assigned by hospital management should also form part of the inventory team. Additionally, one or more department/case team representatives should participate in the inventory of their respective department/case team.

The inventory team is responsible to visit every department and record every item of medical equipment. A sample Inventory Data Collection Form is presented in Appendix A.

Items that are obsolete, that cannot be repaired or that are not of use to the hospital should be removed and transferred to a storage area at the time of the inventory and the formal disposal process should be started. An inventory code number should be assigned to each piece of equipment. This can be done sequentially from number 1 upwards. Each new item is assigned the next number, with no regard to type of equipment, location etc. Alternatively, a ‘speaking numbers’ inventory system can be used.

This system indicates the location, the type of equipment and the individual number of the equipment. With a ‘speaking number’ system each room/department in the hospital is assigned a location code and each type of equipment is assigned an equipment type code – for example “T1 99 02” where T1 is Theatre number 1 in the operating suite, 99 indicates the item is suction pump and 02 is the individual number of machine.

Although the ‘speaking numbers’ inventory system is more complex to establish, it has the advantage that it is easy to identify the location of each item and to organise the equipment inventory by each department.

An inventory database should be established to record and manage all items of equipment. This can be paper based or computerized, with paper back up. The following should be documented in the Inventory for each item of equipment:

Information gathered as part of the inventory of medical equipment should be included in the overall fixed asset inventory of the hospital. Further guidance on the fixed asset inventory process is provided in **Chapter 18 Health Financing and Asset Management**

The inventory should be reviewed and checked annually, with regular updates during the year when new equipment arrives or is removed from service. Additional inventory checks may be conducted at regular time intervals throughout the year, as determined by the MEC and hospital management.

When an item is discarded it should be removed from the Inventory Database. A record should be kept in a separate file of all discarded equipment for future reference and audit purposes.

All equipment should be labelled with its inventory number preferably using a water proof PVC sticker.

Hospital policy should prohibit use of medical equipment without inventory tags/stickers. This is to ensure that all equipment in use has undergone 'acceptance testing' and receives regular preventive maintenance, hence minimizing risks to patients and staff from faulty equipment.

3.4.1 Equipment Risk Classification

As part of establishing an inventory an assessment should be undertaken to classify each item of equipment as 'high', 'medium' or 'low' risk. This level of risk determines the priority with which equipment should be repaired and maintained or replaced if no longer operable. For example if a 'high risk' item (such as an anaesthesia machine) is broken this should generally be repaired before a 'low risk' item even if the 'low risk' item has been broken for longer, except under special circumstances.

Additionally, when implementing the guidance in this chapter (such as developing standard operating procedures (SOPs), setting maintenance schedules, training staff in equipment use etc) the 'high risk' items should be dealt with first.

The assessment of risk should be done based on:

- Function of the equipment: For example whether the equipment is used for life support, routine treatment, diagnosis or monitoring
- Risk which may associated with equipment failure
- Preventive maintenance requirements: The frequency with which preventive maintenance is required to minimize breakdown and ensure safety
- Main area of equipment use: For example use in anaesthesia or surgical areas, use in general care areas etc
- Likelihood of equipment failure: This is measured as the 'mean time between failures' calculated from previous use or service records

Appendix C presents a Sample Medical Equipment Risk Assessment Form for assigning the risk category to medical equipment.

A Medical Equipment Risk Assessment Form should be completed for all items in the equipment inventory. The risk category should be entered on the Inventory Index Card, and the Risk Assessment

Form should be filed in the Equipment History File (see Section 3.4 below). Any new item of equipment should be assigned a ‘risk category’ when it is received by the hospital and entered into the inventory.

3.4.2 Spare Parts Inventory

The equipment maintenance department should maintain a stock of the most commonly replaceable spare parts for the different types of equipment in the hospital. Items should be kept in a locked room with a stock control system in place. Spare parts should be stored according to manufacturer’s instructions and should not be used beyond the expiration date.

The inventory of spare parts should be managed using a ‘stock and bin card’ system.

Bin Card:

A Bin Card should be prepared for each spare part stored in the maintenance department. The Bin Card should be kept with the product inside the store. All transactions of the product to or from the store should be recorded on the Bin Card. The Bin Card should also include a column for the loss/adjustment of stock and a column for the stock balance. The stock balance should be updated after each and every transaction or adjustment.

Stock Card:

The Stock Card is similar to the Bin Card but is used to track stock based on issuing and receiving orders. The Stock Card should be maintained by the Head of the Maintenance Department. Whenever Stock Cards are updated the totals should be checked against those on the Bin Card and any discrepancies should be investigated.

A combined Bin/Stock Card System provides a measure of internal control that helps to minimize leakages of stock due to theft or loss.

Paper based or electronic Stock Cards can be used. If an electronic system is installed there should be regular back up of data.

Sample Bin and Stock Record Cards are presented in Appendices D and E.

3.5 Equipment History File

An individual file/folder should be established for each item of equipment. This file should be held in the equipment maintenance department. The file should contain:

- Inventory Data Collection Form (Appendix A)
- The address of the manufacturer
- The address of the supplier and local agents
- Details of any maintenance contract and maintenance contractor (if relevant)
- Copy of warranty (if relevant)
- Price paid/Copy of invoice
- List of consumables required to run machine and recommended spare parts
- Acceptance test log sheet (Appendix H)

- Medical Equipment Risk Assessment Form (Appendix C)
- SOPs for operation and maintenance of the item
- Planned preventive maintenance schedule
- Corrective maintenance reports (Appendix K)

Operator, service and other relevant manuals for all equipment items should be stored in the workshop library. Copies should be made and distributed to users and other interested parties as necessary.

3.6 Model Medical Equipment List

Each hospital should establish a model medical equipment list that describes the ‘ideal’ number and types of equipment required by the hospital. A multi-disciplinary team brought together from across all the departments/case teams should develop an outline of the Essential Service Package for the hospital that describes the core functions and services provided. This Essential Service Package will determine the corresponding Model Equipment List of all items that are necessary to provide each service. Each discipline will decide the type of equipment required to provide the healthcare interventions described in the Essential Service Package. National standards for medical equipment for each type of service or hospital (Primary, General and Specialized), where these exist, should be the minimum requirements of the Model Equipment List, but these may be expanded upon as determined by the multi-disciplinary team.

The Model Medical Equipment List should be approved by the MEC.

3.7 Medical Equipment Development Plan

The Equipment Development Plan(EDP) is a plan to define goals for acquisition, maintenance, and replacement of equipment in the short term and long term. The equipment development plan should be developed taking into consideration the current equipment inventory and the ‘model equipment list’..

The medical equipment development plan (EDP) brings attention to:

- Current stock and condition of equipment: which pieces need to be replaced or rehabilitated, which pieces need to be disposed
- Shortfalls in equipment: missing equipment that needs to be purchased
- What action is needed to rehabilitate, replace or purchase equipment
- Short-term (1 year) and long-term (2-5 year) goals to ensure that the hospital has all necessary equipment for current and future services

The EDP should be developed by the MEMU and approved by hospital management. The plan is the basis for the annual equipment budget .The Head of Equipment Management Unit is responsible to implement the plan, with the assistance of other departments where relevant (for example administration and finance). He/she should present quarterly reports to the hospital management on the status of implementation of the MEMU plan.

The plan should be updated annually. A sample template for an EDP is presented in Table 1 below.

Table 1 Sample Template for Equipment Acquisition Plan

Department/Room:					
Equipment (type and inventory number)	Condition For example age and expected life; working condition (good, fair, poor, needs repair, damaged beyond repair, obsolete)	Short Term Action (1year) For example: repair needed; replacement needed; user training needed; first time purchase needed	Short term cost estimate	Longer Term Action (2-5 years) For example: replacement needed; first time purchase needed	Long term cost estimates
A. Existing equipment					
a. b. c. etc					
B. Additional equipment required (based on Model Equipment List)					
a. b. c. etc					

3.8 Accusation /Procurement of Medical Equipment

The accusation / procurement of medical equipment should be undertaken in accordance with the Ethiopian government/ MOFED/BOFAD directives. Medical Equipment may be inter in to the hospital through one of the following means.

1. Purchasing
2. Donation
3. Leasing and Renting
4. Cluster based equipment sharing

In Medical equipment Procurement process the following steps should be considered.

- Need assessments and Justifications,
- Planning and Budgeting
- Technology Assessment, preparation of technical specification and Selection
- Cost of ownership(Maintenance, Spare part, consumable etc) costs
- After sale services
- Human resource
- Procurement

When purchasing new equipment enough spare parts and accessories to last at least 2 years should also be purchased.

Further guidance on the procurement process and development of a procurement policy is presented in *Financial and Asset Management Chapter*.

3.9 Equipment Donation

The hospital MEMU should strictly follow National Medical Equipment Donation Directive for the receipt of donated medical equipment. The directive describes the conditions under which a donated medical equipment will be accepted by the hospital. For example:

- Donated equipment must be in good working order
- Equipment will only be accepted if the item is needed by the hospital and is described in the Model Equipment List and associated annual Equipment management Plan
- Instruction manuals, in English, should be supplied with the donation
- Supplies, consumables and spare parts for the equipment should be readily available in Ethiopia. If that is not possible, at least 1 to 2 years of needed consumables and spare parts should be supplied by the donor with the donated equipment
- Expertise for the maintenance and repair of the equipment should be available in Ethiopia
- The equipment must be compatible with other medical equipment system in the hospital
- The equipment must not require any special storage or operating conditions that the hospital cannot provide (for example air conditioning, humidity control etc)
- The donor should provide training in the regular use and preventive maintenance of the equipment, if relevant, and
- The donor should provide follow up support regarding use of the equipment, where necessary

When items are donated the hospital and donor must agree who is responsible for customs clearance, including approval of the item by the regulatory authority if necessary.

The MEMU should establish a list of desired equipment that is based on the Model Equipment List and associated Equipment annual Plan. The list of desired items and donation policy should be given to all individuals/organizations that are willing to make a donation to the hospital.

All equipment donations should be reviewed by MEMU and approved by the hospital management before acceptance.

3.10 Preparing for Equipment Delivery and Commissioning

When an order has been placed to purchase a new item of equipment, or a donation has been accepted, preparations must be made for receipt of the item. This is to ensure quick and efficient installation, commissioning, training, and eventually placement into service. Pre-installation work involves the following:

A) Site Preparation

Site preparation is often required to ensure that the location where the new equipment is to be installed is suitable. This may require new connections for electricity, water, drainage, gas or waste and may even require construction work.

Preliminary considerations to think about include:

- Is there sufficient access to the room/space (door entry sizes, elevator capacity)?
- Is the room/space large enough?
- Is the position and layout of the room/space suitable?

- Are the required work surfaces and service supply points available?
- Is the environment adequate for the purpose? (Is it dust-free? Away from running water? Air conditioned, if necessary?)

Site preparation tasks may include:

- Disposing of the existing item that is to be replaced
- Extending pipelines and supply connections to the site
- Upgrading the type of supply, such as increasing voltage or pipeline diameters
- Providing new surfaces, such as laying concrete or providing new worktops
- Creating the correct installation site, such as digging trenches, building a transformer house or a compressor building

Appendix F presents a list of Common Site Preparation Steps to follow when preparing a site to receive a new piece of equipment.

B) Organizing Lifting Equipment

Large or heavy items will need to be lifted and moved upon arrival. Plans should be made ahead of time to arrange proper lifting/moving equipment before the new equipment arrives.

C) Organizing Warehouse Space

If goods need to be stored before they can be unpacked or installed, space should be made available for these items before they arrive.

D) Preparation for acceptance testing and installation

Any preparations that need to be made for acceptance testing and installation, including ensuring that appropriately trained personnel to do the testing are available, gathering or acquiring materials, working/storage space and/or test instruments should be done before the item arrives.

E) Preparation for User Training

The details of training should already have been decided when drawing up the purchase contract or donation acceptance document. During delivery time, any preparations that need to be made (including preparation of training materials, training space, equipment, etc.) should be finalized in order to ensure training can commence when the equipment is delivered.

3.11 Acceptance Testing and Installation

All medical equipment, purchased or donated, should be inspected upon delivery and tested prior to initial use. This is known as acceptance testing and ensures that delivered medical equipment is complete, undamaged, in good operating condition, accompanied by manuals and spare parts, satisfies safety criteria, and meets specifications of the purchase order. A competent individual must assess the functionality of the equipment to prevent any harm to the operator or patient upon use. Guidance for unpacking and inspecting equipment is presented in Appendix G.

The main steps in the Acceptance Testing process are described below:

- 1) Determine what personnel should be involved by asking the following:

- **How complex is the equipment?** The more complex the device, the more likely the manufacturer will need to be involved.
- **Do the hospital staffs have the necessary technical skills?** If the staff cannot perform the job, then an outside vendor should be contracted.
- **Are you buying a single item or in bulk?** If purchasing in bulk, it is often worthwhile to contract the manufacturer to perform this process on all the equipment. For a single unit, the in-house staff may be able to manage with guidance from the manufacturer.

2) Isolate the equipment until it has undergone acceptance testing

Once equipment arrives, set it aside by isolating the equipment in a special holding area and by labelling it as “not for use” to ensure that the equipment will not be used. The only exception is for large items that may be delivered to where they will be installed but should still be clearly marked as “not for use” until the acceptance process is completed.

3) Undertake acceptance testing and complete Acceptance Test Log Sheet (see Appendix H)

Acceptance testing should include:

- Checking the delivered equipment matches as per the details of the purchasing order (model, vendor, quantity, technical requirements, etc)
- Checking the equipment is accompanied by operation and service manuals and necessary paperwork (e.g. warranty, if applicable) as per the purchase order.
- Checking that appropriate spare parts and consumables are included as per the purchase order
- Installation and commissioning of the equipment. Installation is the process of fixing the equipment into place. Depending on the complexity of the equipment, this can range from simply plugging the equipment into an electrical socket to building it into the fabric of the room. Commissioning is performing a series of tests and adjustments that will check whether the new equipment is functioning correctly and safely, and ensuring that any adjustments are made, before the equipment is accepted.

4) Accept the equipment and Establish Equipment History File

If the equipment passes the safety, calibration and function tests and commissioned then the hospital can officially accept the equipment. An Acceptance Test Log Sheet (Appendix H) should be completed and signed and filed in the Equipment History File.

5) Enter equipment into the equipment inventory

After the item has undergone acceptance testing and commissioned it should be entered into the hospital inventory. The assigned inventory number should be marked onto the item of equipment.

6) Prepare Standards Operating Procedures and assign Planned Preventive Maintenance Schedule(see sections 3.11 and 3.12 below)

7) Provide training for equipment users and maintainers as appropriate.

This will ideally occur immediately but sometimes, due to availability of trainers (in-house, vendor, other), training may occur at a later date. In this case the MEU will have to decide if it is safe to hand over the equipment before training the staff. Placing the equipment into operation without training should only be done when the equipment type has been used before and the staffs are familiar with proper operation. Installation and commissioning should be carried out in the presence of the user as well as engineering support team. Demonstration of the device indicating all its functions should be carried out to the satisfaction of the user and biomedical engineering team. Training on operation and maintenance

should be included in specifications indicating the type, duration, location (on-site/off-site, local/overseas), target personnel i.e. doctors, nurses, maintenance personnel, since differing types and levels of training needs to be provided for each staff category.

User training should be provided by an application specialist, especially training for sophisticated or complex devices.

8) Handover equipment to appropriate department/users.

9) Make an order or recommendation for final payment

Final payment should be made after the item has undergone acceptance testing, commissioned and all agreed services (e.g. installation or training) have been provided.

Payment should be pending if the equipment does not pass the acceptance test /not commissioned or the services provided are unsatisfactory as per the procurement agreement. In such circumstances the MEMU must work with the supplier to rectify the situation as quickly as possible.

3.12 Standard Operating Procedures

To ensure that equipment is used correctly and safely Standard Operating Procedures (SOPs) should be developed and attached to each item of equipment. The SOP should be a simple 'how-to' guide that describes how to use the equipment, instructions for care of the equipment, and basic safety and troubleshooting procedures. The SOP should be based on the manufacturer's user manual (if available). SOPs should be kept attached or adjacent to the item and a copy should be included in the Equipment History File that is stored in the Medical Equipment Maintenance Department.

All staff, including maintenance technicians, should be trained to follow the SOPs and should follow infection prevention procedures when handling medical equipment. (For further guidance on infection prevention see *Infection Prevention and Patient Safety Chapter*).

3.13 Calibration, Inspection, Testing and Maintenance

Medical devices may be a life threatening problem if it is not managed properly. Therefore it is important to have a well-planned and managed maintenance program to ensure medical equipment are reliable, safe and available all time when it is needed for diagnostic procedures, therapy, treatments and monitoring of patients. In addition, such activities prolong the useful life of the equipment and minimize the repair related cost of equipment.

- Disinfection and sterilization of equipment and tools is required.
- Incident report is performed
- There is a schedule for regular inspection, testing and preventive maintenance for each piece of equipment as per the manufacturer's service manual.
- Corrective maintenance is performed whenever medical equipment breaks down.
- There is a schedule for calibration of medical equipment (for high risk equipment) as per the manufacturer's service manual.

a) Planned Preventative Maintenance

All medical equipment should be inspected and tested prior to use (acceptance testing) and thereafter should undergo regular planned preventative maintenance (PPM) to ensure that the equipment is working

properly and to prolong its expected lifetime. Safety and calibration testing should also be performed regularly to ensure the equipment is safe to use and is operating within expected specifications (or to adjust if it is not).

Preventing equipment failure is more efficient than repairing equipment after breakdown occurs. PPM should be carried out by both equipment users (for simple, easy, everyday tasks) as well as biomedical technicians from the maintenance department (for more complex tasks requiring special skills and/or tools). For some equipment PPM should only be carried out by certified service engineers.

SOPs for each item of equipment should include instructions on simple PPM and troubleshooting that can be performed by users of the item.

For each item of equipment there should be a plan for preventive maintenance, safety and calibration testing that is documented and at a minimum follows manufacturer's recommendations. If the manufacturer's manual is not available then inspection, testing and preventive maintenance should be conducted at a minimum every six months.

The preventive maintenance plan should include:

- A description of and guidelines for the tasks to be conducted including:
 - ✓ Care and cleaning
 - ✓ Safety procedures
 - ✓ Functional and performance checks
 - ✓ Calibration testing
 - ✓ Preventive maintenance checks
- A statement on who is expected to perform each of the above tasks
- The frequency with which each of the tasks should be conducted

For each item of equipment a timetable/schedule for each of the tasks above should be established together with a log file to document all maintenance activities. The maintenance plan and schedule should be developed collaboratively between the Medical Equipment Maintenance Department and the Head of the Department/Case Team where the item is located. The maintenance plan, schedule and log sheet should be attached or kept adjacent to the equipment item. A copy of the plan and schedule should be kept in the Equipment History File that is held in the Equipment Maintenance Department.

A sample Preventive Maintenance Log Sheet is presented in Appendix I.

The Head of the Equipment Maintenance Department should establish a system to check all Maintenance Log Sheets to ensure that all PPM tasks are conducted in accordance with the schedule for each item of equipment, and should address any instances where PPM is not conducted in accordance with the schedule.

b) Calibration

Some medical equipment, particularly those with therapeutic energy output (e.g. defibrillators, electrosurgical units, physical therapy stimulators, etc.), needs to be calibrated periodically. This means that energy levels are to be measured and if there is a discrepancy from the indicated levels, adjustments must be made until the device functions within specifications. Devices that take measurements (e.g.

electrocardiographs, laboratory equipment, patient scales, pulmonary function analyzers, etc.) also require periodic calibration.

c) Safety inspections

These are performed to ensure the device is electrically and biomechanically safe. These inspections may also include checks for radiation safety or dangerous gas or chemical pollutants. When these inspections are done, the results are compared to country or regional standards as well as to the manufacturer's specifications. The frequency of safety inspections may be different than planned

Maintenance and performance inspections, and are usually based on regulatory requirements periodic calibration to ensure accuracy compared to known standards.

d) Corrective Maintenance

Corrective maintenance involves equipment repair and replacement of parts. Instrument operators can follow SOPs to perform simple corrective maintenance such as replacing blown out fuses or simple troubleshooting. However, most corrective maintenance must be performed by a qualified technician. A 'Good Practice Checklist' for corrective maintenance technicians is presented in Appendix J.

Whenever corrective maintenance is performed a Corrective Maintenance Report should be completed and stored in the Equipment History File. A sample Corrective Maintenance Report is presented in Appendix K.

NB: Only engineers that are certified by the supplier can perform corrective maintenance on instruments still under warranty.

If a large piece of equipment requires major rehabilitation an assessment should be done to determine whether it is worthwhile repairing the item or whether it would be better to purchase a new one. Generally, if purchasing separately all the parts that make up a piece of equipment it would cost 3-4 times the price of the equipment. Rehabilitation may be cheaper in the short term, but if this only adds a short additional lifespan to the item or if it is continually necessary to replace different parts, then it may be more cost effective to purchase a new item.

e) Work Orders and Reports

Whenever an item of equipment is faulty this should be reported immediately to the medical equipment maintenance department using a Service Request/Work Order Form. Requests for maintenance to be undertaken by technicians should also be documented on a Work Order Form. In urgent cases the request for repair can be made by a telephone call or other verbal means of reporting, however this must always be backed up with a written request on the Work Order Form. A sample Work Order Form is presented in Appendix L.

Three copies of the Work Order Form should be prepared (using carbon copy paper):

- The first copy should be kept by the user department and filed in a 'Maintenance Pending File'. This file is best organized by date submitted, with the most recent request at the top. The 'Maintenance Pending File' should be checked regularly by the Head of Department/Case Team to ensure that Work Orders are being carried out in a timely manner. When the work is completed and the item is returned to service the Work Order Form should be signed by the

user (Department/Case Team Head or representative) and the Work Order Form should be transferred to a 'Maintenance Completed File'.

The second two copies of the Work Order Form should be submitted to the Equipment Maintenance Department together with the broken item (if it is feasible to move the item). Whenever a Work Order is received by the Equipment Maintenance Department this should be reviewed by the Department Head and the duty should be assigned to the appropriate individual (or outside service provider). The name of the person who is assigned to undertake the repair should be written on both copies of the Work Order Form. In the event that several items required repair at the same time then 'High priority' equipment should be repaired before 'Medium' or 'Low Priority' equipment.

- Within the Equipment Maintenance Department one copy of the Work Order should be entered into a 'Work Order Pending' File held by the Head of Equipment Maintenance. This file is best organized by date submitted, with the most recent request at the top. When the work is completed the Work Order should be transferred to a 'Work Order Completed' File and kept as a permanent record of the work undertaken.
- The final copy of the Work Order Form should be given to the responsible medical equipment technician who is assigned to undertake the repair. Upon completion of the task the final section of the Work Order Form and a Corrective Maintenance Log should be completed. The item should be returned to the user. The completed Work Order Form and Corrective Maintenance Log should be filed together in the Equipment History File.

f) Outsourcing of Technical Services

When the equipment maintenance department is unable to perform PPM or corrective maintenance of a particular item of equipment, support from external maintenance contractors will be required. Work may be outsourced to the National Scientific Equipment Centre, the manufacturer's local agent, the manufacturer, private maintenance companies, individuals such as electricians or plumbers or the Ethiopian Health and Nutrition Research Institute for laboratory equipment. The Ethiopian Biomedical and Laboratory Equipment Engineers Association could be a good source for finding qualified individuals or companies. Support may also be provided by the relevant Regional Health Bureau.

When making the decision to outsource a service, the hospital must consider the task at hand and the qualifications needed to perform the task. In order to do this, the Medical Equipment Committee should register all potential individuals and companies that they would consider as a supplier of maintenance services. The MEMU should prepare a list of requirements that each company should meet in order to be contracted by the hospital and a team of suitable staff chosen to visit these registered suppliers when possible to ensure that the suppliers meets the requirements and are qualified to provide the services they offer.

Once the appropriate companies or individuals have been identified and registered, the MEMU should determine the type of arrangement they would like to have with the particular organization. The arrangement used depends on the sophistication of the equipment and the number of maintenance options available. The most common arrangements encountered are:

1. Agents' Maintenance Contracts – typically for sophisticated equipment that is covered by a warranty for a certain period of time. The contract would be for service post-warranty and negotiated at the time of equipment purchase.

2. Annual Contracts – for particular types or groups of equipment that can be maintained by an external company for a period of one year. A formal tendering process should take place to select the best company to provide these services.
3. Annual Standby Registration – these companies or individuals can be called upon as needed to provide maintenance services for certain equipment although they must submit tenders at the time a job becomes available
4. One-off Jobs – in this case, the expertise needed may not be on the registered list and the MEMU must look for individuals or companies that might be able to undertake this one-time only task.

Having such arrangements allows the hospital to gain from the benefits of bulk purchasing (e.g. one company can cover many different maintenance jobs), gain from the benefit of fixed period contracts; ensure that appropriate contractors are chosen and that the quality of work is high. Therefore, when a repair requiring external support becomes necessary, the Head of the Equipment Maintenance Department can refer to the registered list of companies and/or contracts to outsource the work.

The MEMU should follow national guidelines for the use of outside contractors including:

- Staff from the maintenance department must accompany outside consultants at all times
- Contractor must provide feedback on progress of job
- Contractor must sign-out after each service visit
- Contractor will provide a report at the completion of the service to be placed in the equipment file

Hospitals may also collaborate together to enter joint service contracts in order to minimize costs and benefit from bulk purchasing.

3.14 Disposal of Medical Equipment

The hospital should establish Medical Equipment Disposal Committee to oversee the disposal of all medical equipment that are no longer required by the hospital, including medical equipment. Items may be disposed when they are no longer required by the hospital, cannot be repaired, or have reached the end of their useful lifespan (see Appendix B). A policy for the disposal of fixed assets should be established by the hospital and approved by hospital management.

Whenever an item of medical equipment is disposed it should be removed from the hospital inventory and a record should be entered into the Equipment History File to indicate that the item has been disposed. The Equipment History File should then be moved to a separate storage location for 'inactive' equipment items.

Further guidance on the disposal of hospital assets, including medical equipment is presented in *Financial and Asset Management Chapter*.

3.15 Training in equipment use and maintenance

Proper use of medical equipment is essential to maintain optimal performance of medical devices and preserve the safety of patients as well as the staff operating the devices. Given the variation in technical characteristics of medical equipment, all clinical staff should be trained to operate each medical device that they use. The MEMU is responsible for overseeing all user training for medical devices, whether in-service or conducted by suppliers/external parties.

Training should be conducted at various times throughout a staff member's career:

- Induction training – when staff are newly placed in post, move to a new department or facility, or to a new location with different responsibilities
- Training at the commissioning of equipment – when new equipment first arrives
- Refresher training – to update and renew skills throughout the working life of staff

Building the capacity of biomedical engineers, technologists, and technicians is always one of the major activities of the Biomedical Engineering Directorate. This can be realized through regular short-term training programs, Supplier Company's training, and formal credit programs in higher education institutions, local and abroad. All such training programs are accompanied by certifications.

The hospital plans annually at least one-week long in-house refresher training program for its staffs. Participation in such refresher programs is mandatory and is part of the annual performance evaluation.

User training should cover:

- Equipment capabilities
 - Purpose and capabilities of device
 - Awareness of different models and operational differences
 - Awareness of the expected life of medical device and need for replacement
 - Knowledge of where/how to access user manuals and receive equipment updates
- Operating procedures
 - How to assemble the device and connect accessories
 - How to operate the device effectively and safely
 - How to link device to patient safely, causing minimal discomfort to patient
 - How to set/change controls
- Protocol for equipment failure
 - How to recognize malfunction (or correct if possible)
 - Who to contact to report damage and adverse incidents and to do so promptly
- Emergency and safety procedures
 - How to safely shut down/disassemble
 - How to clean/decontaminate device and maintain equipment in good operating condition
 - Basic safety protocol:
 - Always visually inspect equipment before each use. Check for signs of damage or incorrect settings. Make sure all necessary parts are in place
 - Do not use equipment unless properly trained
 - Ask senior staff or other trained personnel when in need of assistance
- Maintenance procedures
 - How to perform basic, routine maintenance (if applicable)
 - How to request equipment maintenance (work order)
 - How to keep track of consumables and reorder when necessary

The MEMU should establish an Equipment Training Plan that describes the training needs of hospital staff for the use of medical equipment. Table 2 describes the steps to develop an Equipment Training Plan.

Table 2 Steps to Develop an Equipment Training Plan

Process	Activity
The MEMU (or its training sub-group):	
Identify existing needs	Refers to: <ul style="list-style-type: none"> Any record the Maintenance Manager made when analyzing the Equipment Inventory that training was required Any prompts, triggers or requests for training reported/submitted
Identify new needs	Study the Equipment Development Plan (EDP) and identify the training required to handle: <ul style="list-style-type: none"> Planned equipment replacements Planned new equipment purchases/donations or additional services Problems with equipment operation, maintenance or management
Determine the range of training that will satisfy the needs	Consider: <ul style="list-style-type: none"> The eight different areas for equipment-related skill development: basic handling, operation, application, care and cleaning, safety, user PPM, PPM and repair for maintainers, associated skills (procurement, stock control, financial management, etc.) The three types of training required at different times in the working life of staff (induction, at commissioning and refresher training)
Determine the source that will provide the needs	Consider: <ul style="list-style-type: none"> The various sources of training which provide the option for on-the-job or external courses Any initiatives organized and provided by the central health service provider organization and donor programs
Prioritize across the needs	Prioritize the short-term and long-term actions
Prepare an overall Equipment Training Plan	Cover all aspects listed above for equipment-related skill development.

Training can be provided either on site or off site. When purchasing new medical equipment, the hospital can request that suppliers provide in-service training for equipment use, maintenance, and repair. The Hospital can also send staff to the manufacturer. The MEMU should assess the quality of the manufacturer's user training to ensure it is practical and provides adequate training for equipment use. The hospital can also send staff to be trained at other facilities where employees are already trained and using the particular item of medical equipment. The Hospital can hold in-service trainings if it has staff that are professionally trained to operate and repair the specified medical equipment and has other needed resources to conduct the training (see below).

For in-service trainings the hospital should provide:

- Trainer (professionally trained expert in use, maintenance, and repair of medical equipment)
- Training materials specific to the piece of medical equipment
- Adequate space to conduct the training

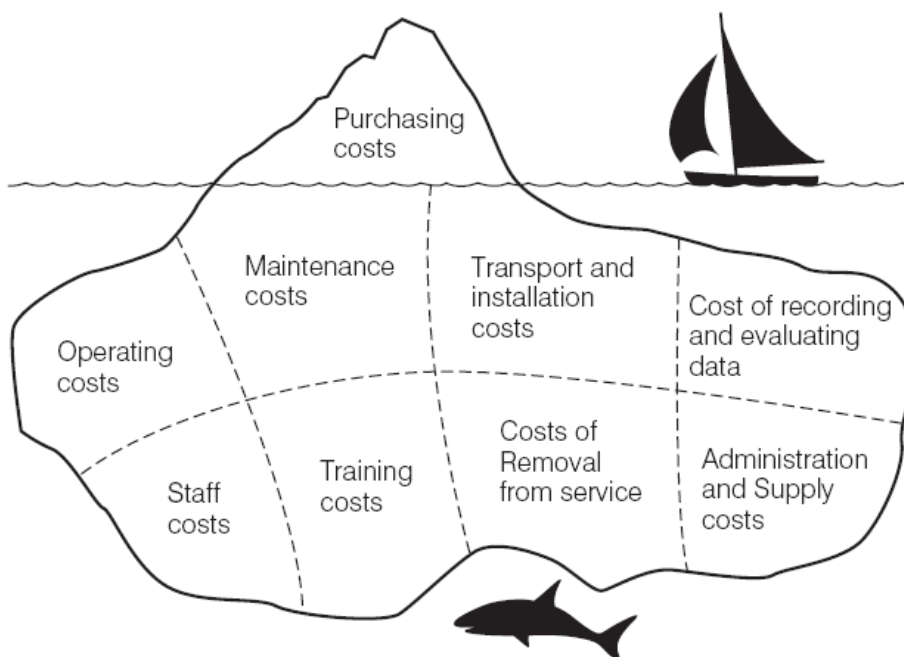
- Sample equipment and supplies to practice/conduct the training
- Test and calibration instruments to test performance and safety
- Spare parts for maintenance training
- User and service manuals
- Formal method of testing and method of certifying trainees (ex. give exam and issue certificate)

The Human Resource Department and MEMU are responsible for keeping records of all user trainings. Training records should specify the name of the person trained, the trainer, the date of the training, the medical device for which training was conducted, its manufacturer, and model. If possible, the content of the training should be appended or briefly described in the user training form. A sample User Training Verification Form is presented in Appendix M.

3.16 Budgeting for Medical Equipment Management

To effectively manage all medical equipment careful planning and budgeting is essential. As illustrated in Figure 2 below, there are a variety of costs to medical equipment. It is essential that entirety of costs for all medical equipment—existing and planned purchases—are considered when planning and budgeting.

Figure 2 The Hidden Costs of Medical Equipment Management



Source: Temple-Bird, C., Kaur Manjit, Lenel Andreas, and Willi Kawohl. (2005). *Guide 2: How to Plan and Budget for your Healthcare Technology*. In 'How to Manage' Series for Healthcare Technology. p.58 Hertfordshire, UK: TALC.

The first step in preparing a budget for the management of medical equipment is to determine the value of existing stock. This is known as the 'Stock Value Estimate'. This should indicate the up-to-date

replacement cost of all items in the Equipment Inventory. The up-to-date replacement value can be estimated from purchase contracts, supplier information, data from service contracts, manufacturer's websites etc. With the above information it is possible to calculate an annual equipment budget. This should be based on the Equipment Development Plan and should include:

- Replacement costs for current equipment
- Maintenance and repair costs
- Costs for new purchases for expansion of services
- Installation costs of new equipment
- Training costs

a) Replacement costs for current equipment

An annual replacement budget covers equipment likely to reach the end of its usefulness by the end of the year. A quick estimate of an annual replacement budget can be made using the Stock Value Estimate as follows:

Annual replacement budget = Stock Value Estimate/ average lifetime of all equipment

Further guidance on the calculation of replacement costs is presented in Appendix N.

b) Maintenance and repair costs

As an approximation, maintenance and repair costs for medical equipment are generally between 5-6% of the 'new' stock value. Hence the Stock Value Estimate can also be used to estimate the budget required for maintenance and repair.

c) Costs for new purchases for expansion of services

The Equipment Development Plan guides the purchase of new equipment for the hospital. The cost of items that are due to be purchased in the Financial Year should be calculated and included in the Medical Equipment Budget.

d) Installation costs of new equipment

As described above, there may be costs associated with the installation of new items such as renovation, installation of plumbing etc. The equipment development plan should include a description of any installation work that is required. These costs should be estimated and included in the budget.

e) Training costs

The equipment training plan is the basis for the estimate of training costs associated with medical equipment use and maintenance.

3.16.1 Budget Submission

The equipment management budget that is prepared by the MEMU and MEC should be submitted to the CEO for inclusion in the hospital's annual budget plan. The CEO should allocate items to capital or recurrent budget lines as appropriate.

3.17 Medical Equipment Incident Reporting

The hospital should establish a process to report and investigate all critical incidents, including incidents that arise from the use of medical equipment. An Incident Officer should be assigned to investigate all incidents and to ensure that any required follow up action is implemented. Further guidance on Incident Reporting and a sample Incident Report Form are presented in *Quality Management & Clinical and Patient Safety Chapter*.

Section 4 Implementation Checklist and Indicators

4.1 Assessment Tool for Operational Standards

In order to determine if the Operational Standards for Medical Equipment Management have been met by the hospital an assessment tool has been developed which describes criteria for the attainment of a Standard and a method of assessment. This tool can be used by hospital management or by an external body such as the RHB or FMOH to measure attainment of each Operational Standard. The tool is presented in Appendix E of *Chapter 20 Monitoring and Reporting*.

4.2 Implementation Checklist

The following Table can be used as a tool to record whether the main recommendations outlined above have been implemented by the hospital. The Table does not measure attainment of each Operational Standard but rather provides a checklist to record implementation activities.

Table 3 Medical Equipment Management Checklist

		Yes	No
1.	A Medical Equipment Management Unit has been established.		
2.	Medical Equipment Management unit have workshop meet the minimum workshop standard lay out		
3.	Medical Equipment Management unit with an operational plan,		
4.	Medical Equipment Management unit with required staff and led by a Biomedical Engineer/HTM/Clinical Engineer/Senior Biomedical Technician personnel		
5.	A Medical Equipment Management committee has been established.		
6.	Terms of reference for the Medical Equipment Committee are defined.		
7.	An inventory management system to manage medical equipment has been established.		
8.	An inventory management system to manage spare parts of medical equipment has been established.		
9.	An Equipment History File system has been established.		
10.	There are policies and procedures for medical equipment acquisition.		
11.	There are policies and procedures for medical equipment commissioning and decommissioning.		
12.	There are policies and procedures for medical equipment donations.		
13.	There are policies and procedures for medical equipment disposal.		
14.	There are policies and procedures for outsourcing of medical equipment servicing.		
15.	A maintenance notification and work order system has been established.		
16.	Preventive maintenance of medical equipment is scheduled and conducted.		
17.	Inspection and testing of medical equipment is scheduled and conducted.		
18.	All new equipment undergoes acceptance testing.		
19.	Identify Equipment those need regular Calibration and made calibration as per the manufacturer recommendations		
20.	Are all newly procured medical equipment under goes contract /Procurement agreement management		

4.3 Indicators

In addition, the following indicators may be monitored on a regular basis to assess the effectiveness/outcomes of implementation of the recommendations provided in this chapter.

Table 4 Medical Equipment Management Indicators

S/N	Indicators	Formula	Frequency	Comment
1.	% of medical equipment undergoes inspection,	Total number of Medical Equipment under goes Inspection,	Quarterly	

	commissioning and entered in to inventory data	commissioning and entered in to inventory data /Total Number of Medical entered in to the Hospital		
2.	Percentage of medical equipment identified on model medical equipment list that is in use at the hospital	Total number of medical equipment identified on model equipment list that is in use at the hospital/ Total number of medical equipment identified on model equipment list *100	Quarterly	
3.	% functional medical equipment	Total number of medical equipment that is functional/ total number of medical equipment *100	Quarterly	
4.	a) Number of donated medical equipment b) % of donated items that are functional	a)Total number of donated medical equipment b) total number of donated medical equipment that is functional/total number of donated medical equipment*100	Quarterly	
5.	a) Number of work orders received b) Number work orders completed c) % of work orders completed	a) Total number of work orders received for repair of medical equipment b) Total number of medical equipment work orders completed c) total number of medical equipment work orders completed/ Total number of work orders received for repair of medical equipment	Quarterly	
6.	Average time to completion of work order	Σ of time taken to complete work order/ total number of work orders completed	Quarterly	
7.	Actual expenditure on medical equipment as % of budget allocated to medical equipment	Actual expenditure on medical equipment /total budget allocated to medical equipment *100	Quarterly	
8.	Number of incident reports related to medical equipment malfunction	Total number of incident reports received related to medical equipment malfunction	Quarterly	

Source Documents

1. Abington Memorial Hospital Department of Biomedical Engineering, Medical Equipment Management Program. Abington Memorial Hospital Policy and Procedure for Biomedical Equipment Class/Risk Classification.
2. Association for the Advancement of Medical Instrumentation. AAMI Equipment Management Committee. (1999). *ANSI/AAMI EQ56: 1999. Recommended practice for a medical equipment management program*. Arlington, VA.
3. The Australian Council on Healthcare Standards. *EQUIP Standards, 3rd Edition*. Safe Practice and Environment, pp. 4.
4. Baldinger, P. and Ratterman, W. (2008). *Powering Health. Options for Improving Energy Services at Health Facilities in Ethiopia*. Washington DC: United States Agency for International Aid.
5. Bekele, H. (2008, August). *Assessment on Medical Equipment Conditions*. Ethiopian Science and Technology Agency. National Scientific Equipment Centre.
6. Egyptian Ministry of Health and Partners for Health Reform *plus*. (2004, December). *Egyptian Hospital Accreditation Program: Standards*. 6. Environmental Safety, pp. 31.
7. *Hospital Standards for Accreditation for Afghanistan*. Section 5: Administration and Management. Maintenance of Hospital Facilities and Equipment.
8. Joint Commission International. *Joint Commission International Accreditation Standards for Hospitals, 2nd Edition*. Facility Management and Safety. pp. 135, 140-1.
9. Mavalankar, D., Raman, P., Dwivedi, H., Jain, M.L. (2004). Managing Equipment for Emergency Obstetric Care in Rural Hospitals. *International Journal of Gynecology and Obstetrics*. (87): 88-97.
10. Temple-Bird, C., Kaur Manjit, Lenel Andreas, and Willi Kawohl. (2005). *Guide 1: How to Organize a System of Healthcare Technology Management*. In 'How to Manage' Series for Healthcare Technology. Hertfordshire, UK: TALC.
11. Temple-Bird, C., Kaur Manjit, Lenel Andreas, and Willi Kawohl. (2005). *Guide 2: How to Plan and Budget for your Healthcare Technology*. In 'How to Manage' Series for Healthcare Technology. Hertfordshire, UK: TALC.
12. Temple-Bird, C., Kaur Manjit, Lenel Andreas, Trond Fagerli, and Willi Kawohl. (2005). *Guide 3: How to Procure and Commission Your Healthcare Technology*. In 'How to Manage' Series for Healthcare Technology. Hertfordshire, UK: TALC.
13. Temple-Bird, C., Kaur Manjit, Lenel Andreas, and Willi Kawohl. (2005). *Guide 4: How to operate your healthcare technology effectively and safely. Management Procedures for Health Facilities and District Authorities*. In 'How to Manage' Series for Healthcare Technology. Hertfordshire, UK: TALC.
14. Temple-Bird, C., Kaur Manjit, Lenel Andreas, and Willi Kawohl. (2005). *Guide 5. How to organize the maintenance of your healthcare technology. Management Procedures for Health Facilities and District Authorities*. In 'How to Manage' Series for Healthcare Technology. Hertfordshire, UK: TALC.
15. Wang, B. (2003). *A Framework for Health Equipment Management in Developing Countries. Business Briefing: In Hospital Engineering & Facilities Management*. International Federation of Hospital Engineering. Retrieved from:

http://www.abeclin.org.br/comissoes_arquivos/A%20Framework%20for%20Health%20Equipment%20Management%20in%20Developing%20Countries.pdf.

16. World Health Organization Regional Office for the Western Pacific. (1998).Section 2.6.*Training of Technicians for Medical Equipment Maintenance*. In *District Health Facilities: Guidelines for Development and Operations*. WHO Regional Publications, Western Pacific Series No. 22. Retrieved from: www.wpro.who.int/internet/files/pub/297/part1_2.6.pdf.
17. World Health Organization. (1998). *District Health Facilities Guidelines for Development and Operations*. Part 1, section 2.4 Management of Medical Equipment pgs.150-154. WHO Regional Publications, Western Pacific Series No. 22, pp 150-3.
18. World Health Organization. (2000). *Guidelines for Health Care Equipment Donations*. WHO/ARA/97.3. Geneva: World Health Organization.
19. Doncaster and Basset Law Hospitals. NHS Foundation Trust. *Medical Equipment Training for Trust Staff*. Volume 3. Retrieved from:http://www.dbh.nhs.uk/Library/Corporate_Policies/CORP%20RISK%20%20v.3%20-%20Medical%20Equip%20Training%20for%20Staff.pdf.
20. Duke University Clinical Engineering Policy CE-020. (2007, January). Retrieved from: http://clinicalengineering.duhs.duke.edu/wysiwyg/downloads/CE020-Equipment_Management_Program.pdf.

Appendices

Appendix A Sample Inventory Data Collection Form

Inventory # _____

Type of Equipment: _____

Manufacturer: _____

Model: _____ Serial #: _____

Country of Origin: _____ Year of Manufacture: _____

Power Requirement: 220V 110V

Current State/Condition: Operable and in service

Operable and out of service

Reason out of service: _____

Needs maintenance

Not repairable

Needs to be discarded? Yes No

Spare parts available? Yes No

If yes, what, how many, and where are they located? _____

Manuals Available: User manual # of copies _____ Location _____

Service manual # of copies _____ Location _____

Other (specify) # of copies _____ Location _____

Equipment Users:

Doctors Nurses Lab Technicians

Students Residents Other (specify) _____

Equipment owner (department), if any: _____

Contact Person and Telephone numbers: _____

Current location of equipment: _____

Will it move from here? No Yes **If so, where?** _____

Other notes (use back of paper if more room is needed):

Appendix B Typical Equipment Lifespan

The following is a list of typical equipment lifetimes developed by the American Hospital Association. The list reflects how equipment lasts within the United States healthcare system, whether it was manufactured in the U.S. or abroad. While this may not be directly applicable to the Ethiopian context, it is useful to have and use as a reference.

Diagnostic and Treatment Departments

Item	Years	Item	Years
Accelerator	7	Blood gas analyzer	5
Alternating pressure pad	10	Blood gas apparatus, volumetrics	8
Amino acid analyzer	7	Blood transfusion apparatus	6
Amplifier	10	Blood warmer	7
Anaerobe chamber	15	Blood warmer coil	7
Analyzer, haematology	7	Bone surgery apparatus	3
Anatomical model	10	Breathing unit, positive-pressure	8
Anesthesia unit	7	Bronchoscope	
Ankle exerciser	15	Flexible	3
Apnea monitor	7	Rigid	3
Apron, lead-lined	47	Carbon monoxide recorder/detector	10
Arthroscope	5	Cardiac monitor	5
Arthroscopy instrumentation	3	Cardioscope	8
Aspirator	10	Cart	
Audiometer	10	Emergency-isolation	10
Autoclave	10	Medicine	10
Autoscaler, ionic	10	Caspar ACF instrument and plate system	7
Bacteriology analyzer	8	Cassette changer	8
Baci incinerator	5	Cautery unit	
Balance		Dermatology	7
Analytical	10	Gynecology	7
Electronic	7	Cell freezer	7
Precision mechanical	10	Cell washer	5
Basal metabolism unit	8	Centrifuge	7
Bath		Centrifuge, refrigerated	5
Fluidotherapy	7	Cerebral function monitor	7
Paraffin	7	Child immobilizer	15
Serological	7	Chloridimeter	10
Water	7	Chromatograph, gas	7
Biochemical analysis unit	7	Clinical analyzer	5
Biochromatic analyzer	7	Clopay wrapping machine	10
Biofeedback machine	8	Coagulation analyzer	5
Biomagnetometer	7	Cold-pack unit, floor	10
Bipolar coagulator	7	Colonoscope	3
Blood cell counter	5	Colorimeter	7
Blood chemistry analyzer, automated	5	Colposcope, with floor stand	8
Blood culture analyzer	8	Computer, clinical	5

Item	Years	Item	Years
Computer-assisted tomography (CT) scanner	5	Exercise equipment, outdoor	10
Conductivity tester	5	Exercise system, computer assisted	5
CO-oximeter	10	Exerciser, orthotron	10
Cryoophthalmic unit, with probes	7	Eye surgery equipment (phacoemulsifier)	7
Cryostat	7	Fibreoptic equipment	5
Cryosurgical unit	10	Fibrometer	7
Cyclotron	7	Film changer	8
Cystic fibrosis treatment system	10	Film viewer	10
Cystometer	10	Flow cytometer	5
Cystometrogram unit	10	Fluid sample handler	5
Cystoscope	3	Fluorimeter	10
Decalcifier	10	Fluoroscope	8
Deionized water system	7	Frame, turning	15
Densitometer, recording	5	Furnace, laboratory	10
Dental drill, with syringe	3	Gamma camera	5
Dermatome	10	Gamma counter	7
Diagnostic set	10	Gamma knife	10
Diathermy unit	10	Gamma well system	7
Digital fluoroscopy unit	5	Gas analyzer	8
Digital radiography unit	5	Gastroscope	3
Diluter	10	Geiger counter	10
Dispenser, alcohol	10	Generator	5
Distilling apparatus	15	Gloves, lead-lined	3
Doppler	5	Hand dynamometer	10
Dose calibrator	5	Heart-lung system	8
Dryer, sonic	10	Heat sealer	5
Duodenoscope	3	Hemodialysis unit	5
Echocardiograph system	5	Hemoglobinometer	7
Echoview system	5	Hemophotometer	10
Electrocardiograph	7	High-density mobile film system	10
Electrocardioscanner (Holter monitor scanner)	7	Holter Electrocardiograph	7
Electroencephalograph	7	Electroencephalograph	7
Electrolyte analyzer	5	Homogenizer	10
Electromyograph	7	Hood, exhaust or Bacti	10
Electrophoresis unit	7	Hydrocollator	10
Electrosurgical unit	7	Hydrotherapy equipment	15
Ergometer	10	Hyfrecator	10
Evacuator	10	Hyperbaric chamber	15
Evoked potential unit	10	Hypothermia apparatus	10
Exercise apparatus	15	Image analyzer	5

Item	Years	Item	Year
Image intensifier	5	Nebulizer	
Immunodiffusion equipment	10	Pneumatic	10
IMX analyzer	7	Ultrasonic	10
Incubator, laboratory	10	Nephroscope	7
Inhalator	10	Neurological surgical table headrest	10
Intraarterial shaver	10	Neutron beam accelerator	8
Iontophoresis unit	8	Noninvasive CO2 monitor	7
Isodensitometer	7	Optical readers	5
Isolation chamber	12	Orthotron system	10
Isotope equipment	7	Orthourological instruments	10
Isotope scanner	7	Oscilloscope	7
Kiln	10	Oven	
K-pads	5	Paraffin	10
Kymograph	10	Sterilizing	10
Lamp		Oximeter	10
Deep-therapy	10	Oxygen analyzer	7
Infrared	10	Oxygen tank, motor, and truck	8
Mercury quartz	10	Pacemaker, cardiac (external)	5
Slit	10	Pacing system analyzer	7
Laparoscope	3	Panendoscope	10
Laryngoscope	3	Parallel bars	15
Laser, coronary	2	Pelviscope	7
Laser, surgical	5	Percussor	5
Laser positioner	5	Perforator	10
Laser smoke evacuator	5	Peripheral analyzer	10
Lifter, patient	10	pH gas analyzer	10
Linac scalpel	5	pH meter	10
Linear accelerator	7	Phonocardiograph	8
Lithotripter, extracorporeal shock-wave (ESWL)	5	Photocoagulator	10
Magnetic resonance imaging (MRI) equipment	5	Photography apparatus, gross pathology	10
Mammography unit		Photometer	8
Fixed	5	Physioscope	10
Mobile (van)	8	Pipette, automatic	10
Marograph	7	Plasma freezer	10
Mass spectrophotometer	7	Platelet rotator	20
Microbiology analyzer	8	Positron emission tomography (PET) scanner	5
Microscope	7	Proctoscope	3
Microtome	7	Prothrombin timer, automated	8
Microtron power system	7	Proton beam accelerator	7
Mirror, therapy	15	Pulmonary function analyzer	8
Muscle stimulator	10		

Item	Years	Item	Years
Pulmonary function equipment	8	Slide stainer, laboratory	7
Pulsed oxygen chamber	10	Spectrophotometer	8
Pulse oxymeter	7	Spectroscope	10
Pump		Sphygmomanometer	10
Infusion	10	Spirometer	8
Stomach	10	Stand	
Suction	10	Basin	15
Surgical	10	Intravenous	15
Vacuum	10	Irrigating	15
Radiation meter	8	Mayo	15
Radioactive source, cobalt	5	Steam-pack equipment	10
Radiographic duplicating printer	8	Stereo tactic frame	5
Radiographic-fluoroscopic combination	5	Sterilizer, movable	12
Radiographic head unit	5	Steris sterilization system	7
Rate meter, dual	10	Stethoscope	5
Refractometer	10	Stress tester	10
Refrigerator, blood bank	10	Stretcher	10
Resuscitator	10	Hydraulic	7
Retractor	5	Surgical shaver	5
Rhinoscope	3	Tank	
Rinser, sonic	10	Cleaning	10
Rotoosteotome unit	10	Full-body	15
Saw		Hot-water	10
Autopsy	10	Therapy	15
Neurosurgical	10	TDX analyzer	7
Surgical, electric	10	Telemetry unit, cardiac	5
Scale		Telescope, microlens	10
Bed	10	Telescopic shoulder wheel	15
Chair	10	Telethermometer	10
Clinical	10	Tent	
Scale, metabolic	10	Aerosol	8
Scintillation scaler	8	Oxygen	8
Sensitometer	10	Thyroid uptake system	5
Seriograph, automatic	8	Tissue-embedding center	8
Shaking machine (vortexer)	8	Tissue processor	7
Sharpener, microtome knife	10	Titrator, automatic	10
Sigmoidoscope	3	Tonometer	10
Signal-averaged EKG	5	Totalap	10
Simulator	5	Tourniquet, automatic	10
Single-photon emission computed tomography (SPECT) Scanner	5	Tourniquet system	7
Sinuscope	7	Traction unit	10
Skelton	10	Transcutaneous nerve stimulator system	5
		Transesophageal transducer	5

Item	Years	Item	Years
Treadmill, electric	8	Wheelchair	5
Tube dryer	10	X-ray equipment	
Tube tester	10	Developing tank	10
Ultrasound, diagnostic	5	Film dryer	8
Ultrasound unit, therapeutic	7	Film processor	8
Vacuette	10	Furniture	15
Ventilator, respiratory	10	Image intensifier	5
Vial filler	10	Intensifying screens	5
Vibrator	10	Silver recovery unit	7
Video		X-ray unit	
Camera	5	Fluoroscopic	5
Light source	5	Mobile	5
Monitor	5	Radiographic	5
Printer	5	Superficial therapy	5
		Tomographic	5
		Wiring	5

Nursing Departments

Nursing departments consist of cardiac care, chemical dependency, intensive care, medical/surgical care, neonatal intensive care, nursery, pediatrics, pediatric developmental disabilities, and psychiatric units.

Item	Years	Item	Year
Bassinet	15	Cabinet	
Bath		Bedside	15
Sitz	10	File	15
Whirlpool	10	Instrument	15
Bed		Metal or wood	15
Birthing	15	Pharmacy	15
Electric	12	Solution	15
Flotation therapy	10	X-ray	15
Hydraulic	15	Central supply furniture	15
Labor	15	Chair	
Manual	15	Blood drawing	10
Orthopedic	15	Dental	15
Bench, metal or wood	15	Executive	15
Bin, metal or wood	15	Folding	10
Blood pressure device, electronic	6	Geriatric	10
Bookcase, metal	20	Hydraulic, surgeon's	15

Item	Years	Item	Years
Chair (continued)		Operating stool	15
Kinetron	15	Ophthalmoscope	10
Podiatric	15	Osmometer	7
Shower/bath	10	Otoscope	7
Specialist's	15	Ottoman	10
Chart rack	20	Patient monitoring equipment	10
Chart recorder	10	Phototherapy unit	10
Clothes locker		Physicians' in-and-out register, portable	10
Fibreglass or metal	15	Physiological monitor	7
Laminate or wood	12	Pump, breast	10
Computer, caridial output	5	Scale, baby	15
Credenza	15	Settec	12
Crib	15	Shelving, portable, steel	20
Croupette	10	Sofa	12
Defibrillator	5	Stall Bars	15
Desk, metal or wood	20	Table	
Doppler	5	Anaesthetic	15
Dresser	15	Autopsy	20
Food service furniture	15	Electrohydraulic tilt	10
Frame, turning	15	Examining	15
Housekeeping furniture	15	Folding	10
ICU and CCU furniture	15	Food preparation	15
Infant care center	10	Fracture	15
In-service education furniture	15	Instrument	15
Insufflator	5	Light	15
Labor and delivery furniture	15	Metal	15
Laboratory furniture	15	Obstetrical	20
Lamp		Operating	15
Bilirubin	10	Orthopedic	10
Emergency	10	Overbed	15
Lawn and patio furniture	5	Pool	10
Light		Refrigerated	10
Delivery	15	Therapy	15
Examining	10	Traction	10
Portable, emergency	10	Urological	15
Natural childbirth backrest	10	Wood	15
Nursing service furniture	15	Telemetry unit, cardiac	5
Operating room furniture	15	Thermometer, electric	5
		Ultrasonic fetal heart monitor	7
		Work station	10

Appendix C Sample Medical Equipment Risk Assessment Form

All medical equipment should be assessed to determine the risk associated with equipment use and failure. This guides the priority that should be assigned to each item for maintenance and repair and replacement when the item can no longer be repaired.

Step 1 Assign a score to each item of equipment

Each item of equipment should be scored in each of 5 categories:

- Category A Equipment function
- Category B Risk associated with equipment failure
- Category C Preventive maintenance requirements
- Category D Main area of equipment use
- Category E Likelihood of equipment failure (mean time between failures)

Note: Category E, the 'mean time between failures' can be calculated based on equipment service and incident history. If this is not known then an estimate should be made.

Step 2 Calculate Total Score and Risk Category

The most important categories in the assessment are (A) Equipment Function and (B) Risk Associated with Equipment Use. Because these are the most important categories these are given greater weight when the total score is calculated. Hence the total score is calculated as follows:

$$\text{Total score} = A + B + (C+D+E)/3$$

The total score will range from 3 to 20.

Medical equipment should be categorized as follows:

High risk (score 18 – 20):

Equipment should be tested at least twice per year and should be given highest priority for repair and routine testing and calibration.

Medium risk (score 15 – 17):

Equipment should be tested at least annually and should be repaired or undergo routine testing and calibration after this has been done for 'high priority' equipment.

Low risk (score 12 -14):

Equipment should be tested at least annually and should be repaired or undergo routine testing and calibration after this has been done for 'high and medium risk' equipment.

Hazard surveillance (<12):

Equipment in this category should undergo annual inspection.

Equipment Type:	Inventory Number:
Name and signature of assessor:	Date of assessment:
Assessment Criteria	Score (circle as appropriate)
A. Equipment Function	
Therapeutic – life support	10
Therapeutic – surgical or intensive care	9
Therapeutic – physical therapy or treatment	8
Diagnostic – surgical or intensive care monitoring	7
Diagnostic – other physiological monitoring	6
Analytical – laboratory analytical	5
Analytical – laboratory accessories	4
Analytical – computer and related	3
Miscellaneous – patient related	2
Miscellaneous – non-patient related	1
B. Risk associated with equipment failure	
Potential patient death	5
Potential patient injury	4
Inappropriate therapy or misdiagnosis	3
Equipment damage	2
No significant identified risk	1
C. Preventive maintenance requirement	
Monthly	5
Quarterly	4
Semi-annually	3
Annually	2
Not required	1
D. Likelihood of failure (mean time between failures)	
Less than three months	5
Approximately 4 – 6 months	4

Approximately 7 months to 1 year	3
Approximately 1 to 3 years	2
Approximately > 3 years	1
E. Main area of equipment use	
Anesthesia/Surgical care locations	5
Critical/Intensive care locations	4
Labs/Exam areas	3
General care areas	2
Non-patient areas	1
Total Score = A + B + (C+D+E)/3	
Inventory Classification Result	(tick appropriate box below)
High risk (score 18 to 20)	
Medium risk (score 15 to 17)	
Low risk (score 12 to 14)	
Hazard surveillance (<12)	

Appendix F Common Site Preparation Steps for Installation of Medical Equipment

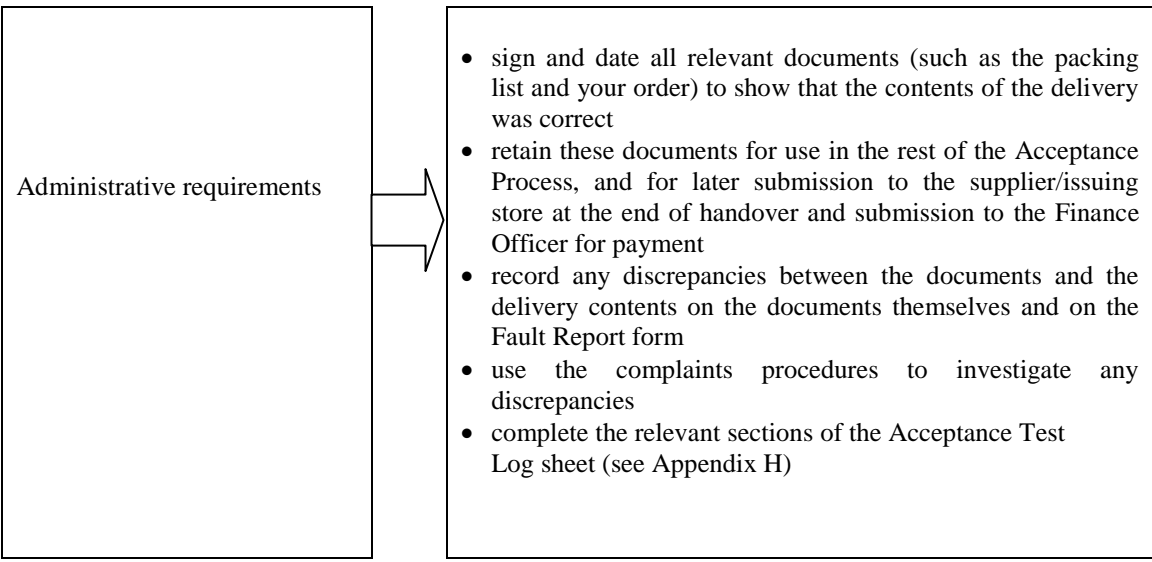
Step	Activity
Review technical needs	<ul style="list-style-type: none"> • Study the manufacturer's site preparation instructions • Use experience and common sense
Remove existing equipment	<ul style="list-style-type: none"> • Cut supply connections and remove the existing item • Cannibalize the existing item for parts
Construct or alter building	<ul style="list-style-type: none"> • Build any special construction required, such as a transformer housing, lead screening, room extension • Make any special modifications necessary, such as enlarging the doorway, or building a worktop • Remove any scrap or other items from the room
Provide electrical requirements	Undertake the work required to provide (as necessary): <ul style="list-style-type: none"> • A new transformer • A new or upgraded generator • A single phase or three-phase supply at the site of installation • A special circuit breaker • A special socket outlet • An electrical circuit with sufficient capacity
Ensure the electricity installation is safe	Undertake: <ul style="list-style-type: none"> • An exercise to ensure that all relevant electrical installations are properly grounded and tested • Any remedial works as required
Provide water and drainage requirements	Undertake the work required to provide (as necessary): <ul style="list-style-type: none"> • Adequate water pressure • Water treatment • Increased pipeline diameter • Proper drainage • Appropriate connection points
Provide steam supply requirements	Undertake the work required to provide (as necessary): <ul style="list-style-type: none"> • A steam supply at the proposed site • Increased pipeline diameter • A boiler which can accommodate the increased load • Appropriate connection points
Provide gas supply requirements	Undertake the work required to provide (as necessary): <ul style="list-style-type: none"> • Relevant gas supplies at the proposed site • Appropriate connection points
Provide extra specific requirements for installing the equipment	Depending on specific guidelines for certain types of equipment (as detailed by the equipment supplier), provide: <ul style="list-style-type: none"> • Bolts in the ceiling for attaching operating lights in theatres • Trenches for supply lines to dental suites • Trenches for waste water for washing machines, etc.
Provide any additional equipment needs	Provide any associated items as necessary for the equipment or installation, such as: <ul style="list-style-type: none"> • An uninterruptible power supply (UPS) • A water pump

Appendix G

Guidance for Unpacking and Inspecting Equipment Orders

Checks	Activity
For damage	<ul style="list-style-type: none">• systematically open one crate at a time• check the boxes/packages inside each crate for possible damage• systematically open one package at a time and note what you find on the relevant documents (see Appendix H)• Keep all packaging, supports, labels and booklets, as you may have to re-pack the equipment to return it for repairs.• unpack the equipment carefully• ensure that the equipment and its associated supplies do not appear to be damaged• if anything appears damaged, take a photograph if possible, and notify the supplier
Against documentation	<ul style="list-style-type: none">• check that the delivery matches the packing list(s)• check that the contents comply with the specifications in the purchase order – in other words, check the type and model of all equipment and supplies• check that the quantities are according to the purchase order
Technical requirements	<ul style="list-style-type: none">• ensure that the voltage shown on the packing list (or on the packing case) for electrical equipment is compatible with your power supply• check that the equipment data plate matches your order and the packing case/list and, for electrical equipment, that the voltage stated is correct• for electrical equipment, ensure the mains lead and battery charger, where applicable, is included
The 'package'	<ul style="list-style-type: none">• check that all the necessary consumables, accessories and spare parts have arrived as per the purchase contract• keep these equipment-related supplies together in a dry, cool and safe place until you can issue some and register the rest into the Stores system• check that the operating manual, service manual (including a wiring/circuit diagram), and any assembly and installation instructions have arrived as per the purchase contract• keep the manuals together in a dry, cool and safe place until you can make copies and issue/store them• notify the supplier if any documentation is missing or seems unacceptable (e.g. in another language than requested)

Administrative requirements



- sign and date all relevant documents (such as the packing list and your order) to show that the contents of the delivery was correct
- retain these documents for use in the rest of the Acceptance Process, and for later submission to the supplier/issuing store at the end of handover and submission to the Finance Officer for payment
- record any discrepancies between the documents and the delivery contents on the documents themselves and on the Fault Report form
- use the complaints procedures to investigate any discrepancies
- complete the relevant sections of the Acceptance Test Log sheet (see Appendix H)

Appendix H Sample Acceptance Test Log Sheet

Only when this form has been satisfactorily completed should the Registration Box be filled in by the Head of Medical Equipment Maintenance.

REGISTRATION BOX
ALLOCATED INVENTORY NUMBER
EQUIPMENT TYPE
DESTINATION LOCATION
ACCEPTANCE DATE
WARRANTY EXPIRY DATE
MAINTENANCE CONTRACT WITH

HEALTH FACILITY

NAME OF EQUIPMENT

TYPE/MODEL

ORDER NUMBER SERIAL NUMBER

COST..... DATE RECEIVED

MANUFACTURER SUPPLIER/AGENT

ADDRESS ADDRESS

.....

.....

.....

PHONE PHONE

FAX FAX

DETAILS OF ALL ACCESSORIES, CONSUMABLES, SPARE PARTS AND MANUALS RECEIVED ARE LISTED ON THE FOLLOWING PAGE OF THIS FORM.

ACCEPTANCE CHECKS

1. DELIVERY

Undertaken by:

Witnessed by: Name Position Date

	Yes/done	No/not done	Corrected if applicable
a) Representative of supplier present?
b) Correct number of boxes received?
c) After unloading, visible damage to the boxes?
d) If damaged, has this been stated on the delivery note and senior management informed?

Comments

.....

.....

2. UNPACKING (refer to invoices and shipping documents)

Undertaken by:

Witnessed by: Name Position Date

	Yes/done	No/not done	Corrected if applicable
a) Visible damage to the equipment?
b) Equipment complete as ordered?
c) User/operator manual as ordered?
d) Service/technical manual as ordered?
e) Accessories as ordered?
f) Consumables as ordered?
g) Spare parts as ordered?

Comments

.....

3. ASSEMBLY (refer to manuals)

Undertaken by:

Witnessed by: Name Position Date

	Yes/done	No/not done	Corrected if applicable
a) Are all parts available?
b) Do they fit together?
c) Mains lead with plug included?
d) Do all the accessories fit?
e) Are markings and labels OK?
f) Any damage?

Comments

.....

.....

.....

4. INSTALLATION (refer to manuals)

Undertaken by:

Witnessed by: Name Position Date

Yes/done **No/not done** **Corrected if applicable**

a) Was the work carried out satisfactorily?

b) Were technical staff present as learners?

Comments

.....

5. COMMISSIONING/TESTING

Undertaken by:

Witnessed by: Name Position Date

	Yes/done	No/not done	Corrected if applicable
a) Were electrical, mechanical, gas, radiation safety tests and performance checks carried out in accordance with the test sheets on pages 7 to 9 of this form?
b) Was the work carried out satisfactorily?
c) Were technical staff present as learners?
d) Were operators present as learners?

Comments

.....

6. ACCEPTANCE – to be certified by the Head of Equipment Maintenance only

	Yes/done	No/not done	Corrected if applicable
a) Is the equipment accepted?
b) If rejected, have the shortcomings been summarized on page 10 of this form
c) If so, has a report gone to senior management and formal complaints procedures started?
d) Should payment be withheld pending corrections?
e) Is payment approved?

Comments

.....

.....

7. TRAINING

Undertaken by:

Witnessed by: Name Position Date

	Yes/done	No/not done	Corrected if applicable
a) Were the expected training courses given?

b) Were the training courses satisfactory?	.....	.....	.....
c) Were suitable operators present?	.....	.....	.....
d) Were suitable technical staff present?	.....	.....	.....

Comments

.....

8. REGISTRATION – to be undertaken by the Head of Medical Equipment Maintenance

	Yes/done	No/not done	Corrected if applicable
a) If accepted, has an inventory number been allocated?
b) Has the Registration Box on Page 1 of this form been filled in?
c) Has the Stores Controller been provided with the location for the equipment and all necessary data, so that the Stores Receiving Procedure can be followed and a Goods Received Note completed?
d) Have the accessories, consumables, spare parts, and manuals all been issued to the correct holding authorities?

NAME

SIGNATURE

DATE

NOW PLACE THIS FORM AS THE FIRST RECORD IN THE EQUIPMENT FILE/SERVICE HISTORY

Page 6

Describe and quantify all items received, and complete a Register of New Stocks form:

ACCESSORIES RECEIVED

- | | |
|----|----|
| 1. | 2. |
| 3. | 4. |
| 5. | 6. |
| 7. | 8. |

CONSUMABLES RECEIVED

- | | |
|----|----|
| 1. | 2. |
| 3. | 4. |

5.

6.

7.

8.

SPARE PARTS RECEIVED

1.

2.

3.

4.

5.

6.

7.

8.

MANUALS RECEIVED

1.

2.

3.

4.

COMMISSIONING/TESTING PROCEDURES (see manuals and relevant technical standards)

i. ELECTRICAL INTEGRITY TESTS

Undertaken by:

Witnessed by: Name Position Date

Classification (applies to medical equipment only) **Fill as applicable**

- a) Class I - II - III?
- b) Type B - BF - CF?
- c) Type AP - APG?

	Yes/done	No/not done	Corrected if applicable
--	-----------------	--------------------	--------------------------------

Mains Connection

- | | | | |
|---|-------|-------|-------|
| a) Are cables and plugs intact? | ..... | ..... | ..... |
| b) Is cable color code correctly connected? | ..... | ..... | ..... |
| c) Are connectors intact? | ..... | ..... | ..... |
| d) Are the fuses correct? | ..... | ..... | ..... |
| e) Is equipment protection correct? | ..... | ..... | ..... |
| f) Is voltage setting correct? | ..... | ..... | ..... |
| g) Is there an earth terminal? | ..... | ..... | ..... |

Electrical Measurements with Safety Tester

- | | | | |
|--|-------|-------|-------|
| a) Is protective earth continuity correct? | ..... | ..... | ..... |
| b) Is insulation resistance correct? | ..... | ..... | ..... |
| c) Are the leakage currents correct? | ..... | ..... | ..... |
| d) Is the voltage measurement correct? | ..... | ..... | ..... |

Comments
.....

ii. MECHANICAL INTEGRITY TESTS

Undertaken by:

Witnessed by: Name Position Date

	Yes/done	No/not done	Corrected if applicable
a) Are knobs and switches intact?
b) Do the wheels/castors move?
c) Are the handles intact?
d) Are the mechanical movements okay?

Comments
.....
.....

iii. GAS INTEGRITY TESTS

Undertaken by:

Witnessed by: Name Position Date

	Yes/done	No/not done	Corrected if applicable
a) Are the cylinders full?
b) Are appropriate gauges available?
c) Is there a cylinder key?
d) Is the pressure reading correct?
e) Is the cylinder colour code correct?
f) Are the hoses and fittings correct?
g) Is the system leaking?

Comments
.....

iv. RADIATION INTEGRITY TESTS

Undertaken by:

Witnessed by: Name Position Date

	Yes/done	No/not done	Corrected if applicable
a) Is the kV calibration correct?
b) Is the mAs calibrated correctly?
c) Was the line voltage compensation performed?
d) Was the exposure test correct?
e) Were the step wedge test results correct?
f) Were the small and large focus calibrations done?

Comments

.....

.....

v. PERFORMANCE TESTS (see manuals for manufacturer's recommendations)

Undertaken by:

Witnessed by: Name Position Date

	Yes/done	No/not done	Corrected if applicable
Note: carry out all operational tests as specified by the manufacturer			
a) Are the function verification tests correct?
b) Is the equipment calibration acceptable?

Comments

.....

.....

FAULT REPORT (describe any shortcomings with the equipment or services provided)

.....
.....
.....
.....
.....
.....
.....
.....

NAME

SIGNATURE

DATE

Appendix J Good Practice Checklist for Corrective Maintenance

Step 1

Resist the temptation to dive straight in. Do not immediately open up the machine and plunge in with a screwdriver.

Step 2

Listen to the equipment users. Talk to the user – they can help you to discover the symptoms of the fault. Ask the users lots of questions – they often don't realize how much they know.

Step 3

Look up the equipment's service history. Each individual piece of equipment should have a record of its service history. Use this to make yourself aware of the particular machine's past fault.

Step 4

Check the main incoming supply. Ensure that the electricity/gas/water supply is reaching the wall outlet/socket – if it isn't, check the relevant main circuit breakers/valves/taps controlling the service supply.

Step 5

Inspect the main incoming connection. Check the plug, connector, and mains/incoming lead to see if electricity (or other supply) is reaching the machine.

Step 6

Inspect the machine's external supply connection point. Check the main external fuses/taps/regulators for the machine.

Step 7

Refer to the operator's manual. Familiarize yourself with the instructions on how the equipment is meant to work.

Step 8

Check the accessories. Ensure that the correct accessories are attached to the correct inlets.

Step 9

Watch the machine in operation. Ask the users to describe what steps they usually take to put the machine through a normal operational cycle. Watch them do this, and observe what happens.

Step 10

Refer to local sources of advice. Consult the service manual, training resources, PPM schedules and any other technical personnel. Take note of any possibility of remote diagnostics where, for complex equipment such as CT scanners, the manufacturer's computer may be able to log into the equipment and diagnose the fault.

Step 11

Only at this point, consider opening the machine. Decide whether it is best to take the machine back to the workshop before opening it.

Step 12

Inspect the machine's internal supply connection points. Check the main internal fuses/taps/valves for the machine, and then check the on/off switch.

Step 13

Go through the troubleshooting or fault-finding steps provided in the service manual. BEWARE: It is very common for maintainers to guess the problem and act on it without verification. This leads to frustration when the diagnosis turns out to be incorrect. Thus, always take steps in the following order:

1. Determine the problem to a high degree of certainty by testing
 - Alter and adjust the equipment as little as possible during this stage
 - Never guess a problem or make an alteration that cannot be reversed
 - Always record adjustments as the work progresses (for example, on a notepad)
2. Correct the problem.

Step 14

Contact more experienced colleagues. Ask the in-house team of another health service provider (for example at a neighboring public or private hospital), or ask the national service provider (National Scientific Equipment Center).

Step 15

Ask the manufacturer or their representative for help. Contact them for discussions and fault-finding by phone, fax or email. Email is the cheapest and often the most effective way to get in contact with the manufacturer. Try to get some hints, but be sure to clarify whether you are being charged for this advice.

Step 16

Call in support from the private sector when the work is beyond your capabilities. Call in the private maintenance contractor, if there is one, for faults that cannot be handled by the in-house team. Ensure that the hospital management or Medical Equipment Service has the funds to cover this.

Step 17

If the work is within your capabilities, only at this point consider taking corrective action. When a fault is found that the in-house team has the skills and authority to pursue, follow the corrective action or parts replacement steps provided in the service manual.

Step 18

Use the correct materials. Select only the correct maintenance materials and spare parts relevant to the machine.

Step 19

Work carefully. Handle the spare parts and maintenance materials carefully so as not to damage them or the machine.

Step 20

Make a record of your work. Fill in the Work Order form to record the problem reported, fault found, corrective action taken, parts used, time taken, etc.

Step 21

Ensure the equipment is safe to use. Always safety test the equipment with the correct test equipment before returning it to the users.

Step 22

Repeat step 9. Ensure that the operators can make the equipment function properly during a normal operational cycle.

Step 23

Reduce the likelihood of problems in the future. Ensure in the future that planned preventive maintenance (PPM) is carried out on the equipment.

Appendix K Sample Corrective Maintenance Report

Work order number:	
Equipment type	Inventory Number
Model	Serial No.

Description of equipment failure
Cause of equipment failure (if known)
Part of machine / equipment to be maintained

Corrective action		
Time required		
Spare parts replaced		
1.	2.	3.
4.	5.	6.
Engineer 1	Signature 1	Date
Engineer 2	Signature 2	Date

User comments		
Date	Signature	Date

Appendix L Sample Work Order Form

Note: this is a triplicate form	
<ul style="list-style-type: none">• 1st sheet is the User File copy• 2nd sheet is the Maintenance Progress File copy• 3rd sheet is the Equipment History File copy	
SECTION A: To be completed by user	
Equipment Type:	Inventory Number:
Item Location:	
Name of person making request:	Date:
Description of Problem:	
Troubleshooting performed (if relevant):	
SECTION B: To be completed by Head of Equipment Maintenance	
Date request received:	Work order number:
Priority of task (high/medium or low):	Task allocated to:
SECTION C: To be completed by Maintenance Technician	
Was item repaired?	

Yes <input type="checkbox"/> No <input type="checkbox"/>	
<p>If Yes, complete Maintenance Report Form. Return Item to User.</p> <p>Equipment _____ returned to _____</p> <p>Date _____ returned _____</p>	<p>If No, state reason work not completed and return Work Order Form to Head of Equipment Maintenance for follow up and completion of Work Order (by assigning another technician or outsourcing):</p>
<p>Name of Maintenance Technician _____</p> <p>Signature: _____</p>	
<p>After corrective maintenance is completed the Work Order Form and Corrective Maintenance Log Form should be filed together in the Equipment History File.</p>	

Appendix N Principles behind Replacement Cost Calculations

A. Basic Principle

Assuming Your equipment stock value is, for example, US\$2,500,000 (Note: This is not based on what is purchased each year, but upon the value of all the items already owned.)

And All the equipment only had a 'life' of one year

Then US\$2,500,000 would be needed each year to replace equipment

B. Taking Equipment 'Life' Into Account

But If the 'life' of the equipment is, in fact, five years

Assume The equipment will **not** all reach the end of its life at the same time

Then The replacement budget can be spread over the lifetime of the equipment, as follows:

Replacement budget **each year** = value of stock
Lifetime

For example: Replacement budget per annum = $\$2,500,000/5 = \$500,000$ p.a.

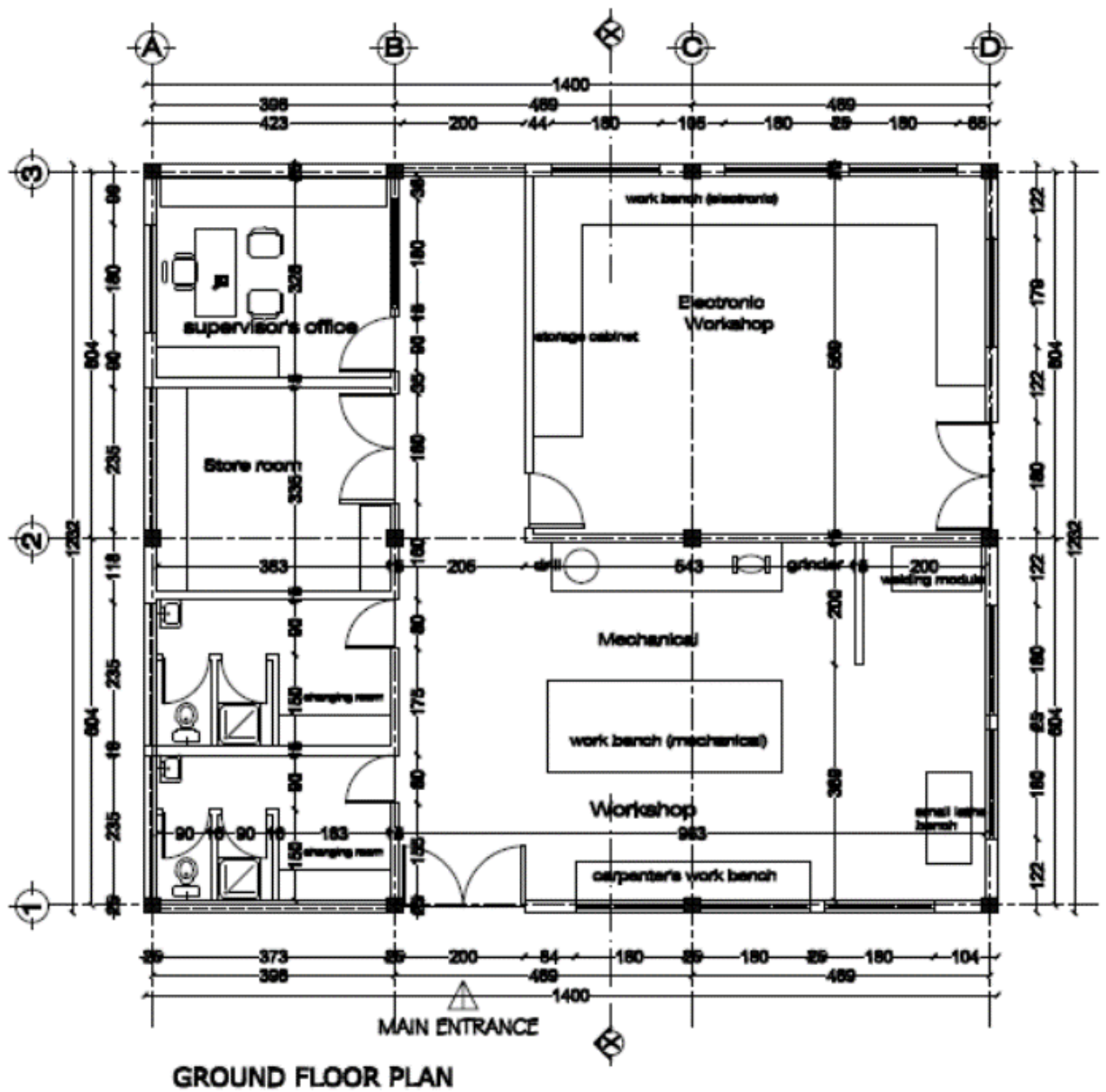
C. Averaging Across All Stock

In fact, stock will actually be made up of different types of equipment with different lifetimes – some 5 years, some 10, some 15, etc. Based on such lifetimes, an **average** lifetime is often taken to be 10 years. Thus, a **rough estimate** of the replacement budget will need to be 10% of the equipment stock value each year:

Replacement budget **each year** = total stock value
Average lifetime

For example: Replacement budget per annum = $\$2,500,000/10 = \$250,000$ p.a.

Appendix M: Biomedical Equipment Maintenance workshop layout For General and Referral Hospital



16

Facilities Management

Table of Contents		Page
Section 1	Introduction	16-1
Section 2	Operational Standards for Facilities Management	16-1
Section 3	Implementation Guidance	16-2
3.1	Organization of Facilities Management Services	16-2
3.2	Buildings	16-2
3.2.1	Buildings layout	
3.2.1.1	Layout of patient services	
3.2.1.2	Layout of staff services	
3.2.2	Hospital site map	
3.2.3	Building maintenance workshop	
3.2.4	Planning for new construction or renovation	
3.3	Landscape and Garden	16-7
3.4	Utilities and Sewerage	16-8
3.4.1	Electricity	
3.4.2	Water supply	
3.4.3	Sewerage	
3.4.4	Plumbing	
3.4.5	Boiler/steam supply	
3.4.6	Heating, ventilation and air conditioning (HVAC)	
3.4.7	Energy efficiency	
3.4.8	Pest and rodent control	
3.5	Vehicle and Transport Services	16-14
3.6	Hospital Security	16-14
3.6.1	The Security (Guard) Department	
3.6.2	Control of entry and exit to and from the hospital	
3.6.3	Security plan	
3.7	Hospital Safety	16-16
3.7.1	Hazardous materials	
3.7.2	Fire safety	
3.7.3	Other safety measures	
3.8	Major Incident Planning and Management	16-19
3.8.1	Major Incident Committee	
3.8.2	Roles of the Major Incident Commander and Deputy Major Incident Commanders	
3.8.3	Incident control room	
3.8.4	Command and control arrangements in a major incident	
3.8.5	The Major Incident Plan	
3.8.6	Management of a Major Incident	
3.8.7	Testing the Major Incident Plan	
Section 4	Implementation Checklist and Indicators	16-27
4.1	Assessment tool for Operational Standards	16-27
4.2	Implementation Checklist	16-27
4.3	Indicators	16-28
Source Documents		16-29

Appendices

Appendix A	Typical Layout for a Workshop of 100 Bed Hospital
Appendix B	Sample Maintenance Tools List
Appendix C	Sample List of Safety and Calibration Testing Instruments
Appendix D	Sample Format for the Tools Ledger
Appendix E	Sample Facilities Maintenance Work Order Form
Appendix F	Sample Format and Checklist for a Typical Design Brief
Appendix G	Sample Material Safety Data Sheet
Appendix H	Sample Facility Risk Analysis Template
Appendix I	Sample Major Incident Action Cards
Appendix J	Sample Incident Alert Log
Appendix K	Sample Major Incident Plan Communications Cascade
Appendix L	Sample Major Incident Drill Plan
Appendix M	Sample Major Incident Plan Drill Evaluation Form

Tables

Table 1	Steps to be taken for planning construction or renovation
Table 2	Recommended protection against some chemical hazards
Table 3	Facilities Management Checklist
Table 4	Facilities Management Indicators

Boxes

Box A	Presentation of a Major Incident
Box B	Terms of Reference of Incident Response Team

Abbreviations

HVAC	Heating, Ventilation, Air Conditioning
ICR	Incident Control Room
IRT	Incident Response Team
MIC	Major Incident Committee
MIP	Major Incident Plan
MSDS	Material Safety Data Sheet
OPD	Outpatient Department
SMT	Senior Management Team
UPS	Uninterruptible Power Supply

Section 1 Introduction

The management of hospital buildings, grounds and utilities is essential to ensure that the facility is maintained and in good condition, providing a safe environment for patients, visitors and staff and guaranteeing that clinical services are provided without interruption. Effective facilities management also includes planning for both internal and external emergencies to ensure that the hospital is adequately prepared to deal with such events and minimize their impact.

Section 2 Operational Standards for Facilities Management

1. The hospital complies with relevant laws, regulations, and facility inspection requirements.
2. Designated hospital staff members are assigned for facility maintenance functions.
3. The hospital grounds are regularly inspected, maintained, and, when appropriate, improved to ensure cleanliness of grounds and safety of patients, visitors and staff.
4. Potable water is available 24 hours a day, seven days a week through regular or alternate sources to meet essential patient care.
5. Electrical services are available 24 hours a day, seven days a week through regular or alternate sources to meet essential patient care.
6. The hospital has a maintenance centre with technical personnel, sufficient space and adequate ventilation to conduct maintenance and repair work on the facility operating systems (e.g., electrical, water, sanitation, sewerage and ventilation) and equipment. This includes proper hand washing facilities, proper disinfection and cleaning of equipment facilities, a storage area, and a library.
7. The maintenance centre has appropriate tools and testing equipment to perform repairs, as well as procedures to ensure the routine calibration of the testing equipment is performed as required.
8. The hospital conducts regular preventive and corrective maintenance for all facilities and operating systems (e.g., electrical, water, sanitation, sewerage and ventilation) to ensure patient and staff safety and comfort.
9. There is a notification and work order system for facility and operating system (e.g., electrical, water, sanitation, sewerage and ventilation) repairs.
10. The hospital has a transport policy for the use of and access to hospital vehicles.
11. The hospital has a policy addressing access to hospital premises.
12. The hospital has a fire safety plan that addresses both the prevention and response to fires. A 'Fire and Evacuation Drill' is conducted at least annually.

13. The hospital has a plan for responding to likely community or hospital emergencies, epidemics and natural or other disasters.
14. Staff members are trained and knowledgeable about their roles in the plans for fire safety, security, hazardous materials, and emergencies.

Section 3 Implementation Guidance

3.1 Organization of Facilities Management Services

Each hospital should have a Finance and Property Case Team, led by the Director of Finance (see *Chapter 10 Finance and Asset Management*). The facilities management function resides within this case team. Given the importance of facilities management, each hospital should assign a Facilities Manager (or equivalent) who is accountable to the Director of Finance. The Facilities Manager should be supported by assigned personnel, sufficient to fulfil the functions described below.

The Facilities Manager, together with support staff, is responsible for:

- Buildings organization, layout, maintenance and construction
- Landscape and garden
- Utilities and sewerage
- Vehicle and transport services
- Security
- Safety
- Major incident planning and response

3.2 Buildings

3.2.1 Buildings layout

The buildings are the most fundamental component of a hospital and their layout and design contribute significantly to the smooth operation of patient services and other activities. The use of buildings should be organized to:

- Minimize the travel distance between frequently used spaces,
- Streamline the movement of patients between departments,
- Allow for patients to be easily visible by staff for supervision purposes,
- Include all the needed clinical and non-clinical areas, avoiding unnecessary redundancies and making efficient use of space,
- Provide an efficient system for the handling of food, storage of supplies and the removal of waste, and
- Enhance the safety and security of patients, visitors, staff and hospital assets.

3.2.1.1 Layout of patient services

The hospital should be organized such that patient services are easily accessible and located in close proximity to each other.

The Emergency Department should be easily accessed from the adjacent main road and should have a separate entrance that is labelled in a way that is visible from the street.

The Outpatient Department (OPD) should also be easily accessed from the main road and should have enough space and seating available for the expected number of daily arrivals.

The Hospital triages (both central and emergency) should be clearly labelled and easily accessible.

Inpatient wards should be easily accessible from elevators, ramps and stairways. Sufficient seating space should be provided for visitors, caregivers and other guests. Toilets and showers should be provided for patients. Ideally these should be located adjacent to each ward, but if this is not possible then they should be clearly signposted and a covered walkway used to link the ward to the facilities.

Administrative offices, such as medical records and payment offices should be in a location that is easily accessible to patients and visitors, and should be clearly labelled.

All public areas should be kept clear of large objects and clean. Hazards such as wet floors, etc. should be clearly labelled to prevent injury.

Hospitals with more than one story should have either elevators or ramps in order to transport wheelchair- or bed-bound patients. If elevators are in use, they should provide access to all levels of the hospital. Elevators should be large enough to accommodate patient beds. Floors should be labelled at elevator exit points and stair landings for easy identification for guests. Stairs and corridors should not be used as storage areas, and must be kept clear to allow for easy access to patients, staff and visitors.

Areas that are restricted to staff only should be clearly marked with “No entry” or “Restricted entry” signs to prevent unwanted visitors from entering.

3.2.1.2 Layout of staff services

Staff services should be organized in a way to provide easy access and mobility. Toilets should be available within close proximity to all staff working areas. Where necessary, changing rooms with lockable lockers should be provided to staff without their own office (such as operating theatre, delivery suite, laundry, kitchen and maintenance staff as well as security personnel). Showers should be provided to workers who are exposed to dirt, hazardous materials or body fluids during their duty shift.

Workers should be provided with adequate space for meals. A canteen or café should be available for staff to purchase food or beverages. Drinking water should be available at all times.

Staff working ‘on duty’ should have access to duty rooms with beds for resting when not actively working. Duty rooms should be located near regular work areas and should be equipped with telephones or other communication access in case the worker is needed. Facilities should be available for staff ‘on duty’ to obtain meals/refreshments during duty hours.

Health workers, residents and visiting students should have access to a study area or library equipped with various educational resources including internet access.

3.2.2 Hospital site map

A map of the hospital campus should be displayed at all entry points to the hospital to provide clear, easy navigation for patients and visitors. All hospital buildings should be clearly labelled and signs should be used to guide patients or visitors to each department.

3.2.3 Building maintenance

Buildings are generally the largest investment in the facility and should be well-maintained to prolong their lifespan and minimize the need for expensive repairs or renovation. Inspections of all hospital buildings should be conducted on a regular basis to ensure that facilities are in good condition, and should be performed by professional, certified staff (for example masons, painters, carpenters, etc.) with access to appropriate tools, equipment and machinery. Preventive maintenance and repairs should be undertaken whenever necessary. In particular:

- Windows should be replaced when cracked or broken.
- Windows should be able to open to allow for ventilation.
- Windows should have a functioning lock to prevent theft or unwanted intruders.
- Doors should be able to easily open and close.
- Doors should have a functioning lock so that doors may be locked and opened as needed.
- The roof should not have any source of leakage into the facility.
- Walls should be repaired as necessary.
- Rain drainage systems should be working properly and efficiently. Water from drainage systems should be diverted to a location that eliminates large flooding in locations around the building, and
- Mould growth should be prevented, or removed if discovered to prevent damage to the buildings.
- Sagging and broken beds should be fixed.
- Broken patient or visitor chairs, tables, etc should be repaired as soon as the problem is reported.
- Regular walk through should be conducted to assess the condition of all the hospital facilities. These should be done at least once a month.

The hospital should ensure that reasonable stocks of building maintenance materials are held at all times, and that these form part of recurrent budgets. Basic building maintenance materials include cement, paint, metal, wood, glass, etc. There should be a system in place that prompts for re-order when stocks of building maintenance materials run low.

A full construction plan for the buildings, including civil engineering drawings should be available and kept within the office of the Facilities Manager and should be updated when modifications are made.

3.2.3.1 Buildings maintenance workshop

The hospital should have a maintenance workshop with skilled personnel and equipment for the maintenance of hospital buildings and non-medical equipment. Some maintenance services may be outsourced if necessary (for example electrical engineering etc). The hospital should also have skilled personnel and equipment for the maintenance and repair of medical equipment (See *Chapter 9 Medical Equipment Management*). A hospital maintenance workshop should have:

- Appropriate manpower,
- Adequate work space,
- Essential tools ,
- Adequate, safe, and secure storage space for tools, equipment, and hazardous materials,
- Maintenance/repair manuals and literature,
- Protective clothing for maintenance staff (ex. gloves, overalls/overcoat, goggles, boots),
- Proper disposal guidelines and methods for maintenance waste, and
- Dedicated disinfection room or area for disinfecting equipment before maintenance is performed.

Although the layout of the workshop can vary according to the size of the maintenance team, the design should allocate space for:

- Different work areas designated for different maintenance work,
- Adequate work benches and stools to meet needs of each work area,
- Store room with cabinets and shelves,
- Office space (for workshop manager's desk and filing space),
- Changing room with toilet, lockers, wash basin, and shower,
- Shaded outdoor area for large maintenance/repair jobs and handling of hazardous materials,
- Secure outdoor storage area for bottled gases and equipment to be discarded,
- Vehicle access, and
- Technical library.

A library of reference materials is extremely important for ongoing staff education and should also be included in the design of the workshop. The library should include operation and service manuals, general textbooks on engineering and related disciplines, journals, instruction booklets, updated hazard reports, and other reference material.

A sample layout of a workshop for a 100-bed hospital is presented in Appendix A.

3.2.3.2 Workshop tools

The maintenance team should identify essential tools (either by maintenance needs or technician roles) required to perform their work and procure them based on quality. Poor tools may break if they are not strong enough, they may fail earlier than expected, or they may rub, corrode, or in some way damage other parts of the machine. It is recommended that higher quality tools and test instruments be purchased for repairs on critical equipment. Lower quality tools may be acceptable for less critical items, but the cost of early replacement of such tools should be considered prior to purchase. Sample lists of suggested maintenance tools and safety calibration testing instruments are presented in Appendices B and C.

The maintenance team should have a tool inventory, either paper-based or computerized, that lists all test and bench instruments and the contents of all tool kits. Tool usage should be monitored by keeping a tool ledger in which each item is 'signed out' and 'signed in' when used by a technician. A sample format for a tools ledger is presented in Appendix D.

3.2.3.3 Fault reporting and work order

Procedures should be in place through which staff, patients or visitors can report any problems identified with the hospital building or facilities such that repair can be undertaken promptly.

The Facility Maintenance Team should be informed of any building maintenance needs (e.g. a broken window or sink etc). The work request should be submitted in written form to enable tracking of service requests. Telephone calls or other verbal means of reporting may be acceptable in times of emergency; however, a service request/work order should be submitted promptly in order to provide a written record of the reported fault. A sample Facilities Maintenance Work Order Form is presented in Appendix E. Follow-up should be conducted of all service requests to ensure that the work has been completed. Service requests/work orders should be filed.

3.2.4 Planning for new construction or renovation

The services provided by a hospital and the number of patients attending a hospital are rarely static. To accommodate changes in services or patient load it may be necessary to undertake significant renovation of existing buildings, to construct new buildings and/or to redesign the layout and functions of the hospital.

Adequate planning for new constructions must be carefully performed to ensure good results. Planning is best carried out through a dedicated committee, with members from a range of backgrounds including staff well-versed in the new service to be provided. Technical staff with sufficient knowledge of existing facilities must be included in the planning in order to interface with already-existing systems, such as electricity, plumbing, sanitation, etc.

Adequate consideration should be given to the effects of the construction process on existing services. Factors to consider that may interrupt normal facility operation include noise, vibrations, water or electricity needs or interruptions, access to large equipment or machinery, storage of construction materials, facilities for construction staff, excess dust etc. Construction activities should be planned to minimize the effect on daily facility operations.

To ensure that any construction or renovation is fit for purpose it is important to involve multiple personnel in the planning process and to follow key steps as described in Table 1 below.

Table 1 Steps to be taken for planning construction or renovation

Step	Description
One	<p>Establish the need for renovation or construction:</p> <ul style="list-style-type: none">• What services will be provided?• What is the demand and/or population health need for those services?• Can these services be provided using existing buildings or is renovation or new construction required? <p>Stakeholders such as woreda, zonal, regional or federal health offices, hospital staff and the community should be involved at this stage.</p>
Two	<p>Preparation of a Design Brief.</p> <ul style="list-style-type: none">• The Design Brief is a basic framework for the design of the building or facility and should provide sufficient detail for construction engineers to prepare construction plans. <p>Stakeholders such as woreda, zonal, regional or federal health offices, hospital staff and the community should be involved at this stage.</p> <p>A “Sample Format and Checklist for a Typical Design Brief” is presented in Appendix F.</p>
Three	<p>Tender announcement and consideration of bids received</p> <ul style="list-style-type: none">• The Design Brief should be put to competitive tender• Bids received should be considered by the planning committee• Explicit criteria should be used to assess or score each bid received. Criteria could include:<ul style="list-style-type: none">○ Cost of construction○ Time to completion○ Closeness of plan to Design Brief
Four	<p>Construction of the building or facility.</p> <p>As far as possible construction activities should be planned to minimize the effect on daily facility operations.</p>
Five	<p>Purchase of all furniture, equipment, and supplies needed for the building or facility</p> <p>Appointment and training of all staff</p>

3.3 Landscape and Garden

Patient and community perceptions of a hospital and staff satisfaction with their workplace can be enhanced by clean and pleasant hospital grounds. Buildings should be linked by covered and paved walkways, where possible. Recreation areas should be established including areas for sitting and for walking. Grass, trees and flowers should be planted wherever possible and special features such as fountains may be installed as a focal point. Hospital grounds may also be used to grow crops, vegetables or fruit that may be used by the hospital kitchen.

Hospital grounds should be free from litter, including old equipment or construction materials, and should be regularly inspected to ensure a safe and comfortable environment for patients, visitors and staff.

Grounds keeping staff should have access to all necessary tools, equipment and machinery necessary to maintain and enhance the hospital ground. These materials should be budgeted for to ensure that there is a consistent supply of materials.

3.4 Utilities and Sewerage

3.4.1 Electricity

A reliable source of electricity is essential for every hospital. As regular supplies may be erratic, every healthcare facility must have a backup system in place, such as a diesel generator. If a generator is the preferred backup system, there must be a dedicated individual in charge of ensuring proper functioning of the generator, including sufficient supply of diesel, charged batteries (for start-up), and regular maintenance. Alternatively, solar panels might be a more cost-effective backup option. Regular inspections of the back-up electricity system should be conducted, with particular attention given to potential causes of malfunction. Hospitals should have access to a professional qualified technician with appropriate training, tools and equipment to perform maintenance and repair of electrical back-up installations. Up-to-date plans and manuals should be kept by each facility to ensure easy access when troubleshooting or maintaining the equipment.

The hospital should ensure that a reasonable stock of spare parts (including a sufficient supply of diesel for a generator) for the back-up electrical system(s) is held at all times, and that these form part of recurrent budgets. There should be a system in place that prompts for re-order when stocks of spare parts or diesel run low.

The back-up supply can be used to provide power to the entire hospital, or may be used to provide electricity to selected critical areas or critical equipment. If the back-up supply does not provide electricity for the whole facility an assessment should be made to identify those essential areas that must be provided with uninterrupted supply, for example the operating room, emergency room, labour and delivery room, patient wards, laboratories, refrigerators for drugs, reagents and blood products etc. The back-up system must have sufficient capacity to maintain all the critical functions identified. Ideally, the back-up supply should start automatically in the event of mains interruption. If this is not possible, then a trained individual must be available on site at all times to start the generator or alternative source of power immediately when power failure occurs.

Standard electricity in Ethiopia runs at 220V and 50-60 Hz. However, medical and hospital equipment originating from abroad may require a different operating voltage. For example, equipment originating from the United States operates on 110V. If possible the donor should be asked to modify the equipment so that it operates on 220V supply. If this is not possible a step-down transformer is necessary. Staff must be educated on when to use such step-down transformers, as plugging the machine into the 220V supply will damage the equipment. Other large equipment such as X-ray machines may require a 3-phase electricity supply, generally operating at 380V. Facilities need to prepare accordingly if such electricity is needed. Medical equipment may be affected by fluctuations in supplied voltage or power loss. Even in facilities that have backup generators, there may be a brief period (20-30 seconds) of electricity loss while the generator powers up. Any item of equipment that could be damaged by power fluctuations or interruptions must have a backup Uninterruptible Power Supply (UPS) that lasts for at least 30 minutes, providing sufficient time for the generator to start up or for the equipment to be switched off safely. The UPS will also protect the item from a power surge when the mains power returns.

Electrical hazards may pose serious fire risks, as well as shock hazards to patients, staff and visitors. Electrical safety should be ensured at all times. Regular inspections should be conducted, and electrical fire hazards, such as frayed cords and compromised electrical sockets, should be identified

and corrected immediately. Electrical power strips (dividers) should be used with caution and should be inspected regularly.

Hospitals should have access to a professional qualified electrician with appropriate training, tools and equipment to perform maintenance and repair of electrical installations. To guarantee safety they must:

- Test for grounding,
- Test for circuit connectivity,
- Test for loose connections,
- Perform insulation tests,
- Test switch leaks,
- Test for power,
- Check for the correct rating, and
- Check whether wiring regulations were followed during installation.

Up-to-date plans of electrical installations should be kept by each facility to ensure easy access when troubleshooting or maintaining the electrical system.

The hospital must ensure that reasonable stocks of electrical maintenance materials are held at all times, and that these form part of recurrent budgets. Basic electrical maintenance materials include wires, sockets, switches, fluorescent light components, fuses, circuit breakers, etc. There should be a system in place that prompts for re-order when stocks of electrical maintenance materials run low.

3.4.2 Water supply

All hospitals should have access to a safe and reliable water supply. Water in hospitals must be:

- Free of disease-causing organisms and any other hazardous substances,
- Clear, colourless, odourless, and tasteless,
- Not too highly concentrated with calcium, magnesium, manganese, iron, or carbonates,
- Without any corrosive substances, and
- At a relatively low temperature.

Regular (at a minimum every 6 months) microbiological checks should be conducted of the water supply. Checks should be conducted on water outlets (faucets) and on any storage tanks.

A backup water supply such as water tanks, a reservoir or dedicated well should be available in case the main supply is interrupted. Water tanks should hold sufficient water to supply the hospital for at least one day and preferably for three days. Backup supplies should be cleaned regularly and water checked to ensure the quality and safety of the water being brought to the facility. A mesh filter can be used to prevent large debris from entering the water supply. Filters must be cleaned on a regular basis, as they tend to get clogged with dirt or mud.

If for any reason water supply is lost, every effort must be made to ensure that water is supplied to all essential areas. The cause of the water interruption should be investigated and the potential length of the interruption estimated. The hospital should prepare a contingency plan that identifies the areas to which water must be provided in order of priority. If the interruption is likely to be of long duration and the backup supply is limited then only the most essential services should be provided with water.

The contingency plan should include systems for transporting water throughout the building and coordinating alternative plans for activities such as food preparation and laundry services. When the mains supply is not functioning, staff, patients and visitors should be reminded to close faucets to prevent water wastage and flooding when the water supply resumes. If the hospital is not able to continue patient services due to prolonged interruption to the water supply then arrangements should be made to transfer patients to other facilities. Such arrangements should be described in the contingency plan.

Water should be available in all toilets and clinical areas (wards, treatment rooms, outpatient department, emergency room, laboratory, pharmacy etc). Ideally, piped water and faucets should be provided in each of the above areas. If this is not possible covered water containers should be installed and regularly filled. Such containers may be static or may be mobile such that they can be taken on ward rounds etc.

Additionally, all staff should have access to hand washing facilities close to their work station. Drinking water should be available to patients and staff at all times. Water should be tested to ensure that it is potable. If water is treated with chlorine, then regular chlorination tests should be performed to ensure that the water is safe for drinking.

3.4.3 Sewerage

Proper sewage facilities are essential to any healthcare facility to ensure cleanliness and minimize the spread of infections. Flushing toilets should be available wherever possible and when an adequate amount of water is available⁴, ideally adjacent to each ward and clinical area. Otherwise, pit latrines are recommended. Covered walkways should be used to link hospital buildings to any external toilet facilities.

Flushable toilets should be inspected on a regular basis to ensure that the flushing mechanism is functional and effective. Drainage systems should be inspected and maintained to eliminate leaks and system back-ups. Patients, staff and visitors must be instructed to keep large solid waste out of the sewage system since these may cause blockages. Signs with written and visual messages indicating what can and cannot be deposited in the sewage system should be used to minimize misuse of the system.

Where available, hospital sewage systems should connect to the municipal sewage system. Hospital sewage should be pre-treated before entering the municipal system. Where municipal sewage systems are not available septic tanks may be used. Where possible, hospitals should install biogas systems to minimize the build-up of sewage and provide an efficient energy source. All hospital sewage should be regarded as a hazardous material and appropriate safety and infection prevention measures, including the use of personal protective equipment, should be followed when handling sewage or undertaking repairs on any sewage systems (pipes, drains, toilets, septic tanks etc).

Hospitals should have access to a professional qualified plumber with appropriate training, tools and equipment to perform maintenance and repair of sewage installations. Up-to-date plans of sewage installations should be kept by each facility to ensure easy access when troubleshooting or maintaining the sewage system.

⁴Federal Ministry of Health. *Site Selection Criteria*, 1998.

The hospital must ensure that reasonable stocks of sewage maintenance materials are held at all times, and that these form part of recurrent budgets. Basic sewage maintenance materials include pipes, elbows, de-clogging snakes, personal protective equipment for workers (such as boots, gloves, face masks), etc. There should be a system in place that prompts for re-order when stocks of sewage maintenance materials run low.

The disposal of pharmaceutical and laboratory products and infectious waste are considered further in *Chapter 4 Pharmacy Services*, *Chapter 5 Laboratory Services* and *Chapter 7 Infection Prevention*.

3.4.4 Plumbing

Hospital plumbing should be checked on a regular basis to ensure that all components are functional and there are no leaks in the system. Unnecessary water loss (due to leaks, running toilets etc) can be costly and can cause damage to a building or equipment if left unattended. Water pumps, if present, should be regularly checked and maintained in accordance with the manufacturer's recommendations.

Plumbing hazards may pose various risks to hospital facilities as well as to patients, staff and visitors. Hazards include flooding, slippery floors and water damage. Regular inspections should be conducted, and possible causes for leakage should be identified and corrected immediately. Hospitals should have access to a professional qualified plumber with appropriate training, tools and equipment to perform installation, maintenance and repair of plumbing installations. The plumber may be a regular employee of the hospital or may be hired on a contract basis depending on the size and needs of the hospital. Up-to-date plans of plumbing installations should be kept by each facility to ensure easy access when troubleshooting or maintaining the plumbing system.

The hospital must ensure that reasonable stocks of plumbing maintenance materials are held at all times, and that these form part of recurrent budgets. Basic plumbing maintenance materials include pipes, faucets, toilet and sink fixtures, valves, flexible tubing, etc. There should be a system in place that prompts for re-order when stocks of plumbing maintenance materials run low.

3.4.5 Boiler/steam supply

Where a regular supply of steam is needed, the hospital may use a boiler. While running, boilers should be under constant supervision by a dedicated boiler technician. Regular inspections should be performed to ensure the boiler is running as expected; results of these inspections should be recorded and corrective action should be performed immediately. Where steam from boilers is used to provide essential services, such as autoclave sterilization, a functional backup boiler should be available for emergency use. The boiler technician should be appropriately qualified and have access to appropriate tools and equipment to perform installation, maintenance and repair of boilers and associated steam pipe installations. The boiler technician may be a regular employee of the hospital or may be hired on a contract basis depending on the size and needs of the hospital. Up-to-date plans of steam plumbing installations should be kept by each facility to ensure easy access when troubleshooting or maintaining the steam piping system.

The hospital must ensure that reasonable stocks of boiler and steam plumbing and piping maintenance materials are held at all times, and that these form part of recurrent budgets. This includes heavy oil or other oil used to fuel the boiler. Basic steam piping maintenance materials include copper pipes, steam traps, release valves, steam valves, etc. There should be a system in place that prompts for re-order when stocks of boiler and steam plumbing maintenance materials run low.

3.4.6 Heating, ventilation and air conditioning (HVAC)

Hospitals in Ethiopia generally do not require heating systems. If they are installed they should be inspected and maintained on a regular basis to ensure they are functioning correctly and do not pose a hazard. Where appropriate, carbon monoxide detectors should be used to eliminate the risk of inhalation. Additionally, “space heaters” or other small heaters must be regularly checked for damage to eliminate the risk of fire or other hazards.

Air conditioning systems are generally not used in Ethiopian hospitals, but may be necessary under certain conditions. For example, certain medical equipment may require rooms to remain within a specific range of room temperature that may only be achieved through air conditioning systems. If present, air conditioning systems must be inspected and maintained on a regular basis to ensure correct operation.

Adequate ventilation is essential in a hospital environment to help prevent the spread of infectious diseases and to minimize health risks due to harsh chemicals or other pollutants. Ventilation is also needed to reduce mould or other fungus growth in areas of high humidity such as the kitchen, laundry and any other areas with steam, water or sewage pipes running through. Workshops where welding, soldering, burning or other smoke-producing activities take place or where there is exposure to harsh chemicals (such as paint or epoxies) must also be adequately ventilated. When artificial ventilation methods are not available natural ventilation (opening windows) can serve a low cost alternative ventilation method. This method should not be used if the external environment is polluted or is excessively noisy.

Hospitals should have access to a professional qualified HVAC technician with appropriate training, tools and equipment to perform maintenance and repair of HVAC installations. Up-to-date plans of HVAC installations should be kept by each facility to ensure easy access when troubleshooting or maintaining the HVAC system.

The hospital must ensure that reasonable stocks of HVAC maintenance materials are held at all times, and that these form part of recurrent budgets. Basic HVAC maintenance materials include vent ducts, fans, air filters, etc. There should be a system in place that prompts for re-order when stocks of HVAC maintenance materials run low.

3.4.7 Energy efficiency

To minimize costs and environmental pollution hospitals should aim to maximize energy efficiency. Ways to increase energy efficiency include:

- The use of natural ventilation:
 - Open windows (should only be done if the external environment is free of pollution, smog, industrial gases, and excessive noise). Screens can be installed to protect from insects while allowing maximum air flow,
 - Provide vents in the ceiling and roof to allow hotter air to escape,
- Construct windows to be as tall as possible in order to let in the maximum amount of natural light,
- Provide wide roof coverage to protect windows from direct sunlight and hence keep buildings cool,
- Provide reflective materials on windows to redirect the rays of the sun,

- Plant trees to provide shade to buildings, especially outside windows, in hot climate areas,
- Ensure doors and windows close properly to maintain internal heat in cold climate areas,
- Use solar panels for heating water, powering lights etc,
- Install biogas systems as an alternative source of energy, and
- For new buildings, orient the building to decrease the amount of sun exposure or to take advantage of prevailing winds.

3.4.8 Pest and rodent control

Rodents and insects can spread disease and cause damage to buildings and equipment, for example by chewing electrical wires and soft tubing. The presence of pests and rodents can be minimized by keeping the facility clean and free from waste materials. The following steps help to eliminate pests and rodents and are particularly important in storage areas:

- Design or modify storerooms to facilitate cleaning and prevent moisture.
- Regularly clean floors and shelves.
- Do not store or leave food uncovered/unsealed in any storage areas.
- Keep the interior of the building as dry as possible.
- Properly varnish or paint wooden furniture as needed.
- Use pallet and shelving and do not keep products directly on the floor.
- Regularly inspect and clean the outside premises of the storage facility, especially areas where garbage is stored. Make sure that garbage and other wastes are stored in covered containers.
- Check for still or stagnant pools of water in and around the premises, and be sure that there are no buckets, old tires, or items holding water.
- Treat wood frame facilities with water sealant, as required.
- To protect the facility from birds or bats, any open space between the roof and the ceiling should be covered with fine wire mesh.
- To protect the facility from flying pests keep all doors and windows closed or put fine wire mesh on all windows and make sure that there are no holes in the ceiling, walls or floors.
- The use of Insect Electrocuting Light Bulb (hanging electric grids that attract flying insects via a bright fluorescent or ultraviolet light) may be the appropriate solution, if available at reasonable price.
- The use of noisemakers and keeping the outside of the facility clear of long grasses and bushes can protect the facility from the different snake species.
- To eliminate flees or similar insects all patient bed sheets and blankets should be washed and ironed regularly. Mattresses, pillows, and other items that do not get laundered should be disinfected with appropriate chemicals regularly, especially prior to the bed being occupied by a new patient.

Inspections should be performed on a regular basis to detect the presence of rats, rodents or other pests, paying particular attention to store rooms and kitchen. Proper extermination methods should be undertaken when pests are suspected. Extermination techniques should be performed in accordance with local rules. Patients and staff should be temporarily removed from areas if there is a risk of exposure to toxic chemicals or substances.

3.5 Vehicle and Transport Services

Hospitals may have one or more vehicles, including ambulances, depending on the size and location of the facility. Such vehicles should be organized within a transport department, consisting of drivers and department head. All drivers must have valid driving licenses for the type of vehicle used and must be sufficiently trained to undertake basic repairs (for example burst tyres, overheating etc). All vehicles should be equipped with at least one spare tyre and preferably two for vehicles used in remote locations, and these should be checked on a regular basis to ensure they are intact and filled with air. All vehicles should be fitted with functioning seat belts in both front and back seats and these should be used by drivers and passengers at all times. All vehicles must be insured against accident and theft.

Routine services should be undertaken for each vehicle in accordance with manufacturer's recommendations. Routine and repair services should only be undertaken by a qualified mechanic.

A log book should be kept for each vehicle that describes the mileage undertaken and maintenance record for the vehicle.

A transport policy should be established that specifies:

- The appropriate use of ambulances and regular vehicles,
- The process by which vehicles are issued for use,
- Control of vehicle keys,
- Storage of vehicles,
- Fuel consumption policy,
- Use of seatbelts,
- Use of mobile telephone by driver,
- Use of alcohol, chat or other substances by driver,
- Action to be taken in the event of an accident or breakdown, and
- Action to be taken in the event of misuse of the vehicle.

3.6 Hospital Security

3.6.1 The Security (Guard) department

Security for the staff, patients, property, and information located within the hospital is critical. Potential security threats include theft – by an employee or visitor, and threats against patients or staff.

Security personnel play a vital role in ensuring that the hospital is welcoming and accessible but also a safe environment for patients, visitors and staff. Security personnel need a thorough knowledge of the premises in order to protect buildings and valuable equipment. Security personnel should know when and how to diffuse potentially difficult situations and should be able to react appropriately in an emergency.

A head of security should be appointed to manage all security officers. The security department should provide 24 hour coverage, with security officers stationed at all entry and exit points of the hospital. The security staff also should conduct regular rounds of the premises. Security staff should be issued with appropriate communication devices such as walkie-talkies or mobile telephones to ensure communication in the event of an emergency. If firearms are to be held by security staff then

appropriate training must be given to ensure their appropriate use. The local police department may provide such training on request. There should always be a security focal person on the premises who will be the first point of contact in a security incident (such as a fire or theft) and will be in charge of deploying guards to the incident area to diffuse the situation. Security personnel should be fit and in good health and should be issued with uniforms and ID badges so that they can easily be identified as security staff.

3.6.2 Control of entry and exit to and from the hospital

The hospital should have a policy to control access to the hospital addressing the areas outlined below.

Access to the hospital should be limited to staff, patients, caregivers and visitors with legitimate business.

All staff should wear staff ID badges which they must present on entry to the facility. In addition, staff should wear uniforms appropriate for their positions at all times within the hospital. A policy should be established for the number of caregivers permitted for each patient (for example one caregiver per patient with the possible exception of critical cases and paediatric cases). The policy should be clearly displayed in the hospital and should be explained to all patients and caregivers whenever a patient is admitted. Caregiver ID badges should be issued for caregivers, indicating the ward and bed number of the patient they are attending. (For further information on 'traffic control' please see Section 3.4.5 of *Chapter 7 Infection Prevention*).

Fixed visiting hours should be established and should be displayed at all entry points to the hospital and within each ward. These should be strictly enforced. The number of visitors to each bed should be limited to prevent crowding. Visitor ID badges should be issued for patient visitors, indicating the ward and bed number of the patient they are visiting.

All other visitors to the hospital attending for other purposes such as providing supplies, administrative or supervisory functions should also be issued with visitor ID badges.

Patients attending the outpatient department or emergency room should be directed to the appropriate department and should not enter ward areas unless attending for clinical assessment or treatment. All staff, and particularly security personnel, should ensure that patients, caregivers and visitors remain within the area in which they have legitimate business and do not wander around other clinical areas or hospital premises unnecessarily.

Staff, visitors, patients and vehicles should be searched when they enter the premises to detect dangerous weapons or other security threats, and a search should be undertaken of all individuals and vehicles on exit from the premises to prevent theft.

Visitor and caregiver ID cards should be returned to security personnel when the individual leaves the premises.

3.6.3 Security plan

A security assessment should be undertaken at least once a year to identify security vulnerabilities, including the location of important or expensive equipment or supplies. A security plan should be designed based on the findings of this assessment. The security plan should address areas such as:

- Control of access points, entry and exit to premises,

- Security rounds,
- Action to be taken in event of security threat,
- Use of communication devices,
- Use of firearms (if permitted),
- Control of assets entering or leaving premises, and
- Induction and training of new security personnel.

3.7 Hospital Safety

3.7.1 Hazardous materials

Exposure to hazardous chemicals can produce a wide range of adverse health effects. The likelihood of an adverse health effect occurring, and the severity of the effect are dependent on the toxicity of the chemical, route of exposure, and the nature and extent of exposure to that substance.

Toxic chemicals often produce injuries at the site at which they come into contact with the body. For example, irritant gases, such as chlorine and ammonia, can produce a localized toxic effect in the respiratory tract; corrosive acids and bases can produce damage to the skin. In addition, a toxic chemical may be absorbed into the blood stream and distributed to other parts of the body. These chemicals may then produce systemic effects. There are three main routes of chemical exposure: inhalation, skin contact, and ingestion.

Table 2 Recommended protection against some chemical hazards

Chemical	Exposure Routes	Symptoms	First Aid	Personal Protection
Glutaraldehyde (commonly used as high level disinfectants and/or sterilizer for some medical equipment that do not resist heat)	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation of eyes, skin, respiratory system; dermatitis; cough, asthma; nausea, vomiting	<i>Eye:</i> irrigate immediately <i>Skin:</i> Water flush immediately <i>Breathing:</i> Respiratory support <i>Swallow:</i> Medical attention immediately	Wear eye-protection, protective clothing, gloves, and mask Good ventilation and easy access to water
Ammonia (used in laboratory and some cleaning solutions)	Inhalation, ingestion, skin and/or eye contact	Irritation of eyes, nose, throat; dyspnoea, wheezing, chest pain; pulmonary oedema; skin burns	<i>Eye:</i> irrigate immediately <i>Skin:</i> Water flush immediately <i>Breathing:</i> Respiratory support <i>Swallow:</i> Medical attention immediately	Wear eye-protection, protective clothing, gloves, and mask Good ventilation and easy access to water
Formalin or formaldehyde (commonly used as high level disinfectant or sterilizer for some	Inhalation, skin and/or eye contact	Irritation of eyes, nose, throat, respiratory system; lacrimation; cough; wheezing	<i>Eye:</i> irrigate immediately <i>Skin:</i> Water flush immediately <i>Breathing:</i> Respiratory support	Wear eye-protection, protective clothing, gloves, and mask Good ventilation and easy access to

medical equipment that do not resist heat)				water
Chlorine (used for decontamination, cleaning, and disinfection)	Inhalation, skin and/or eye contact	Burning eyes, nose, mouth; lacrimation, rhinorrhoea; cough; choking; nausea, vomiting; headache, dizziness; syncope; pulmonary oedema, pneumonitis; dermatitis	<i>Eye:</i> irrigate immediately <i>Skin:</i> Water flush immediately <i>Breathing:</i> Respiratory support	Wear eye-protection, protective clothing, gloves, and mask Good ventilation and easy access to water
Mercury	Inhalation, ingestion, skin and/or eye contact	Burning eyes, nose, mouth, skin irritation; damage to nervous system	<i>Eye:</i> irrigate immediately <i>Skin:</i> Water flush immediately	Wear eye-protection, protective clothing, gloves, and mask Good ventilation and easy access to water

Source: Adapted from NIOSH Pocket Guide to Chemical Hazards. *Draft Workplace Safety & Health Guidelines for Health Workers* (2007).

Material safety data sheets (MSDSs) should be available for all chemicals found at the hospital. These should include information about the substance, safe handling, precautions, first aid, etc. MSDSs should be held at all sites where hazardous materials are stored or utilized, and a full set of all MSDSs should be held by personnel in the materials management/central supply department and by hospital management. An example MSDS is presented in Appendix G.

The hospital should ensure that reasonable stocks of personal protective equipment are held at all times, and that these form part of recurrent budgets. Basic personal protective equipment includes gloves, masks, eye protection, protective clothing, etc. There should be a system in place that prompts for re-order when stocks of personal protective equipment run low (For further information on personal protective equipment please refer to section 3.2.2 of *Chapter 7 Infection Prevention*).

3.7.2 Fire safety

A fire in a health facility risks the safety, health, and lives of patients and providers. Hospitals should have a fire safety plan that addresses both the prevention of and response to fires.

a) Fire prevention

The following safety measures minimize the risk of fire:

- **Electrical safety:** All appliances, instruments and installations should be tested before use to determine compliance with grounding, current leakage and other device safety requirements. A program of routine maintenance should be enforced to ensure that all electrical receptacles and plugs, wires and connectors are safe. An earth leakage (grounding) system should be used and start and stop switches must be clearly identified.
- **Flammable storage:** Specifically designated areas for storage of flammables (e.g. diesel, alcohol, oxygen) should be identified. These items should be stored in proper conditions and located in

restricted areas protected from sources of excessive heat, fire, or electrical discharge and away from patient care areas. Minimum quantities of flammables should be kept at work stations.

- **Smoking/open flame restrictions:** The facility should adopt strict rules governing smoking within the hospital which should be made known to hospital personnel, patients and visitors. These rules should include at least the following: smoking must be prohibited within the facility and in any room or compartment where flammable liquid, combustible gas or oxygen is being used or stored and in any other hazardous area of the hospital. These areas must be posted with clear “NO SMOKING” signs. Open fires (e.g. waste burning, kitchens) must not be allowed near flammable storage areas. All open fires should be monitored until completely extinguished.
- **Fire inspections:** In localities where fire departments exist, health facilities should request an annual inspection by the local fire department that includes verification of fire prevention measures and response readiness assessment (access to the building, current floor plan, storage places of flammable and explosive gases, sources of water, firefighting equipment, patient rooms, exits and evacuation plans).

b) Response to a fire

Action take in response to a fire can minimize injury and the damage caused to buildings and equipment. Fire response measures should include:

- **Fire warning system:** Ideally every building should have a fire alarm system installed (automatic and/or manually activated) to allow the early identification of fires. If this is not possible a large hand-bell may be used as an alert signal.
- **Emergency notification:** The facility should have a fire emergency notification system to the local fire department using the most direct, fast, and reliable communication means.
- **Firefighting equipment:** All buildings should have portable extinguishers appropriate to the different types of hazards, properly tagged and, easily accessible in all areas of the building. Extinguishers should be periodically checked according to regulations to ensure that they are operable. If water hydrants and hoses exist within the facility, they should be conveniently distributed and located throughout the building to allow water to effectively reach all potential fire points. Water hydrants and hoses should also be regularly checked to ensure functionality.
- **Sources of water:** Adequate sources of water must be available in the facility for fire control purposes. In case the public water supply system is non-existent or unreliable, water supply should be guaranteed by elevated tanks or electric pumps. In the latter case, an emergency energy source should be available.
- **Access to the building:** Access to the building for firefighters should be clearly marked and free of obstacles. Established routes must allow access to all parts of the building.
- **Evacuation:** All facilities must have evacuation plans for patients and staff. Evacuation routes can be horizontal or vertical. Evacuation routes must be clearly marked, built of fire resistant materials if possible, free of obstacles, well-lit and ventilated to avoid smoke accumulation, and must not pass through or be close to flammable storage areas. Evacuation routes should direct patients and staff to a safe place outside of the building or to a designated safe area in the building (behind fire doors if they exist). Elevators must not be used for vertical evacuation. Evacuation should be done in a systematic fashion by moving all patients and personnel who are closest to the danger first. Doors into patient rooms should not be locked when the patient is alone in the room. Exit doors should be easily opened from the inside.

- **Referrals:** After a fire, it may be necessary to relocate patients to other facilities. Health facilities must have an emergency referral plan that includes all health services, public or private, in their geographical area, including the identification of transportation means.

All employees should be trained in fire prevention and response and should be familiar with the fire safety plan. Training should include the operation of firefighting equipment, evacuation, and the specific responsibilities of each staff member. Update training should be conducted at least annually.

To test the fire and safety plan, and ensure that staff are familiar with their responsibilities, a 'Fire and Evacuation Drill' should be conducted at least annually. These drills should be planned and implemented so as to:

- Ensure that all personnel on all shifts are trained to perform assigned duties in case of a fire,
- Ensure that all personnel on all shifts are familiar with the use and operation of the fire-fighting equipment in the hospital,
- Enable hospital management to evaluate the effectiveness of the plan,
- Check the feasibility of a prompt and orderly discharge or transfer of patients already in the hospital who can be safely moved without jeopardy,
- Verify security measures to keep unauthorized persons out of the emergency area.

3.7.3 Other safety measures

To prevent injury all hazards (such as wet floors, spills, broken glass etc) should be clearly labelled. All public areas should be kept clean and free of large objects. Stairwells and corridors should be kept clear and should not be used as storage areas. When cleaning is conducted only half of the area of corridors and stairwells should be wet cleaned at a time to always have a dry and safe path available for use. Further guidance on occupational health and safety is presented in Section 3.13 of *Chapter 11 Human Resource Management*.

3.8 Major Incident Planning and Management

A major incident is any event whose impact cannot be handled within routine service arrangements. This may arise when:

- The numbers or type of casualties overwhelm or threaten to overwhelm normal services and special arrangements are needed to deal with them; or
- An incident poses a serious threat to the health of the community; or
- There is the potential for the hospital itself to suffer serious internal disruption.

The aim of major incident planning is to ensure that the hospital is capable of responding to major incidents of any scale in a way that delivers optimum care and assistance to victims, that minimizes the consequential disruption to healthcare services and that brings about a speedy return to normal levels of activity. Box A outlines ways in which a major incident may present. It is the nature of major incidents that they are unpredictable and each will present a unique set of challenges. The task is not to anticipate each major incident in detail, but rather to have a set of expertise available and to have developed a set of core processes to handle the uncertainty and unpredictability of whatever happens.

Box A: Presentation of a Major Incident

Major incidents may present in several ways:

- The big bang
- The rising tide
- The cloud on the horizon
- Headline news
- Internal incidents
- Deliberate release of chimerical or biological materials

- a) The 'Big Bang'- A health service major incident is classically triggered by a sudden major transport or industrial accident. In this case the police service or emergency room may be the first to be aware of and respond to the incident.
- b) 'Rising Tide'-This problem creeps up gradually such as occurs with an infectious disease epidemic. There is no clear starting point for the major incident and the point at which an outbreak becomes 'major' may only be clear in retrospect.
- c) 'Cloud on the horizon'

An incident in one place may affect others following the incident, for example a major incident in another health facility or epidemic arising elsewhere.

- d) 'Headline news'-A wave of public or media alarm over a health issue as a reaction to a perceived threat may create a major incident for the health service even if fears prove unfounded. For example, a perceived risk of bird flu or swine flu may cause mass attendance at the facility even if the risk to the population is minimal. It is the urgent need to manage information that creates the major incident. If well handled, it may not become a major incident at all; if mishandled it probably will.
- e) 'Internal incidents'-The hospital itself may be affected by fire, breakdown of utilities, major equipment failure, hospital acquired infection, hazardous material spill etc. If such incidents are mishandled the morale of staff and public confidence in the facility may be eroded in the long term.
- f) 'Deliberate release of chemical or biological materials'

The hospital role in such incidents is to deal with emergency cases that present to the facility. The overall response to such incidents requires close co-ordination between the hospital and government agencies such as police, military, woreda/zonal/regional health bureaus.

The essentials of major incident planning are:

- establishing a Major Incident Committee,
- establishing an Incident Control Room,
- preparing a Major Incident Plan (MIP),
- establishing appropriate command and control arrangements,
- implementing the MIP through training, exercising and testing, and
- Validating the MIP through a system of regular review and update.

3.8.1 Major Incident Committee

All hospitals should have a Major Incident Committee (MIC) that is responsible to supervise and coordinate emergency planning. The MIC should be led by a Major Incident Commander. Major Incident planning leads should be identified in all clinical and non-clinical case teams/departments and each should be a member of the MIC.

Roles of the MIC include:

- To consider all possible types of major incidents that could affect the local population,
- To undertake risk analysis of the facility and identify risks that should be addressed in the Major Incident Plan. A sample Facility Risk Analysis Template is presented in Appendix H,
- To produce and update annually the Major Incident Plan (see below),
- To determine membership and terms of reference of the Incident Response Team,
- To develop Action Cards that describe the responsibilities and reporting arrangements of all key personnel in the event of a major incident,
- To establish an emergency communication system including both internal communication and external communication with external parties,
- To ensure staff receive training in emergency preparedness,
- To conduct emergency drills and table top exercises to test the Major Incident Plan, and
- To evaluate the response to any major incidents that occur and take action to address any problems identified.

3.8.2 Roles of the Major Incident Commander and Deputy Major Incident Commanders

All hospitals should have a Major Incident Commander who should be the Chair of the MIC. This role could be filled by the CEO, the Head of Finance and Procurement or another individual with a good working knowledge of the facility, staff and services provided. The Major Incident Commander authorizes MIP activation and communication to all hospital personnel. Other MIC members may be assigned as Deputy Major Incident Commanders who can authorize activation of the MIP if the Major Incident Commander is not available. The Major Incident Commander and Deputies must operate a rota system such that there is 24 hour cover each day, 365 days a year and this duty schedule should be available to all staff. Ideally, there should be a dedicated mobile telephone number or pager carried by the duty Major Incident Commander or Deputy, that is known to external agencies as well as hospital staff, so that the duty Commander may be contacted directly and immediately in the event of a major incident.

The Major Incident Commander or Deputy is also responsible for deactivating the MIP after a proper assessment of the emergency situation has been taken.

3.8.3 Incident control room

All hospitals should have an Incident Control Room (ICR) that is activated as a post to manage emergency/disaster response activities. This may be an existing office or meeting room that can be used as the ICR in the event of an emergency. Keys for the ICR should be kept with the Major Incident Commander or the Deputy on duty. The ICR serves as the assembly point where duties are assigned and personnel report activities in the event of a major incident. The ICR should contain:

- Desks and chairs
- Telephone
- Fax
- Stationary
- Action Cards
- Copies of the Major Incident Plan

3.8.4 Command and control arrangements in a major incident

In the event of a Major Incident an Incident Response Team (IRT) should be formed. The IRT should gather in the Incident Response Room from where all activities will be co-ordinated.

Members of the IRT should include:

- Major Incident Command Officer
- Major Incident Command Deputies
- Chief Executive Officer
- Director of Facility Services (or equivalent)
- Director of Human Resources
- Director of Outpatient Services
- Director of Inpatient Services
- Director of Emergency Services
- Chief Nursing Officer (or equivalent)
- Liaison and Referral Officer
- Others as determined by the facility

Sample terms of reference of an IRT are presented in Box B.

Box B Terms of Reference of Incident Response Team

- To oversee the response to the Incident, issuing Action Cards and receiving update reports from key personnel
- To make an initial assessment of the situation and determine the key organizations with which to establish communication
- To put in place adequate measures to ensure communications with the appropriate organizations during the incident
- To put in place adequate measures to ensure communication with relatives and the community during the incident
- To assess the internal resources required to deal with the incident and to ensure that these are put in place (for example calling additional staff onto duty, mobilizing medical supplies)
- To seek expert advice where the expertise does not exist within the hospital (for example from Public Health Laboratory Service)
- To prepare staff for the execution of the response plan and to monitor implementation
- To prepare a plan for the long term follow up of the incident if necessary
- To prepare, if necessary, regular press statements or other means of public communication
- To decide when the incident should be declared over and inform any necessary external agencies that this has been done
- To organize the re-entry of staff, patients and visitors
- To identify and complete appropriate reports of any damage that occurred to buildings or equipment
- To carry out a debriefing including a review of the Major Incident Plan and recommendations for modification
- To prepare a report for the Hospital Governing Board and other agencies on the incident

The membership, contact details and terms of reference of the IRT should be described in the Major Incident Plan (see section 3.9.5 below).

In addition to the IRT, the MIP should describe command and control arrangements showing who is accountable to whom in the event of a major incident. The command and control arrangements can be supported by 'Action Cards' that specify the responsibilities of each individual in the event of a Major Incident and state who that individual should report to (see section 3.9.6 below). Sample Major Incident Action Cards are presented in Appendix I.

All staff should be familiar with the command and control arrangements and with their own particular responsibilities and reporting arrangements as described in their Action Card.

3.8.5 The Major Incident Plan

All hospitals should have a Major Incident Plan that is approved by the Senior Management Team. The MIP should be distributed to all staff and copies should be readily available in all case teams/departments at all times. The MIP should be updated annually.

The MIP should include:

- Basic hospital information, e.g. location of facility, number of beds, services provided
- An outline plan of the hospital identifying:
 - Emergency room areas
 - Patient flow plan
 - All fire extinguishers and fire alarms
 - Exit routes (doors, windows, stairways etc)
 - Assembly points
 - Emergency supply storage
- Contact information for:
 - Key facility personnel (for example MIC and IRT members, hospital management, case team leaders, medical staff)
 - External agencies (for example police, fire brigade, water and electricity suppliers, woreda/zonal/regional health offices, FMOH, local media)
- Clear alerting and activating procedures for the MIP
- The basic functions and critical personnel needed to continue health facility operations in case of an emergency
- A communications cascade by which all key personnel will be contacted
- Clear arrangements for establishing an Incident Response Team
- Clear statements on the roles/responsibilities of key staff/functions
- Action cards for key personnel involved in a Major Incident that describe staff roles/responsibilities and reporting arrangements (see section 3.9.6 below)
- Department/Case Team specific action plans and checklists that establish the different courses of action for each department in an emergency
- Clear identification of resources required for the response and how these will be accessed (for example emergency drug store)
- Plan outlining coordination with all suppliers/providers for the delivery of needed supplies during an emergency (for example food, drugs, water, electricity, laundry services, additional personnel, etc)
- A communications plan with all local emergency agencies. All local emergency agencies should have a copy of the hospital's MIP
- Evacuation protocol including:
 - All possible evacuation routes and assembly points for staff, patients and visitors to convene. These emergency exits should be clearly marked throughout the facility
 - Description of situations requiring evacuation such as:
 - Fire/Smoke
 - Hazardous fumes and/or hazardous material spill
 - Area contamination by toxic agents
 - Radiation
 - Loss of critical support services (this could simply require a partial evacuation of patients from one department to another)

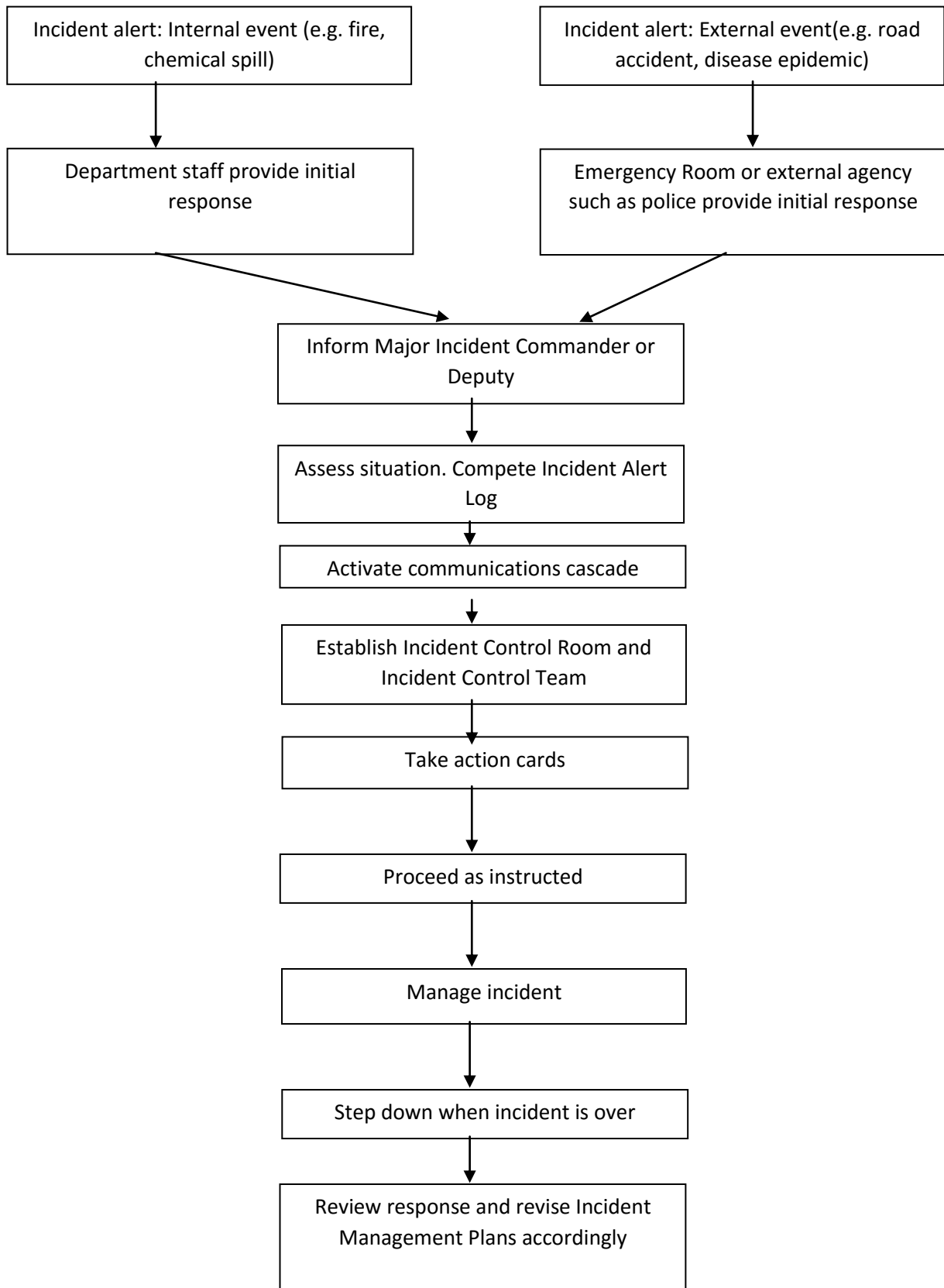
- Explosion
 - Police action
 - Armed/dangerous visitor
 - Natural disaster (ex. Flooding, earthquakes)
- Fire safety plan
 - Arrangements for creating additional space/capacity within the hospital
 - Arrangements with other healthcare providers for an alternative care site for patients if facility exceeds its capacity
 - Communication plan to manage communication and information for families of casualties and other visitors. A communications centre should be established to provide information about casualties' status. The centre should collect visitor's names and patient association to help staff locate visitors that may need to be escorted to the patient.

3.8.6 Management of a Major Incident

The steps to be taken in the management of a major incident include the following:

1. Incident alert: Any staff member may identify a potential incident and should notify their case team/department head immediately or the Major Incident Commander, depending on the nature of the situation and time of the event. An external event may come to the attention of staff in the emergency room, via the local police, fire service or health bureaus. Such external agencies should be instructed to notify the Hospital Major Incident Commander at the earliest opportunity should a potential major incident occur.
2. Assessment of situation by Major Incident Commander. The Major Incident Commander should complete an Incident Alert Log (Appendix J) and decide if the MIP is to be activated.
3. Activate communications cascade (Appendix K). The Major Incident Commander should contact the Incident Response Team who in turn are responsible to contact directly, or arrange for the contact of all key personnel as described in the Communications Cascade.
4. Establish Incident Response Room and Incident Response Team. The Incident Response Room should be opened by the Major Incident Commander and all members of the IRT should report there immediately or as soon as they reach the facility. The Major Incident Commander shall brief team members on the situation.
5. Assign Action Cards: All key post holders/managers should have a card which briefly details the actions they should take in an emergency. The cards should be laminated and carried by each individual at all times. Copies should be kept in the Incident Response Room and should be included in the MIP.
6. Proceed as instructed in action cards
7. Manage Incident
8. Step down when incident is over

Management of a Major Incident



3.8.7 Testing the Major Incident Plan

All staff should be trained in major incident preparedness, including personal roles and responsibilities in the case of a major incident.

The MIP should be tested at least once every year and modification made to the plan based on lessons learned from the drill. The drill can be either a simulated exercise involving mock victims or a ‘desk top’ exercise involving establishment of the IRT, activation of the cascade system, issuing action cards and testing of each department/case team’s response. A MIP Drill Plan and Drill Evaluation Form are presented in Appendices L and M. The Drill Evaluation should be carried out by one or more observers.

Section 4 Implementation Checklist and Indicators

4.1 Assessment Tool for Operational Standards

In order to determine if the Operational Standards of Facilities Management have been met by the hospital an assessment tool has been developed which describes criteria for the attainment of a Standard and a method of assessment. This tool can be used by hospital management or by an external body such as the RHB or FMOH to measure attainment of each Operational Standard. The tool is presented in tool is presented in the Assessment Handbook..

4.2 Implementation Checklist

The following Table can be used as a tool to record whether the main recommendations outlined above have been implemented by the hospital. This tool is not meant to measure attainment of each Operational Standard, but rather to provide a checklist to record implementation activities.

Table 3. Facilities Management Checklist

		Yes	No
1.	Regulations that are relevant for facilities are known to and adhered to by the hospital.		
2.	There are staff and supplies designated for facilities management.		
3.	Water is available 24 hours a day, 7 days a week.		
4.	Electricity is available 24 hours a day, 7 days a week.		
5.	There is a maintenance centre.		
6.	The maintenance centre has adequate personnel who are trained.		
7.	Facilities and equipment needed to provide maintenance services are in place.		
8.	A maintenance notification and work order system has been established.		
9.	Preventive maintenance of equipment and facilities is provided.		
10.	Corrective maintenance of equipment and facilities is provided.		
11.	There is a transport policy.		
12.	There is a procedure to control access to the premises.		

13.	There is a fire safety plan.		
14.	There is a major incident plan.		
15.	Trainings on fire safety, security, hazardous materials and major incident plan are provided to staff.		

4.3 Indicators

In addition, the following indicators may be monitored on a regular basis to assess the effectiveness/outcomes of implementation of the recommendations provided in this chapter.

Table 4. Facilities Management Indicators

	Indicator	Formula	Frequency	Comment
1.	Number of work orders received	Total number of work orders received	Quarterly	
2.	Average time to completion of work order	Σ time to completion/ Total number of work orders received	Quarterly	
3.	Number of incidents reported to Incident Officer involving a building or operating system (e.g. electricity, water, sewage etc)	Total number of incidents reported to Incident Officer involving a building or operating system (e.g. electricity, water, sewage etc)	Quarterly	
4.	Outpatient satisfaction survey: % of respondents who answer <i>yes</i> to the question “It was easy for me to find my way around the facility”	Total number of outpatients who respond ‘yes’ to the listed questions/ Total number of outpatients respondents*100	Biannual	Survey tool presented in Appendix F of <i>Chapter 19 Quality Management</i>
5.	Inpatient satisfaction survey: % of respondents who answer <i>yes</i> to the question “It was easy for me to find my way around the facility”	Total number of inpatients who respond ‘yes’ to the listed questions/ Total number of inpatients respondents*100.	Biannual	Survey tool presented in Appendix F of <i>Chapter 19 Quality Management</i>

Source Documents

1. Agency for Healthcare Research and Quality. Emergency Management Principles and Practices for Health Care Systems: Unit 3 – Healthcare System Emergency Response and Recovery. Retrieved from: <http://www.ahrq.gov/research/hospdrills/predrill.htm>; <http://www.ahrq.gov/research/hospdrills/triage.htm>; <http://www.ahrq.gov/research/hospdrills/tx.htm>.
2. California Hospital Association. (2008, Nov 20). *Hospital Emergency Management Program Checklist*.
3. Carr, R.F. *The National Institute of Building Sciences – Whole Building Design Guide: Hospital*. Retrieved from: <http://wbdg.org/design/hospital.php>.
4. Claude Moore Health Sciences Library. (Revised August 2008). *Emergency Preparedness and Response Plan*.
5. Federal Democratic Republic of Ethiopia Ministry of Health. Planning and Project Department. Architectural and Engineering Team. (1998, May). *Site Selection Criteria*. Addis Ababa, Ethiopia.
6. Griffith, J. R. and. White, K. R. *The Well-Managed Healthcare Organization: Sixth Edition*.
7. Ministry of Finance and Economic Development. (2007, December). *Government Owned Fixed Assets Management Manual*.
8. Ugandan Ministry of Health. Prepared by Necochea, E. and Bossemeyer, D. Jhpiego. (2007). *Ugandan Ministry of Health Draft Workplace Safety and Health Guidelines for Health Workers*.
9. Mississippi Department of Health: Office of Emergency Planning and Response. *Hospital Emergency Preparedness Planning Template* (August 2005).
10. Mississippi Department of Health: Office of Emergency Planning and Response. (2005, April) *Clinical Emergency Planning Template*.
11. National Association of Community Health Centers. Retrieved from: <http://www.nachc.com/EM-Planning.cfm>.
12. New York Centers for Terrorism Preparedness and Planning. (2006 March). *Draft Hospital Evacuation Protocol*.
13. New York Centers for Terrorism Preparedness and Planning. (2006 July). *Draft Mass Casualty/Trauma Event Protocol*.
14. Quality Improvement Support Services. *Departmental Emergency Preparedness Plan*.
15. U.S. Department of Health and Human Services: Agency for Healthcare Research and Quality. Retrieved from: <http://www.ahrq.gov/research/hospdrills/introduction.htm>.
16. United Nations Development Programme, India. *Guidelines for Hospital Emergency Preparedness Planning*. GOE-UNDP DRM Programme (2002-2008).
17. Washington University in St. Louis: Disaster and Business Continuity Planning Committee. *Department Emergency Guides*.
18. Wisconsin Department of Health Services. *Hospital Disaster Plan*. Retrieved from: http://dhs.wisconsin.gov/rl_DSL/Hospital/HospitalDisastrPlng.htm.

19. World Health Organization-Regional Office for the Western Pacific. "District Health Facilities-Guidelines for Development and Operations. Risks, Emergencies, and Disasters," *Planning and Design*. WHO Regional Publications. Western Pacific Series No. 22. 1998. Retrieved from: http://www.wpro.who.int/internet/files/pub/297/part1_1.6.pdf.
20. Yale-New Haven Health System. *Disaster Critique Follow-up and Resolution Form*.
21. Yale-New Haven Hospital. (2009). *Emergency Management Plan*.

17

Human Resource Management

Table of Contents

Page

Section 1	Introduction	17-1
Section 2	Operational Standards for Human Resource Management	17-2
Section 3	Implementation Guidance	17-3
3.1	Human Resource Department	17-3
3.2	Human Resource Policies	17-3
3.3	Human Resource Acquisition Plan	17-7
3.4	Workload Indicators of Staffing Need (WISN)	17-8
3.5	Employee Job Description	17-17
3.6	Recruitment	17-19
	3.6.1 Personnel Recruiting and Posting Request Form	
	3.6.2 Vacancy announcement	
	3.6.3 Application process	
	3.6.4 Selection process	
	3.6.5 Competitive assessment	
	3.6.6 Reference checking	
	3.6.7 Appointment and probation	
	3.6.8 Promotion	
	3.6.9 Transfers	
3.7	Orientation	17-25
	3.7.1 New Hire Orientation	
	3.7.2 In-service orientation	
3.8	Salary and Benefits	17-27
	3.8.1 Compensation system factors	
	3.8.2 Benefits	
3.9	Performance Management	17-29
	3.9.1 Supportive supervision	
	3.9.2 Performance Based Evaluation	
	3.9.3 Performance Improvement Process	
3.10	Training and Development	17-33
3.11	Continuing Professional Development (CPD)	17-34
3.12	Employee Relations	
	3.12.1 Employee Code of Conduct and Professional Ethics	
	3.12.2 Employee Motivation	
	3.12.3 Job Satisfaction	
	3.12.4 Employee Recognition	
	3.12.5 Health Workforce Productivity	
	3.12.6 Discipline Management	
	3.12.7 Grievance Management	
	3.12.8 Staff Survey	
3.13	Human Resource Audit	17-48
3.14	Termination of Employment	17-49
3.15	Personnel Records	17-49
	3.15.1 Organization of Personnel Records	

3.15.2	What to maintain in the Personnel Record	
3.15.3	Keeping the Personnel Record up to date	
3.15.4	Computerized Personnel Records	
3.15.5	Confidentiality of Personnel Records	
3.16	Occupational Health and Safety	17-52
3.16.1	Risk Assessment	
3.16.2	Medical Screenings and Health Promotion	
3.16.3	Immunizations	
3.16.4	Workplace injuries	
3.16.5	Occupational Health and Safety Training	

Section 4	Implementation Checklist and Indicators	17-58
------------------	--	--------------

4.1	Assessment tool for Operational Standards	17-58
4.2	Implementation Checklist	17-58
4.3	Indicators	17-59

Source Documents		17-63
-------------------------	--	--------------

Appendices

Appendix A	Tools to aide in the creating the Hospital's Human Resource Development Plan
Appendix B	Sample Employee Code of Conduct
Appendix C	Statement of Employee Rights and Responsibilities
Appendix D	Sample Job Description for Laboratory Technologist position
Appendix E	Sample Personnel Recruiting and Posting Request
Appendix F	Sample Vacancy Notice Form
Appendix G	Sample Employment Application Form
Appendix H	Sample Candidate Assessment Form
Appendix I	Sample Reference Check Form
Appendix J	Sample Performance Based Evaluation for Laboratory Technologist position
Appendix K	Sample Performance Improvement Process Form
Appendix L	Behaviours that merit 'rigorous disciplinary penalties'
Appendix M	Sample Grievance Form
Appendix N	Sample Exit Interview Form
Appendix O	Occupational Incident Register

Tables

Table 1	New Hire Orientation
Table 2	Examples of risk and suggested solutions
Table 3	Human Resources Management Checklist
Table 4	Human Resources Management Indicators

Figures

Figure 1	Human Resource Planning Model
----------	-------------------------------

Abbreviations

BSC	Balanced Scorecard
FMOH	Federal Ministry of Health
HR	Human Resource
OHSO	Occupational Health and Safety Officer
PBE	Performance Based Evaluation
RHB	Regional Health Bureau
SMT	Senior Management Team

Section 1 Introduction

The most important asset of a hospital is the people who work there. Employees, whether they are the hospital's security guards, lab technicians, nurses or physicians, are responsible for and have valuable contribution in carrying out the hospital's duty to care for patients. A well-performing health workforce is one that works in ways that are responsive, fair and efficient to achieve the best health outcomes possible, given available resources and circumstances (i.e. there are sufficient staff, fairly distributed; they are competent, responsive and productive).

The main objective of the Human Resource (HR) function is to ensure that the facility attracts, develops, retains, and motivates qualified employees who are critical for achieving the organization's objectives of delivering high quality and safe patient care.

The HR Department does this by designing organizational structure that shows clear vertical and horizontal communications, and roles and responsibilities, establishing policies and procedures for the work environment and the effective management of employee workplace issues, establishing a performance management system for workers and ensuring that supervisors use these tools to the mutual benefit of both the individual employee and the hospital.

The benefits of a well-functioning HR management system include:

- Systematic HR planning to support the hospital mission and objectives,
- Enhance HR and institutional capacity for the hospital to achieve its goals,
- Clearer definition of employee and management roles and responsibilities,
- Improved relationships between employees and management,
- Maximization of employee performance, skills and knowledge, satisfaction, and
- Efficient use of resources through improved effectiveness and productivity.

This chapter sets standards and provides guidance for the establishment of a human resource function that contributes to the advancement of the vision, mission and guiding principles of the hospital.

Section 2 Operational Standards for Human Resource Management

1. The hospital has a Human **Resources Management Directorate/Department/ Support Process** staffed by individuals who possess management knowledge, skills and experience dealing with individual personnel matters and teams.
2. The Human Resources Directorate/Department/ Support Process maintains a personnel file for each and every hospital employee.
3. The hospital establishes and institutionalizes Human Resources Information Management Systems (HRIS) that enhance the HR management functions.
4. The Human Resource Head (or equivalent) is a member of the hospital Senior Management Team.
5. The hospital has a human resource development plan that addresses staff numbers, skill mix and staff training and development.
6. Each employee's responsibilities are defined in a current job description, which has been signed by the employee and filed in the personnel file.
7. The hospital has policies and procedures for recruiting and hiring staff.
8. The Human Resource Directorate/Department/ Support Process provides services to employees to ensure satisfactory productivity, motivation, and morale as evidenced by effective policies and procedures for personnel retention, compensation and benefits, training and development and employee recognition.
9. Human Resource policies are documented in an Employee Hand Book that is distributed to all staff and updated, **at a minimum, every 3 years**. The employee hand book contains policies and procedures that define employee/employer relations, the rights and obligations of employees/ employer, employee services and benefits, promotion and employee development procedures.
10. The hospital has a Code of Conduct and Professional Ethics that is known, and adhered to, by staff.

11. The hospital has a performance management process and reward policies in which all employees are formally evaluated at least semi-annually, higher performers are recognized and rewarded, and action plans for improvement are documented.
12. The hospital regularly conducts a staff job satisfaction survey and exit interview to assess staff opinions about their workplace.
13. The hospital ensures employees wear ID badges and appropriate uniforms at all times.
14. The hospital has occupational health and safety policies and procedures to identify and address health and safety risks to staff.

Section 3 Implementation Guidance

3.1 Human Resource Department

The Human Resource (HR) Directorate/Department/ Support Process is responsible for the planning, recruitment, placement, performance appraisal, development, motivation and retention of employees, and for establishing policies and procedures to manage employee/employer relations. The HR Directorate/Department/ Support Process should be led by a competent individual who possesses management skills and experience dealing with HR issues. He/she should be a member of the hospital's Senior Management Team (SMT). Additional HR staff includes recruitment and promotion, training and development, employee services and benefits, occupational safety and health, and HRIS.

The HR Directorate/Department/ Support Process should have sufficient space to store personnel files securely, and should have an area/room where confidential discussions can be held between the HR Head and individual employees should the need arise.

3.2 Human Resource Policies

The HR Directorate/Department/ Support Process is responsible to establish policies to manage employee activities and employee/employer relationships. Once developed, these policies should be communicated to all employees to ensure they are aware of the policies that guide their workday. Policies should be collated into an **'Employee Hand Book'** that is distributed to all

existing and new staff. Preferably the Employee Hand Book should be in a ring binder format to allow for the addition of new policies or insertion of revised policies as the need arises. The Employee Hand Book should be revised and updated regularly (for example every 3 years).

Policies should address the following areas:

A) Recruitment, Promotion and Transfer Procedures

- 1) Recruitment: vacancy announcement, screening of applicants
- 2) Job applicant interviews
- 3) Reference checks
- 4) Employment offers
- 5) New staff induction/Orientation
- 6) Promotion, secondments and transfers

B) Remuneration/ Compensation, Benefits and Reward

- 1) Salary scales
- 2) Salary review policy
- 3) Paydays
- 4) Duty/Overtime
- 5) Salary increment/adjustment
- 6) Severance pay/lay off/retrenched
- 7) Services and Benefits

7.1 Types of available benefits

7.2 Eligibility

7.3 Medical and disability payments

7.4 Private wing opportunities

7.5 Staff canteens

7.6 Private wing opportunities

7.7 Transport facilities

C) Occupational health and safety

- 1) Medical assessment and immunizations
- 2) Safety risks and protection measures
- 3) Work-related injuries and compensation policies

D) Work schedule

- 1) Work days and working hours
- 2) Overtime and duty work
- 3) Annual leave, unused leave (carry over)
- 4) Sick leave
- 5) Maternity, paternity leave
- 6) Nuptial leave
- 7) Exam leave
- 8) Special leave (with or without pay)

E) Performance Appraisal procedures

- 1) Performance appraisal process
- 2) Performance improvement plans

3) Uses of performance evaluation results

4) Recognition/award schemes

F) Training and Development

G) Continuing Professional Development

H) Disciplinary and Grievance procedures

I) Termination of employment (exit interview)

J) Staff Code of Conduct

1) Employee Code of Conduct (see Appendix B)

2) Employee rights and responsibilities (See Appendix C)

3) Timekeeping

4) Dress code (ID badges and uniform to be worn at all times)

5) Smoking policy (not permitted on hospital premises)

6) Use of alcohol, chat or other substances (not permitted in hospital premises, employee should not be under the influence when attending for duty)

7) Mobile phone use (no personal calls while on duty or with patients)

8) Photography, video camera, audio-recording (not permitted without permission of management and patient)

9) Gift policy (personal gifts should not be accepted from patients or caregivers since this could be interpreted as an attempt to gain preferential favour. If a patient wishes to offer a gift he/she should be encouraged to make a donation for the benefit of the whole hospital or staff, e.g. a financial or equipment donation after care has been completed.)

3.3 Human Resource Acquisition Plan

Human resource acquisition planning enables the hospital to forecast its human resource needs, to acquire human resources in the right number and type, and to develop and properly utilize available resources.

All hospitals should have a human resource acquisition plan which is the foundation for the recruitment and placement of staff both in the short term and long term. The human resource acquisition plan should give due consideration to skill mix, competence and staff adequacy, and should be developed taking into consideration the hospital's 'Essential Services Package' (See Section 3.6 of *Chapter 1 Hospital Leadership and Governance*), WHO and FMHACA standards.

Steps to develop a human resource acquisition plan:

Step 1: Define the Essential Services Package (See Section 3.6 of *Chapter 1 Hospital Leadership and Governance*).

Step 2: Estimate patient load based on past trends of utilization and, for new services, estimated need for the service

Step 3 Identify any plans to 'outsource' non-clinical services and/or to close clinical service areas

Step 4: Determine 'ideal' skill mix and minimum staff to patient ratios or minimum staff numbers in each service area

Step 5: Compare current staff pattern with 'ideal' staff pattern and identify the gaps

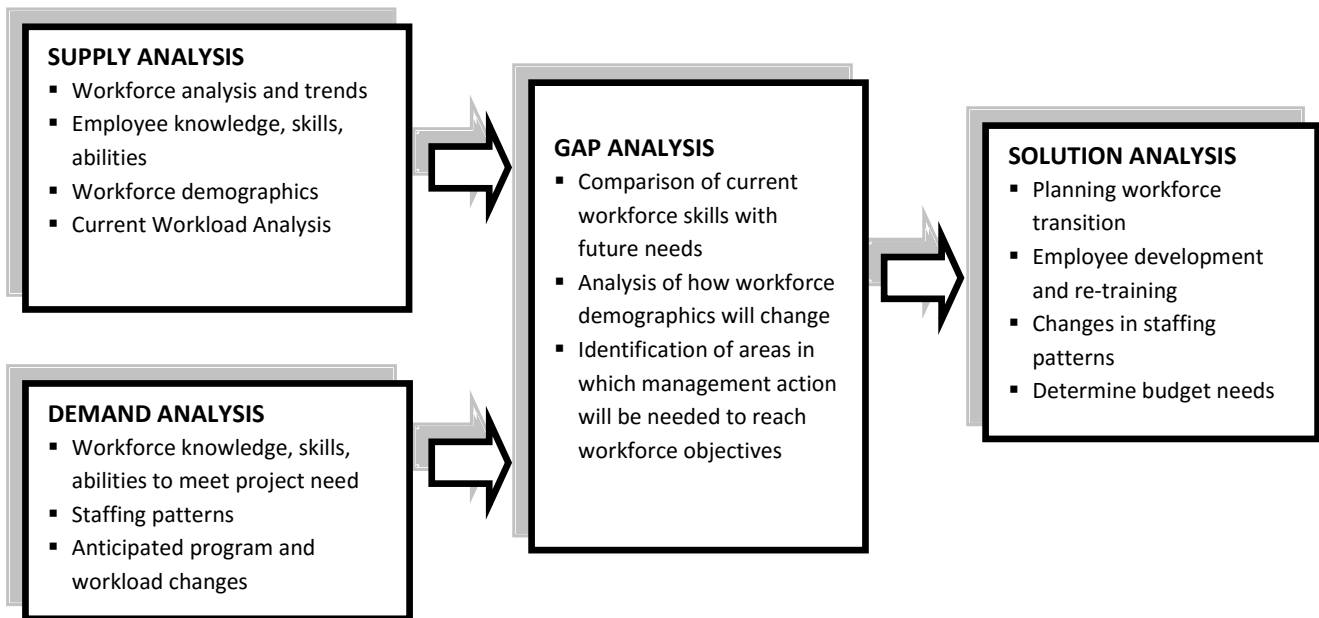
Step 7: Describe actions to address the gaps, for example:

- Training of current staff
- Transfer/reassignment/lay-offs of existing staff to better match 'ideal workforce'
- Recruitment of new staff: number, type
- Revision of organizational structure, if necessary

Step 8: Estimate budget for implementation of the HR acquisition plan. Budget should include salaries, and all corresponding benefits and allowances.

A sample data collection tools that can be used develop the human resource acquisition plan are presented in Appendix A.

Figure 1: Human Resource Planning Model



Source: Adapted from: ww.hhs.gov/ohr/workforce/wfpmode.gif.

The human resource acquisition plan and budget should be approved by the hospital SMT and should be updated annually. The human resource acquisition plan should be the foundation for the hire of new staff or transfer of a staff member from one service area to another. New employees may be hired to fill gaps in the workforce or to fill vacancies that arise due to employee resignation or retirement.

3.4 Workload Indicators of Staffing Need (WISN)

Hospitals can use Workload Indicators of Staffing Need (WISN) to determine their staff requirements. The WISN method is a human resource management tool that calculates a staff

requirement based on workload for a particular staff category and type of health facility. This tool can be applied nationally, regionally, or only for a single health facility or even a unit/ward at a hospital, provided relevant service statistics are available.

The steps of the WISN method are:

- i. Determining the priority cadre(s) and work unit/service area(s) for applying the WISN method.
- ii. Estimating available working time, defined as the time a health worker has available in one year to do their work, given authorized and unauthorized absences for leave, sickness, and so on.
- iii. Defining workload components, consisting of both health service activities and those supporting these activities (such as recording, reporting, and management meetings).
- iv. Setting activity standards, defined as the time necessary to perform an activity to acceptable professional standards in the local circumstances.
- v. Establishing standard workloads (that is, the amount of work within a health service component that one health worker can do in a year).
- vi. Calculating allowance factors in order to take account of the staff requirement of support activities performed by all or some of the staff for which there are no service statistics.
- vii. Determining staff requirements based on WISN by calculating the total staff required to cover both health service activities and activities supporting the services.
- viii. Analyzing and interpreting the WISN results.

An analysis of WISN results provides two different measures: (1) the difference between current and required number of staff, and (2) the WISN ratio (current staff divided by required staff). The WISN ratio is a proxy measure for the daily workload pressure on the staff. Examining both the gap or excess in staffing and the WISN ratio is important in determining how to improve staffing equity; a staffing gap of the same size has a much bigger impact on workload stress in a health facility with only a few staff than in one with a large staff.

Illustrations of the Steps of WISN Method

Step I. Determining Priority Cadre(s)

1. List all work units/ service areas and the main staff categories working in the hospital
2. Determine which staff categories/ cadres have most difficult staffing problems cadres
3. Decide which staff category (or categories) should have highest priority
4. If sufficient resources are available, incorporate the second and the third highest priorities in the WISN process

Step II: Estimating Available Working Time

Available working time (AWT): The time a health worker has available in one year to do his or her work, taking into account authorized and unauthorized absences.

S.No	Category	Average Weeks in one year	Average days in one year	Average Hours in one year
	Working weeks, days and hours in one year	52	260	2080
1	Annual leave	3.6	25	200
2	Sick leave	2.1	15	120
3	Public holidays	1.7	12	96
4	Other leaves(training, personal leave)	2.1	15	120
6	Maternity leave	1.4	10	80
7	Weeks, days & hrs not Worked in one year	11	67	616
8	Available Working Weeks, Days & Hours in one year	41	193	1544

*Available working days per year = 52 weeks in a year – (public holidays + annual leave + sick leave + other leave). This applies for doctors, nurses and midwives and other health workforces.

*Available working hours per year = available working days per year x number of working hours in a day.

Step III: Defining workload components

Workload Components:

- 1. Health service activities:** Performed by all members of the staff category & Regular statistics are collected on them
- 2. Support activities:** Performed by all members of the cadre, but regular statistics are not collected on them
- 3. Additional activities:** Performed only by certain (not all) members of the cadre Regular statistics are not collected on them

The workload components that the hospital define should be the most important activities in a health workers daily schedule. Each component has its own, separate demand for time. For example, antenatal care and deliveries are two different workload components of a health centre midwife. Each requires a certain portion of the midwife’s time, because she cannot provide antenatal care while attending to a delivery. This is why each important workload component must be listed separately.

Table: Example of Defining Workload Components

Staff category: Midwife in x Hospital	
Workload group	Workload component
Health service activities of all midwives	Antenatal care
	Postnatal care (including care of a newborn)
	Deliveries
	Family planning
Support activities of all midwives	Recording and reporting
	Meetings
Additional activities of certain midwives	Supervision of midwifery students
	Attending continuing education sessions
	General administration

Step 4:Setting activity standards

Types of Activity Standards:

1. **Service Standards:** A service standard is an activity standard for health service activities
2. **Allowance Standards:** Performed by all members of the cadre, but regular statistics are not collected on them

Service standards and allowance standards must be considered separately, because they will be used differently in calculating the final staff requirement based on WISN.

4.1 How to Calculate Service Standards for health service activities

A service standard is an activity standard for health service activities, this can be expressed in two ways, as a unit time or as rate of working.

A) Unit time: This is the average time that a health worker needs to perform the activity

E.g. Service standards for antenatal care by a health centre midwife can be shown as “10 minutes per pregnant woman”

B) Rate of Working: This is the average number of activities completed within a defined time period.

E.g. Service standards for antenatal care by a health centre midwife can be expressed as “18 pregnant women seen during a three-hour antenatal clinic”

Example of setting service standards

Staff Category: Midwife in X Hospital	
Health service activity	Unit time or rate of working
Antenatal care	20 minutes per client
Postnatal care (including care of newborns)	6 clients in a 4-hour postnatal clinic
Deliveries	8 hours per client
Family planning	30 minutes per client

4.2 Allowance standards for support activities and additional activities

An allowance standard is an activity standard for support and additional activities. There are two types of allowance standards: Category allowance standards (CAS) and individual allowance standards (IAS)

A) Category allowance standards: are determined for support activities that all members of a staff category perform.

E.g. all midwives in a hospital spend time in recording and reporting

B) Individual allowance standards (IAS) are set for additional activities that only certain cadre members perform.

E.g. only two hospital midwives spend time supervising midwifery students.

Category Allowance Standards can be expressed either as actual working time or as a percentage of working time. For example, an allowance standard for “recording and reporting” can be shown either as “one hour per working day” or as “14% of working time.

Individual Allowance Standards: to calculate how much time the additional activities of certain staff members require.

- ✓ Write down the number of staff members who perform each activity and the time it takes them.
- ✓ Multiply the number of staff members by the time the activity requires in one year
- ✓ Do this for each workload component.

- ✓ Add the results together to calculate the total individual allowance standard (IAS) in a year.

Step 5: Establishing standard workloads

Example of standard workload calculation

Staff Category: Midwife		
Available Work Time(AWT) in a Year: 1544		
Health Service Activity	Unit Time or Rate of Working	Standard Work Load
Antenatal care	20 minutes per client (equivalent to 3 clients per hour, or 60 / 20)	4632 clients (1544 x 3)
Postnatal care (including care of newborns)	6 clients in a four-hour postnatal clinic (equivalent to 1.5 clients per hour, or 6 / 4)	2316 clients (1544 x 1.5)
Deliveries	8 hours per client	193 clients (1544 / 8)
Family planning	30 minutes per client (equivalent to 2 clients per hour, or 60 / 30)	3088 clients (1544 x 2)

A standard workload is the amount of work within a health service workload component that one health worker can do in a year. The formula to calculate a standard workload depends on whether the service standard is expressed as unit time or as rate of working.

Use this formula when the service standard is shown as unit time:

Standard workload = AWT in a year divided by unit time

Use this formula when the service standard is expressed as rate of working:

Standard workload = AWT in a year multiplied by rate of working.

Step 6: Calculating allowance factors

Having established standard workloads will help the hospital management to know how much work a health worker can do in a year within all health service activities. These are the workload components for which routine statistics are collected and available annually. But health workers are also required to undertake other important activities for which routine data are not collected. These are the support and additional activities of health workers. The following calculation shows how to take account of the time that such activities take.

To take into account the two types of allowance standards calculated in step 4 (Category allowance standards & Individual allowance standards) the hospital management need to convert the allowance standards into allowance factors as follows.

The category allowance factor (CAF) is a multiplier that is used to calculate the total number of health workers required for both health service and support activities.

$$\text{CAF} = 1/[1-(\text{Total CAS}/100)]$$

The individual allowance factor (IAF) is the staff requirement to cover additional activities of certain cadre members of activity group. The IAF shows how many full-time equivalent staff members (or what proportion of such a staff members time) are needed to cover the time commitment of certain cadre members to additional activities. The IAF is not a multiplier. Instead, it is added to the total required number of staff members in the final WISN step.

IAF = annual total individual allowance standard (IAS) divided by the available Working time (AWT)

Step7. Determining staff requirements based on WISN

To determine how many health workers are required to cope with all the workload components of your WISN cadre(s) we need the annual service statistics for the previous year. We need these data for each health service activity for which a standard workload is calculated. The total required number of staffs must be calculated separately for the three different workload groups

Health service activities: Divide a health facility's annual workload for each workload component (from annual service statistics) by its respective standard workload. This gives the

number of health workers that is required for the activity in this health facility. By Adding the requirements of all workload components together we will get is the total staff requirement for all health service activities.

Support activities: done by all members of the staff category can be calculated by multiplying the staff requirement of health service activities by the category allowance factor. This gives the number of health workers required for all health service activities and support activities.

Additional activities of certain cadre members: Add the individual allowance factor to the above staff requirement.

Components of workload	Activity standards	Standard workload
Outpatients	10 minutes/patient	11,232 patients/year
Home visits	12 minutes/visit	9,360 homes/year
Category allowance standard		
Travelling	1.5 hours/day	18.75 per cent
Individual allowance standard		
Administration, 1 CHW	15 per cent	15 per cent

Step 8: Analysing and interpreting WISN results

The WISN results are analysed in two ways. The first analysis looks at the difference between the current and required number of staff. The second analysis examines the ratio of these two numbers. The two analyses will help to examine different aspects of the staffing situation in a given facility

Difference: By comparing the difference between current and required staffing levels, we can identify the health facilities that are relatively understaffed or overstaffed.

3.5 Employee Job Description

Job description is a short statement that includes information about an employee's assigned duties or responsibilities. It details the position's objectives, the skills, training and education necessary to perform the position. These statements define the performance standards or obligation of the employee to the health facility. For the health facility, a job description defines the type of employee desired for the position and what is expected of the employee. It provides the facility with guidance for hiring, salary structure, performance appraisal and supervision.

A job description should be developed for every position in the hospital. Template job descriptions may be available from the FMOH or Regional Health Bureaus (RHBs). However, each hospital should adapt these job descriptions to reflect the hospital's needs and to define the duties and responsibilities of the position. Job descriptions should be developed in collaboration with the Human Resources Department and head of the department/case team in which the position is located. The job description should be explained to each new employee when he/she commences employment and he/she should sign on the job description to indicate their understanding of and agreement with the duties and responsibilities therein.

Two copies of the job description should be prepared. The first copy should be kept by the post holder and the second copy should be filed in his/her personnel file.

The job description should be kept under review and amended if the need arises, for example if duties or supervisory responsibilities are added to or removed from the post. At the time of Performance Based Evaluation (PBE), the employee and supervisor should consider whether the job description is still an accurate description of the post and should amend if necessary.

If an employee is promoted or transferred to another position then a new job description should be given and signed for the new position. The date on the new job description will indicate the date at which the employee changed position.

A job description should contain the following components:

Job Title:	The title of the position
Reporting to:	The position of the immediate supervisor to whom the post holder will report
Department:	The department within which the position is located
Employment type:	Full-time, part-time, contract, consultancy, temporary position, or otherwise.
Job Summary:	Provides a 2-3 sentence description of the job
Essential Duties and Responsibilities:	A detailed explanation of the position's tasks
Supervisory responsibilities:	Statement that outlines which staff will be supervised by the post holder, and the specific tasks associated with supervision (e.g. conduct PBE etc)
Educational Qualifications	The minimum educational requirement for the position
Certificates, Licenses, Registrations:	All minimum required credentials and equivalents should be outlined here.
Experience	The minimum work experience required for the position
Other required skills	Any other required skills/competence. For example language skills, IT skills, mathematical or statistical skills; reasoning skills (such as ability to define problems, collect data, establish facts, and draw valid conclusions) planning and organization skills etc
Physical Demands	If the position requires heavy lifting, high level of physical activity, or exposure to natural elements such as outdoors in weather conditions, it should be noted here.

Description of job site and work environment This contains specific information about the work environment, including a description of surrounding areas, building layout, and other information relevant to the work atmosphere including environmental hazards.

Occupational Exposure If the employee will be exposed to a known risk for an extended period of time, it should be noted on the job description.

Salary and Benefits The specific salary or salary range. This information may or may not be included in the job description. Instead, a hospital may use a job-grade system, which rates each job and assigns a job grade number that correlates to a wage range.

Employee Name and Signature

Date

A sample Job Description for the position of Laboratory Technologist is presented in Appendix D.

3.6 Recruitment

Recruitment involves searching for and attracting prospective employees, either from outside or inside of the hospital. The Federal and Regional Civil Service Proclamations and Directives establish criteria for recruitment as follows:

- The candidate should have no prior criminal record,
- No one terminated for a disciplinary offence can be rehired by a public facility within five years,
- Preferential consideration should be given to female candidates, candidates with disabilities, and members of nationalities/ethnicities comparatively less represented in the

hospital, having equal or not more than 3% score (if the difference is 3%) to other candidates, and

- Candidates should not be discriminated against on the grounds of ethnic origin, religion, political outlook, disability, sex, HIV/AIDS status or any other grounds.

3.6.1 Recruiting and Staff Request Procedures

To fill a vacant position the Head of the requesting department or work unit and the HR Department should follow the following steps.

- Departments/work units fill staff request/recruitment form and submit to HR Directorate/Department/Support Process.
- HR Management Directorate/Department/Support Process check the availability of approved and budgeted position/s
- HR and requesting department review the qualification requirements of the vacant position/s
- The job description for the post should be reviewed by the requesting department/work unit and the HR Department to confirm that it is still suitable for the position. Amendments should be made if necessary.
- HR Management Directorate/Department/Support Process advertise the vacant position/s

A sample Personnel Recruiting and Posting Request Form is presented in Appendix E.

3.6.2 Vacancy Announcement

A job announcement should be made for any vacancies that arise stating as a minimum:

- name and address of the hospital
- place of work and department
- position, grade and salary
- number of vacant positions to be filled

- minimum qualification requirements for the position
- knowledge, skills, competence and other essential requirements
- specification of documents that should be submitted
- nature of the work including travel, duty or overtime requirements if relevant
- application closing date and time
- Place where candidates can get more information about the position and from where they can collect an application form.

Ethiopian Federal Civil Service Directives specify that for positions up to grade VIII and below hospitals can advertise external recruitment in their premises or notice boards. However, the hospital can advertise these vacant positions through the mass media to attract adequate pool of applicants. For grade IX and above positions the vacancy position announcement should always be posted externally through mass media outlets such as newspapers, television, internet etc. (NB: internal candidates may still apply but will be screened and assessed against the same criteria as external candidates).

A sample Vacancy Notice Form is presented in Appendix F.

3.6.3 Application process

A standardized application form should be completed by all applicants for the position. The form should include candidate's personal information, education, language proficiency, training, work history, and licenses (if required). A sample Application Form is presented in Appendix G.

3.6.4 Selection process

A selection team should be established to shortlist candidates. The procedures may have slight differences between regions but according to the federal recruitment and promotion directives the selection team members include:

- Head of the directorate/department/ Case Team where the post will be located (Chair)
- HR directorate/department/support process Head or Representative
- HR Professional assigned by HR directorate/department/support process (Secretary)

The selection team should screen all applications and to assess whether candidates fulfil essential and desirable qualifications and experience that are described in the vacancy announcement. Candidates that best meet the criteria should be invited for interview and or written exam/practical test.

NB: Federal Civil Service Directives specify that at least three candidates must compete for a vacancy before a final candidate is selected unless the hospital can evidence that the level of professional skills and training required are scarce in the market, in which case, less than three candidates may be allowed to enter into competition. It may be necessary to advertise the position for a second time, or more widely, if there are insufficient applicants following the first vacancy announcement.

3.6.5 Competitive Assessment

Short listed candidates should be assessed against each other by interview. The hospital may also conduct a written examination or practical test for positions that require technical knowledge and skills.

Interviews should be conducted by the selection team. The role of each interviewer should vary. For example, the immediate supervisor should evaluate the candidate's technical knowledge while the HR representative should investigate more general skills and behaviours.

The following techniques may be useful for the interviewers when conducting an interview:

- Be familiar with the job description,
- Ask the applicant questions that draw information from him/her
- Describe hypothetical situations that might occur on the job and ask how they would handle them
- Use how, what, why and when questions as open ended questions that elicit answers that reveal the candidate's interests, attitudes and approach to work
- Describe the job, and
- Answer any questions the applicant may have

A scoring system and comparative assessment form may be used to compare candidates and to select the top applicant. A sample Candidate Assessment Form is given in Appendix H.

All candidates should be notified of the outcome of their interviews/written exams/practical test by the HR Department in as short a time as possible, ideally no more than 5-10 days following interview/written exams/practical test. At the time of interview candidates should be informed both how and when they will be notified their results.

3.6.6 Reference Checking

Prior to employment the credentials and employment history of the selected candidate should be verified. The candidate should submit original ESLCE/certificate/diploma/degree documents (as appropriate) for verification by the HR department. Photocopies of the original(s) should be taken and filed in the employee file. A minimum of two professional work references should be obtained. References can be verified by telephone or in writing. A standardized form should be used to obtain references. A sample Reference Check Form is given in Appendix I.

3.6.7 Appointment and Probation

Prior to appointment the candidate should submit a medical certificate (except HIV test) to demonstrate his/her fitness for service. The assessment for the medical certificate can be done either at the hiring Hospital or at another health facility. The medical certificate should include a history of any current or previous illnesses and a full physical examination. The candidate should also provide written testimony from policy to prove that he/she does not have a criminal record. A clearance letter from the previous employer should also be submitted.

The first six months of employment of any new employee will be a probationary period. A probation period appointment letter should be issued to the selected candidate. This letter should stipulate, at minimum, the following:

- employee name
- position and department/case team where located
- position identification number
- salary and benefits
- job grade
- starting date

- employment status: temporary or permanent
- full time or part time position

A copy of the job description should be included with the letter.

At the end of the six months a performance evaluation should be conducted. If the performance of the employee in probation period is satisfactory, a letter of permanent employment should be issued. If the evaluation is unsatisfactory, the employee should be instructed on his/her shortcomings and provided with training/orientation as necessary. The probation period can be extended for a further three months. If the work performance remains unsatisfactory the employment can be terminated.

3.6.8 Promotion

In accordance with federal and regional directives, hospitals should consider employees for promotion. The hospital should post an internal vacancy announcement for each post that may be filled by promotion of an internal candidate. The vacancy notice should describe the post and essential education, work experience, knowledge and skills required. A 'promotion selection team' should be established to review all applicants for promotion. The procedures may have slight differences between regions but according to the federal recruitment and promotion directives the team should be comprised of;

1. Head of the directorate/department/ Case Team where the post will be located (Chair)
2. HR directorate/department/support process Head or Representative
3. HR Professional assigned by HR directorate/department/support process (Secretary)

The following criteria should be considered when assessing a candidate(s) for promotion:

1. Permanent employee who has completed his/her probation period
2. Should fulfil the essential qualification requirements for the vacant position
3. Must have attained a satisfactory or above performance evaluation result in 2 subsequent performance appraisal.

4. Must not be under any current rigorous disciplinary measure (for example demotion or salary suspension)
5. Should be no less than 3 months before retirement age.

Health Professionals career promotion should follow the health professionals career ladder and qualification requirement procedures.

3.6.9 Transfers

An employee may be transferred from one position to another of similar grade and salary when the need arises. Employees may be transferred when:

1. An emergency situation arises and there is a need to fill any gaps in a service. This is a temporary transfer and should not last more than a year
2. An employee has been deemed unfit to carry the functions of his current post by a medical authority
3. The current position of an employee has been abolished

An employee may also be transferred from one government institution to another when needed and upon agreement of the employee, recipient and sender institutions. The transfer of the employee should be to a position of equal grade and salary as their current position.

3.7 Orientation

3.7.1 New Hire Orientation/Induction

New-hire orientation training should be provided to all new employees (see Table 1 below). The orientation provides information about the hospital's mission, vision and values – and helps build the employee's sense of identification with the organization. The orientation enables the new employee to become familiar with the entire organization as well as his/her own work area and department. The orientation should include an overview of the job expectations and performance skills needed to perform the job functions and an explanation of reporting structures and mechanisms. The Employee Code of Conduct and Statement of Employee Rights and Responsibilities should be introduced to the worker at this stage (see Appendices B and C). Training should also be provided on any equipment or specific documents/forms that are used in the position.

A copy of the Employee Hand Book should be given to the employee when his/her employment begins and he/she should be given opportunity to raise questions or discuss this with his/her supervisor or the HR Directorate/Department/Support Process during the time of orientation.

Table 1 New Hire Orientation

Hospital-wide information	<ul style="list-style-type: none"> • Overview of the hospital <ul style="list-style-type: none"> ○ Mission, vision and core values of the facility ○ Services offered ○ Organizational structure ○ Hospital layout • General overview of each department’s functions • HR policies, including benefits • Safety guidelines (e.g. standard precautions, fire safety, and disaster preparedness plan) • Performance Appraisal Procedures • Employee Code of Conduct • Employee Rights and Responsibilities
Job specific	<ul style="list-style-type: none"> • Specific responsibilities of their job (job description) • Performance expectations • Reporting mechanisms

3.7.2 In-service/Refresher Orientation

In addition to orientation for new employees, the HR Case Team should also provide recurring orientations to all staff in order to:

- orient existing staff who may not have received new hire orientations
- introduce new HR policies and procedures to staff
- provide employees with a forum to discuss issues with the HR department

Hospitals should provide updated orientations to all staff at least once a year. The training should be on site, and preferably should not exceed one day in duration. The orientation should cover both general HR policies and department specific policies and hence may be provided on a Case Team by Case Team basis. It may be necessary to provide the orientation on more than one occasion to ensure that all staff can participate.

3.8 Salary and benefits

An important component of Human Resources for the hospital is effective remuneration administration. While the hospital may be required to work within government-directed protocols and/or regulations for salaries and fringe benefits, the compensation system will directly affect the organization's ability to attract and retain qualified employees.

3.8.1 Compensation system factors

Equity in pay between jobs is the foundation of a sound compensation system. This involves consideration of three factors:

1. *Internal equity:* How does the pay of various jobs compare? What should a nurse earn compared to a dietary worker or physician? To achieve internal equity, job requirements must be identified and their complexity evaluated. This evaluation can be reduced to a numerical factor or rating, so that jobs can be compared.
2. *External equity:* How does the hospital's pay for jobs compare with that at a competing organization? As supply and demand affects the marketplace for workers, external equity becomes more important. Shortages of a certain type of staff can create "wage wars."
3. *Philosophy:* How does the hospital see itself as an employer – one that targets its wages at the midpoint of the market so that it stays competitive in the marketplace or one that targets its wages near the top of the market so it can attract the best candidates?

3.8.2 Benefits

In addition to the basic salary, employees may be provided with additional benefits as determined by hospital management. Benefits may be in the form of medical benefits, pension, housing, vehicles, vacations, holidays, or sick time. These forms of compensation add to the overall cost of labour for the hospital, so decisions regarding fringe benefits must be evaluated to maximize employee satisfaction and minimize costs.

Some benefits will be common to all employees (e.g. medical benefit). In addition to these universal benefits, hospitals should seek to develop and implement a benefit system that:

- Motivates staff to improve performance,
- Incentivizes staff to remain with the hospital, and
- Attracts new employees to the hospital.

Benefits that hospitals may consider include:

- 1) Medical benefit
- 2) Pension
- 3) 'Top up' allowance: This is particularly useful to attract skilled employees to remote locations where the living conditions are less convenient than in larger towns.
- 4) Housing allowance: as above.
- 5) Transport allowance: as above
- 6) Duty allowance: Payments made for employees who work evening or night hours
- 7) Risk and Hazard allowance: A specified amount of money to be paid to employees whose positions expose them to risks. For example, an incinerator operator or X-ray technician.
- 8) Telephone allowance: allowance given to employees (senior positions) for work related calls made outside of working hours or when using personal telephone.
- 9) Travel allowance: allowance given to employees who use a non-hospital vehicle for transport to work-related activity.
- 10) Uniforms allowance: provision of uniforms to employees in accordance with the Federal Civil Service directive
- 11) Bereavement allowance: payment given to the family if an employee dies.

- 12) Training opportunities/allowance: The hospital should ensure that all workers have the skills, knowledge and competence to perform their required duties and should provide all necessary trainings to ensure that essential job functions can be fulfilled. However in addition to this, hospitals may give opportunities for staff to participate in additional ‘career development’ trainings that will enhance their opportunities for promotion within the hospital, or enhance their chance to obtain a higher position within another organization in the course of time. Training may be provided ‘in house’ or by an external agency (either on-site or off-site).
- 13) Participation in private wing activities: Staff who provide services in a private wing are entitled to a share of the profit made by the service. The opportunity to participate in private wing activities may be offered preferentially to candidates with good work performance and acts an incentive for employees to improve their performance. (For more information about private wing establishment and activities please see *Chapter 10 Financial Management*).
- 14) Access to recreational services such as:
- a. Cafeteria
 - b. Break room (equipped with a television and other recreational equipment)
 - c. Green area
 - d. Library (equipped with books and computers with internet connectivity)
 - e. Quiet rooms for prayer (multi-purpose prayer room)
- 15) Rewards for high performers (see section 3.10.4 Employee Recognition)

3.9 Performance Management

Performance management is an on-going process focused on reinforcing high performance or improving substandard performance to enhance the knowledge, skills and behaviours of all employees in order to achieve organizational goals. Performance management has three main components: supportive supervision, performance based evaluation and performance improvement.

3.9.1 Supportive Supervision

Supportive supervision is a continuous and participatory process, where a supervisor or manager accepts shared responsibility for an employee's professional development in order to get the best possible performance from the employee. Performance can be enhanced through managers working directly with their staff to set clear goals, standards and expectations. This includes mentoring staff, providing constructive feedback and open and two-way communication.

The intended result of supportive supervision is that employees develop a supportive link with their supervisors, marked by open communication to address concerns and share ideas. There should be a process for mentoring and coaching staff, including developing performance plans in advance so that there is clarity in terms of job/performance expectations; a feedback mechanism on performance; and support for staff through training or skill development, as needed. In order to achieve this, the hospital should prepare a supervision policy, which clearly spells out procedures, rules, responsibilities and authority of managers.

3.9.2 Performance Based Evaluation

Performance-based evaluation (PBE) is the practice of periodic review and evaluation of an individual's or team's performance against specified goals or expectations. The first step in performance evaluation is to determine the performance objectives of each employee. The goals and expectations may be described in an individual's job description. Alternatively, goals and expectations may be described in an alternative performance framework - for example the 'Balanced Scorecard' (see *Chapter 13 Monitoring and Reporting*) - and an individual or team may undergo evaluation against these criteria. The advantage of the Balanced Scorecard approach is that the hospital's vision, mission and plans can be cascaded down to department/team level and subsequently to the level of the individual, ensuring that individual and team actions contribute to the overall goals of the hospital. Whichever performance criteria are used, there must be a clear understanding from the outset between the supervisor and individual/team on the specific goals and expectations that the employee(s) will be evaluated against. In PBE the supervisor assesses how well the individual is fulfilling the roles and responsibilities outlined in his/her performance plan (i.e. job description, and/or BSC) and

whether remedial action is necessary. A sample job description and related PBE framework are presented in Appendices D and J.

Performance evaluation should be conducted by the immediate supervisor of each employee. PBE should be conducted at the end of the probation period and semi-annually thereafter, or more frequently if poor performance is identified and corrective action is necessary.

To be effective, PBE must be linked to both positive reinforcement (recognition, benefits or rewards) for good performance and to performance improvement processes when areas of poor performance are identified.

Positive reinforcement

Employees who obtain a satisfactory or above satisfactory result on performance evaluation are entitled to a periodic salary increment as specified in Federal/Regional Civil Service Legislation. Additionally, hospitals should devise rewards for good performance such as ‘Employee of the Month’ recognition, or opportunities for further training or participation in Private Wing activities for those employees who demonstrate good performance. For further discussion on staff motivation and benefits see Section 3.10 below.

3.9.3 Performance Improvement Process (PIP)

The Performance Improvement Process is designed to identify, communicate, and intervene when job performance is below expected standards. Performance improvement interventions should be initiated as soon as it becomes apparent that an employee is not meeting expected performance standards. Supervisors should not wait until the end of the review period to communicate the need to improve performance if the need to improve is identified earlier in the period.

Performance improvement should begin with coaching/counselling or specific training to address identified gaps, and should proceed to more formal oral or written warnings if performance does not improve as a result. Finally, where performance does not improve despite remedial action, it may be necessary to terminate the employment of the individual. The duration of each step of the Performance Improvement Process (Coaching/Counselling, Oral Warning, and Written Warning)

will vary depending on the performance issue and on the employee's progress. Normally, each step would last from 30 to 90 days. No matter what the stated duration of the step, additional action may be taken before the stated end of the step if the performance continues to decline noticeably or the employee does not make a good faith effort to meet expectations. By acting promptly and decisively, the organization can avoid long-term problems.

Coaching and Counselling

In many cases, informal coaching and counselling will be all that is necessary to facilitate improved performance. The objective of coaching is to help the employee recognize – and solve – the problem early on. When a problem occurs or begins to develop regarding work performance, the supervisor should discuss the situation with the employee before it becomes serious. During such a discussion, the supervisor should explain exactly what the performance expectation is and specifically how the employee is failing to meet it. Once the employee agrees (or at least understands) that he or she is accountable for meeting expectations, the employee and supervisor should jointly explore steps the employee might take to ensure he or she meets expectations in the future. Ideally, the employee and supervisor will agree on the approach that will be taken to solve the problem. If agreement cannot be reached, it is the supervisor's responsibility to ensure that the employee understands what he or she must do to solve the problem and the consequences for the employee if the problem is not resolved. The supervisor also needs to tell the employee how and when he or she will follow up to provide additional feedback on progress against the agreement.

If the employee's performance does not improve with coaching/counselling or it is apparent that the employee is not sufficiently trying to improve his/her performance then it may be necessary to take Disciplinary Action as described in Section 3.10.5 below.

In all cases of poor performance the supervisor should consult with the HR Department and other senior management as necessary for advice and decision making about any actions necessary.

All PBE results and any Performance Improvement measures should be documented in the employee personnel file for follow up and future reference.

A sample Performance Improvement Process Form is presented in Appendix K.

3.10 Training and development

Federal Legislation stipulates that all public hospital employees are entitled to training to improve his/her capability, or prepare him/her for increased responsibility based on career development. Staff training includes both short and long-term training and educational opportunities.

Staff training benefits the hospital by:

- Creating a pool of readily available and adequate replacements for personnel who may leave or move up in the organization
- Ensuring adequate human resources for expansion into new programs
- Enhancing the hospital's ability to adopt and use advances in technology because of a sufficiently knowledgeable staff
- Improving staff morale which in turn enhances performance and reduces employee turnover
- Attracting staff to the facility
- Reducing the need for supervision

Plans for staff training should be included in the human resource development plan. Training plans should take into consideration the needs of the organization as a whole and the needs of individual workers. The HR department should conduct a training needs assessment to identify:

- Knowledge, Skills and attitude gaps
- Performance gaps at institution, work unit and individual levels
- Who needs to be trained? (All staff, selected departments/case teams?)
- What types of trainings should be offered to staff?

The hospital's training plan should also include an estimate of cost and budget needs. The HR department should communicate budget needs to the SMT to ensure that budget is secured for planned training needs. The frequency of training programs should be based on the level of need and the level of importance to improving performance or quality of care. For example, infection

prevention and nursing process trainings could be conducted at least 2-3 times a year, as both are key areas relating to patient outcomes. In addition to trainings that improve employees' technical skills, the hospital should also organize trainings to develop the management skills of employees.

All trainings can be provided either 'in house' or through external trainings. Clear selection criteria should be set to determine who is selected to attend a specific training. This will ensure transparency of the process and allow for equity in the distribution of trainings among staff.

As part of staff development each hospital should have a core set of trainings that are provided to staff on a regular basis. For example, trainings should be provided to all staff on fire safety, the major incident plan, occupational health and safety risks and infection prevention practices.

The main objective of training is to instil a new or renewed behaviour or practice to a specific area of work. Therefore, trainings do not end when the training modules conclude but rather when the impact of the training is assessed and the desired outcome is achieved. All trainings should be evaluated to assess whether the desired outcomes (knowledge or skills have been achieved) and their impact on employee performance. If the objectives have not been attained additional training, using different methods may be necessary.

Staff development (medium and long term trainings/education) should be based on workforce plan. Staff development plans are aimed at creating pool of leadership successors and competent manpower for key positions.

3.11 Continuing Professional Development (CPD)

FMHACA's Continuing Professional Development (CPD) Guideline for Health Professionals define Continuing Professional Development (CPD) 'as a range of learning activities through which health professionals maintain and develop throughout their career to ensure that they retain their capacity to practice safely, effectively and legally within their evolving scope of practice'. This definition emphasizes the need for health professionals to maintain, update and enhance their knowledge, skills and attitude in order to adequately deliver quality health care.

Health professionals need to cope up with the changing disease pattern in which diseases that had been eradicated are now reemerging, as well as an increase on non-communicable diseases. CPD helps to maintain professional competence in an environment of numerous challenges, rapid organizational changes, information technology, increasing public expectation and demand for quality and greater accountability.

CPD is an ethical obligation for all health professionals to ensure their professional practice is up- to- date and can contribute to improving patient outcomes and quality of care. It is also a mandatory for health professionals practicing in Ethiopia. Health professionals should accumulate the mandatory credit hours or certificates of training attendance for relicensing their profession every five years.

According to the FMHACA's Continuing Professional Development (CPD) Guideline for Health Professionals, some of the features of CPD applicable to the context of hospitals are:

- Continuing professional development refers to all activities health professionals undertake formally so as to maintain, update and develop their knowledge, skills and attitudes in response to the health service needs of the public
- Continuing professional development denotes to the period of education and training of health professionals commencing after completion of basic or post graduate health professional training
- Continuing professional development is a broad concept referring to the continuing development of the multi-faceted competencies inherent in health services covering wider domains of professionalism needed for high quality professional performance. It aims to maintain and develop competencies of individual health professionals essential for meeting the changing needs of patients and the health service system and responding to the new challenges of scientific development
- Continuing professional development must serve the purpose of enhancing the professional development (what is relevant to current practice and the future profession) of health professionals

- Continuing professional development should occur when; 1) there is a clear need, 2) learning is based on the identified need, and 3) there is follow up to reinforce the learning is accomplished

The challenges or barriers of accessing CPD trainings and activities are costs, time, lack of motivation or incentives and geographical distances. Hospitals need to recognize the importance of CPD and enable all health professionals to undertake CPD suitable to their needs and interests by identifying and tackling the barriers for accessing CPD. Hospitals should:

Looking at barriers and incentives to following CPD, the need for systemic and organizational support to professionals, in terms of allocating time for CPD in workplace and staff planning and in ensuring costs of CPD are not prohibitive, is identified as shared responsibility, in which employers, professional organizations and the ministries of health have a role to play, alongside the professional. It is also recommended to make use of flexible learning tools and ensure CPD is relevant to health professionals' daily practice, so as to improve access and motivation.

1. Undertake CPD need assessment for their workforce and communicate the result to training or accreditation institutions
2. Allocate CPD time in workplace and staff planning, and avail CPD activities to their employees CPD activities
3. Make use of flexible learning tools and ensure CPD is relevant to health professionals' daily practice, so as to improve access and motivation.
4. Ensure costs are not prohibitive for accessing CPD by taking shared responsibilities with other stakeholder in soliciting fund for their employees' CPD activities

3.12 Employee Relations

The HR Directorate/Department/Support Process should strive to establish employer-employee relationships that contribute to satisfactory productivity, motivation and morale. Employee relations are directed toward preventing and resolving problems involving individuals that arise out of or affect work situations. The hospital should create conducive work environment and conduct periodic work climate assessment, and develop work climate improvement plans.

The hospital should provide services for staff including toilets, showers, safe drinking water, a canteen and library facilities. For further discussion on staff services please see Section 3.2.1 of *Chapter 8 Facilities Management*.

3.12.1 Employee Code of Conduct and Professional Ethics

Each hospital should devise a set of standards that governs employee conduct and ethics. The standards should include what is expected from the employee in their work, their interactions with patients, caregivers, visitor and other staff. These standards/principles should be made known to all employees and packaged in a code of conduct. A sample of code of conduct is presented in Appendix B. Outlined below are core areas that should be covered in an employee code of conduct and ethics.

Guidelines for employees to follow when offered gifts: Employees should refuse any gifts, favours or hospitality that might be interpreted as an attempt to gain preferential treatment, not ask for or accept loans from anyone under their care or anyone close to them and must establish and actively maintain clear boundaries at all times with patients, their families and caregivers.

Patient care: Patients have the right to fair and equal access to care from all staff, according to their needs. All employees should care for all patients equally and without prejudice to age, gender, and economic, social, political, ethnicity, religious or other status and irrespective of personal circumstances. They should demonstrate a personal and professional commitment to equality and diversity in caring for patients and ensure that their professional judgment is not influenced by any commercial or preferential considerations.

Confidentiality: All patients have the right to expect that any information they disclose in the course of their care is confidential between themselves and their treatment team. Hospitals should ensure that there is a written hospital information management policy which sets out how the hospital ensures that information held by the hospital on patients, their families and staff is handled confidentially.

Respect for persons: Health care practitioners should respect patients as persons, and acknowledge their intrinsic worth, dignity, and sense of value.

Best interests or well-being: Health care practitioners should not harm or act against the best interests of patients, even when the interests of the latter conflict with their own self-interest. Health care practitioners should also act in the best interests of patients even when the interests of the latter conflict with their own personal self-interest.

Compassion: Health care practitioners should be sensitive to, and empathize with, the individual and social needs of their patients and seek to create mechanisms for providing comfort and support where appropriate and possible.

Integrity: Health care practitioners should incorporate these core ethical values and standards as the foundation for their character and practice as responsible health care professionals.

Tolerance: Health care practitioners should respect the rights of people to have different ethical beliefs as these may arise from deeply held personal, religious or cultural convictions.

Dress Code and Identification: The Hospital should have guidelines which clearly and strictly define dress codes for all employees. Such guidelines should explicitly list each article of clothing, the colour, and condition which is acceptable in hospital settings. The hospital should have colour-coded system– one which clearly and easily allows patients to distinguish between staff. The hospital should also have a policy to ensure that all staff wear their identification badges at all times.

Community:Health care practitioners should strive to contribute to the betterment of society in accordance with their professional abilities and standing in the community.

Professional competence and self-improvement:Health care practitioners should continually endeavour to attain the highest level of knowledge and skills required within their area of practice.

3.12.2 Employee Motivation

Employees who are motivated tend to work harder and stay longer with their employer. To “motivate” is to stimulate the employee’s enthusiasm and factors that harness their driving force. What motivates employees? Each hospital employee brings his/her own personal goals and what they hope to gain. These might include:

- 1) To get a good job and keep it
- 2) To earn money and help support the family
- 3) To advance professionally
- 4) To improve their financial situation
- 5) To have a job that is pleasant, secure, and offers opportunity for improvement
- 6) To have fair and consistent supervision – free from discrimination or harassment
- 7) To receive recognition, praise or other rewards for a job well done
- 8) To help people and contribute to society
- 9) To work in a good work environment and

3.12.3 Job satisfaction

Job satisfaction is another component of employee relations. Job satisfaction depends on the employee's evaluation of the job and the environment surrounding it. The employee evaluates their actual experience in the job – remuneration, supervision and the work conditions – when assessing their job satisfaction.

- 1) *Remuneration:* Ideally, the compensation for the job should be deemed equitable by the employees. If, instead, the employee believes the wages paid are substandard in the market, then the hospital is at risk for unwanted turnover, low staffing ratios, higher overtime costs and lower productivity by employees.
- 2) *Supervision:* Supervision of the employee should be fair and consistent, following established policies and procedures that are applied consistently across the organization. The supervisor communicates clearly to the employee the expectations for the job and any necessary performance improvements that must be undertaken to meet expectations.
- 3) *Work conditions:* Work conditions relates to the climate in which the work takes place – do supervisors and co-workers have mutual respect, are there positive interactions, shared problem solving, investment in improving quality outcomes and an interest in

employee work life quality? Hospitals should provide a safe and comfortable working environment for staff, including accessible toilets, showers and changing facilities (where relevant). Staff should also have access to refreshments and meals, to a library with internet access and to private recreational areas (such as garden or canteen).

3.12.4 Employee Recognition

Staff motivation and performance may be enhanced by a recognition/reward scheme that acknowledges outstanding individuals or teams.

Employee recognition can be in the form of a certificate or letter from hospital management to the individual/team, or through an ‘Employee of the Month’ program where the hospital identifies employees who evidence the hospital’s vision, mission and core principles in their everyday work. Recognition can also be coupled with a reward (for example additional vacation days, gift, or financial reward). Ideally recognition should be public, for example announcements could be made in the hospital bulletin or posted on the hospital notice board etc. In addition, the hospital can also organize all staff gatherings to recognize the contribution of the entire hospital workforce.

The hospital should set clear criteria for the selection of staff for recognition or reward. The selection and reward process should be transparent and made known to all staff. Any recognition should be filed in the employee file as evidence of good performance and should be referenced when evaluating an individual for further opportunities for advancement and benefits, such as training opportunities.

3.12.5 Health Workforce Productivity

Hospitals should ensure that their health workers perform well and deliver effective, quality health services to the communities they serve. In addition to developing long-term strategies for increased motivation and retention of health workers hospitals should also strengthen the productivity and performance of the workforce so as to get the best possible results and the highest impact with existing resources. Hospitals expect to conduct workforce productivity measurement, identify the underlying causes for health

workforce productivity problems and potential intervention areas for health workforce productivity improvements.

1. How to Measure Health Workforce productivity

Health workforce productivity measures the amount of health services produced by health workers in a given period of time. While the issue of productivity applies to all levels of the health system, (i.e., national, regional, zone/Woreda, and facility levels) healthworkforce productivity can often be best analyzed and understood at the facility level.

Health workforce productivity is calculated by taking the ratio of the service delivery outputs produced over the human resource inputs used. The calculation assumes that all other health systems inputs are constant among the facilities whose health workforce productivity is being measured.

$$\frac{\text{Outputs}}{\text{Human resource inputs}} = \text{Health workforce productivity}$$

(as measured by health services produced over a given period of time)

(as measured by health worker salary costs over a given period of time)

The denominator, or the human resource inputs in the productivity ratio, is the health workers' salary, which represents the time and effort of the health workers who contribute to health services deliveries in which the productivity ratio measures.

Health workforce productivity can be improved either by increasing outputs for a given amount of inputs or by reducing the use of inputs for a given level of

outputs. Productivity analysis can help inform if the level of outputs is acceptable given the present input use. If productivity is low, the analysis can help managers and supervisors identify what they can do to enhance productivity at their health facilities.

Some examples of service delivery areas and the indicators commonly used to represent the numerator, or service delivery outputs, in the productivity ratio include the following:

Health Service Area	Out Put Indicator	Weight
Outpatient care	Number of outpatient consultations	
Inpatient care	Number of inpatient days	
Antenatal care (ANC)	Number of ANC consultations	
Labor and delivery care	Number of institutional deliveries	
Family planning (FP)	Number of FP consultations	
Child immunizations	Number of immunizations administered	

(Source: Vujicic, Addai, and Bosomprah 2009,)

To calculate total health workforce productivity, the single health service outputs are combined into an aggregate output measure. Total service provision is not simply the sum of the individual services because not all the services are of equal value in terms of time, effort, and impact. Therefore, weights are assigned to each health service. It is recommend using service weights that represent the relative human resources costs of producing the services.

Several different categories of health workers contribute to the provision of health services. The decision of which of the health workers to include in the input calculation should be guided by the set of health services included in the output calculation. All categories of staff that contribute to the provision of the

relevant health services should be included in the input calculation. Therefore, typically, it will be appropriate to include all categories of staff except in rare cases when the service unit is very narrow (e.g. surgical ward). Staffing categories should be defined according to the categories used in the unit of analysis. In general, these will include: Medical, Nursing, Specialties (e.g. surgery), Laboratory, Pharmacy, Diagnostics, Support Staff, and Administration.

Generally hospitals can apply the following steps to generate a measure of workforce productivity

Step 1 – Define the Service Unit

Measuring the Aggregate Facility-level health workforce productivity would be of great interest to compare the productivity level of all hospitals. In addition to the aggregate health workforce productivity the facility may decide to measure Special Service Area Productivity Level.

Step 2 – Define the Categories of Health Services to Include as Outputs in the Numerator

In practice, two of the broadest indicators of health care services commonly used to measure aggregate workforce productivity are inpatient days (IPD) and outpatient visits (OPD). These are often used because they are comprehensive measures of health care service delivery and are relatively easy to construct from HMIS databases. In order to measure departmental level/special service productivity, the availability of data on the utilization of that specific service shall be considered.

Step 3 – Determine a Method of Aggregating Different Categories of Health Services into a Composite Service Indicator

A simple method of aggregating health services into a single Composite Service Indicator (CSI) is to take a weighted sum of the volume of various categories of services produced in a service unit:

Composite Service Indicator= Summation of the volume of service Z in service unit YX Weight assigned to service Z

Step 4 – Define the Categories of Human Resources to Include as Inputs in the Denominator

Several different categories of health workers contribute to the provision of health services. All categories of staff that contribute to the provision of the relevant health services should be included in the input calculation. Therefore, typically, it will be appropriate to include all categories of staff except in rare cases when the service unit is very narrow (e.g. surgical ward). Staffing categories should be defined according to the categories used in the unit of analysis. In general, these will include: Medical, Nursing, Specialties (e.g. surgery), Laboratory, Pharmacy, Diagnostics, Support Staff, and Administration.

Data Sources and analysis

The data need to measure aggregate productivity as well as essential service productivity shall be extracted from the routine health management information system. The data for this consist of clinical service data (i.e. outpatient visits, inpatient days), public health service data (i.e. antenatal care, supervised delivery, and immunization), and human resource data (i.e. staffing, and wages).

There are several approaches in selecting weights, again with implicit value judgments. Different weighting schemes have a large impact on the composite service indicator measure of service output as well as composite staffing indicator measure of service input. Specifically, the relative performance of facilities will be affected by the choice of weights. Thus, both weighting schemes shall be drawn through a consultative process involving, clinicians, hospital managers, Quality team, and M&E professionals.

3.12.6 Discipline Management

In cases where an employee demonstrates behaviour that is unacceptable or in conflict with the hospital's Code of Conduct, or where an employee persistently performs poorly despite opportunities for improvement, it may be necessary to take disciplinary action. Disciplinary measures should be governed by two principles:

- the employee must be clearly informed by his/her immediate supervisor as to the source of dissatisfaction, and
- Except in limited circumstances (such as serious professional misconduct or corruption) the employee should be given the opportunity to correct the problem. A Disciplinary Committee should be established to investigate all disciplinary charges and to determine

the appropriate disciplinary measure. The Committee should be chaired by the HR Department Head. Additional membership should be determined by the hospital CEO. Each hospital should establish a Policy for Discipline Management that describes the behaviour or performance issues for which should be brought to the discipline committee, the range of disciplinary measures, the process by which disciplinary action is taken and the appeals process by which an employee may appeal against any disciplinary measures. The Policy should be included in the Employee Handbook.

Civil Service Regulations stipulate six types of disciplinary measures:

1. Oral warning
2. Written warning
3. Fine up to one month's salary
4. Fine up to three month's salary
5. Downgrading of position for up to two years
6. Dismissal

The first three categories are considered as 'simple disciplinary penalties' while the latter three categories are considered as 'rigorous disciplinary penalties'. Examples of behaviour that might result in a 'rigorous disciplinary penalty' are presented in Appendix L. Evidence of rigorous penalties should remain in the employee record for 5 years while simple penalties should remain in the employee file for 2 years.

In general, disciplinary action should not come as a surprise to the employee and any concerns

Guidance for Supervisors

It can be very difficult to advise an employee that you have concerns with his/her behavior or performance. However, to enable the employee to improve it is essential to be honest, frank and precise about the problem and to be clear about your future expectations of the employee. Vagueness and generalities, or glossing over the situation, are likely to leave the employee uneasy and feeling that something is wrong but unable to correct his/her behavior or performance. Criticism should be related to work related matters only. Wherever possible, guidance on how to improve should also be given.

with
an
emp
loye
e's

performance or behaviour should be addressed at an early stage to avoid the need for ‘rigorous’ disciplinary measures. It is the responsibility of the employee’s immediate supervisor to explain to the employee those areas in which he/she is expected to improve, to make suggestions about how to improve, and to allow time for the employee to make improvements. It is usually only in instances of serious misconduct that the more severe penalties, including termination of employment, should be considered.

3.12.7 Grievance Management

A grievance is a concern, problem or complaint that an employee has about his/her job, for example his/her employment terms and conditions, work environment, contractual or statutory rights or the way he/she is being treated at work.

Grievances can often be avoided by good communication between employees and senior managers such that problems are identified and corrective action taken at an early stage. Grievances are more likely when employees feel that their views are not being heard or their concerns are not being addressed. Grievances are more likely to be settled when employees perceive that the process is transparent, fair and without retribution for the employee.

Each hospital should establish a Grievance Policy that describes the steps that could be taken by an employee should he/she have any concerns or complaints about the work environment or their work situation. A Grievance Committee should be established that is responsible to investigate employee complaints about, and make recommendations in relation to:

- Interpretation and implementation of laws and directives
- Protection of rights and benefits
- Occupational health and safety
- Placement and promotion
- Performance appraisal
- Undue influence exerted by supervisors
- Disciplinary measures
- Other issues related to conditions of service

The Grievance Committee should be chaired by the Head of the HR Department, with other members determined by the CEO.

Any employee with a complaint about their work situation should first try to resolve the issue with their immediate supervisor. If this is not possible a Grievance Form should be completed and submitted to the Grievance Committee. A sample Grievance Form is presented in Appendix M. All grievances should be responded to promptly and a written response should be given to the complainant following the investigation. A **copy** of the Grievance Form and written response should be kept in the employee file.

All grievances should be kept confidential unless required to disclose to senior management or higher authorities (based on severity).

The HR Department should maintain an anonymous record of Grievances received and should monitor these on a monthly basis, identifying any trends or common themes that might require further investigation or action by senior hospital management.

3.12.8 Staff Survey

Each hospital should regularly (for example biannually) conduct a staff survey to assess staff satisfaction with the workplace and suggestions for improvement. Summary results should be presented to the SMT and Governing Board.

3.13 HR Audit

A Human Resources Audit is a comprehensive method (or means) to review current human resources policies, procedures, documentation and systems to identify needs for improvement and enhancement of the HR function as well as to assess compliance with ever-changing rules and regulations. An Audit involves systematically reviewing all aspects of human resources, usually in a checklist fashion. The purpose of an HR Audit is to recognize strengths and identify any needs for improvement in the human resources function. A properly executed Audit will reveal problem areas and provide recommendations and suggestions for the remedy of these problems. The hospital is expected to conduct periodic(annually) HR Audit by establishing an HR Audit committee comprising people from Internal Audit , Legal Service and HR Department. The areas to be covered by the HR Audit include;

- Hiring, promotion and transfer processes

- Compensation and benefits
- Performance evaluation process
- Medium and long term training opportunity processes
- Job descriptions
- Employee orientations
- Safety trainings
- Discipline and employee grievance handling processes
- Personnel files
- Termination process and exit interviews

3.14 Termination of employment

A worker's employment may end through retirement, resignation, termination by the employer or death. Whenever an employee leaves the workplace an exit interview should be conducted to gather information about the employee's experience and any lessons that could be learned for future employees. A sample Exit Interview Form is presented in Appendix N. The exit interview should be reviewed by the Head of HR to identify areas for follow up action, and thereafter should be filed in the employee's Personnel Record.

3.15 Personnel Records

For organizational and legal purposes, hospitals should maintain and regularly update a file on each employee that includes information such as credentials for hiring, ongoing performance evaluations, and any documentation concerning performance improvement action. Hospitals may need to share employee data between departments – Nursing and Human Resources, for example – and files are an ideal way to facilitate this function. Employee files are also the repository of documents defining the mutual understanding between the employee and employer concerning workplace policies and performance expectations.

3.15.1 Organization of Personnel Records

Employee Records should be filed by employee name. Within each individual file, papers should be organized by category - Hiring Documents, New Hire Orientation, Education and Trainings,

Performance Management, Exit of Employment, Other. Within each category, documents should be organized by date.

Standardized Forms should be used for all documents maintained in each Personnel File, for example application form, performance evaluation, disciplinary action etc. All forms should include the following basic information:

- Employee name, position/job title,
- Date of action(s) taken
- What action is being taken, and
- Signatures of all involved, signed when the form is completed.

3.15.2 What to maintain in the Personnel Record

All-important job-related documents should go in the file, including:

- 1) Hiring documents:
 - a) job description for the position,
 - b) job application and/or resume,
 - c) offer of employment,
 - d) references checked in the hiring process,
 - e) any contract, written agreement, receipt, or acknowledgment between the employee and the employer (such as an employment contract, or an agreement relating to a hospital-provided car), and
 - f) Payroll/wage information.
- 2) New employee orientation:
 - a) receipt or signed acknowledgment of having received the employee handbook,
 - b) forms relating to employee benefits,
 - c) forms providing next of kin and emergency contacts,
 - d) forms related to beneficiary designation and
 - e) Documentation of completion of new hire orientation.
- 3) Growth and development: Any document that evidences an employee's advancement in skills or knowledge should be kept here, for example

- a) Record/certificate of all trainings completed
- b) Copies of educational program completion (certificates, diplomas or degrees)
- 4) Performance management and improvement documents:
 - a) all performance evaluation documents
 - b) awards or citations for excellent performance
 - c) recognition letters from patients or caregivers regarding the employee
 - d) complaints from customers and/or co-workers
 - e) disciplinary documents
- 5) Exit of employment: This should contain any documents relating to the worker's departure from the hospital including:
 - a) Exit interview
 - b) Documentation of return of all hospital-issued property or items
- 6) Other forms that should be maintained in the employee file include:
 - a) Leave forms (including annual leave, maternity, paternity and sick leave)
 - b) Health examination forms/fitness for duty verification
 - c) Disciplinary action
 - d) Grievances filed
 - e) Any change or update to employee information

3.15.3 Keeping the Personnel Record Up to Date

The HR Department should periodically review each employee's personnel file to ensure that all information remains accurate, up to date and complete. For example this could be done when the employee's evaluation is conducted. Questions to consider include:

1. Does the file reflect all of the employee's raises, promotions, and commendations?
2. Is there a current copy of the employee's job description that reflects changes made to the original job description?
3. Does the file contain every written evaluation of the employee?
4. Does the file show every warning or other performance improvement/disciplinary action taken against the employee?

5. If the employee was on a performance improvement plan, a probationary or training period, or other temporary status, has it ended? Has the file been updated to reflect the employee's current status?
6. If the employee hand book has been updated since the employee started working for the hospital, does the file contain a receipt or acknowledgment for the most recent version?
7. Does the file contain current versions of every contract or other agreement between the hospital and the employee?

3.15.4 Computerized Personnel Records

Hospitals may choose to install a computerized database to manage selected human resource information for example employee hire date, transfers, promotions, benefits, annual leave requests and approval etc. Computerized systems provide easy retrieval of information for audit and planning purposes (for example calculation of vacancy rates, staff turnover rates, average performance evaluation scores etc). However, if a computerized system is installed a complete paper based personnel file should still be maintained for every employee.

3.15.5 Confidentiality of Personnel Records

Employee records are private and confidential. All employees should have access to their own employee record, but they cannot add to their employee record without authorization of the HR Department Head. Employees are not authorized to remove anything from their personnel file, nor should employees be able to access records other than his/her own. If an employee wants to look at their personnel file they should first get permission from the Head of the HR department. The employee should look at the file in the presence of a representative from the HR department.

3.16 Occupational Health and Safety

Each hospital should assign an Occupational Health and Safety Officer (OHSO) who is accountable to the HR Department head or HR team leader.

Responsibilities of the OHSO include:

1. To meet with all new employees and review the following:
 - a. Medical certificate submitted– see section 3.13.2 below

- b. Immunization status – see section 3.13.3 below
2. Conducts site visits to identify, in collaboration with case team staff, workplace risks and actions to be taken to address those risks, as well as personal protective equipment needs. (see section 3.13.1 below)
3. In collaboration with the hospital Incident Officer to investigate reports of employee accidents or injuries in the workplace. (See section 3.1.1 of *Chapter 19 Quality Management and Patient Safety*.)
4. Facilitate access to treatment for employee’s who have been injured in the work place.

Maintaining a safe work environment for hospital employees is essential for the provision of quality care and for promoting staff satisfaction.

Both the hospital and employees play a role in ensuring occupational health and safety. The hospital should:

- ensure that the work place does not cause hazards to the health and safety of employees
- provide workers with protective materials and equipment needed to protect them from potential hazards
- provide training/orientation to workers which includes safety risks, risk minimization methods and occupational health and safety services available

It is also the responsibility of all workers to observe safety rules and procedures, as issued by the facility. Employees once trained and provided with necessary information, should properly use safety devices and materials, and report any problems or defects of materials/equipment, as well as report any situation which they feel presents a hazard at the facility.

3.16.1 Risk Assessment

In order to provide appropriate occupational health and safety services, the hospital should assess the safety risks that might occur. When assessing safety risks areas that should be considered include but are not limited to:

- Needle stick

- Slips, trips and falls
- Manual handling
- Violence and aggression (from patients and/or other staff)
- Hazardous substances (chemicals, drugs etc)
- Harassment (from patients and/or other staff)
- Stress

Safety risks can be identified through workplace inspections and reviewing reports of workplace accidents and injuries. Hospitals should establish processes to regularly assess and take steps to minimize risk arising in the workplace. Some potential risks and possible solutions for those risks are described in Table 2 below. Further guidance on risk assessment is presented in Section 3.1.1 of *Chapter 19 Quality Management and Patient Safety*.

Additionally, hospitals should establish a process for reporting and investigating workplace injuries or accidents. An Incident Officer should be assigned to receive reports of all incidents that involve patient or worker safety. He/she should inform the OHSO and jointly investigate with the OHSO any incidents that involve injury to a hospital employee. The OHSO should keep a register of all occupational incidents. A sample register is presented in Appendix O.

Table 2 Examples of Risks and Suggested Solutions

Potential Hazard	Example	Potential Solution
Lifting, handling, transferring patients	Dressing, bathing, feeding, and toileting	Minimizing manual lifting of patients in all cases and eliminating lifting when possible.
Needlestick injuries	Injections, inserting IVs etc	Provide workers with auto disable syringes. Establish syringe usage and disposal procedures and ensure that staff are trained on injection safety procedures.
Transferring equipment	Transferring equipment like IV poles, wheelchairs, oxygen canisters, respiratory equipment, x-ray machines, or multiple items at the same time	Place equipment on a rolling device if possible to allow for easier transport, or have wheels attached to the equipment. Push rather than pull equipment when possible. Keep arms close to your body and push with your whole body not just your arms. Assure that passageways are

		unobstructed. Attach handles to equipment to help with the transfer process. Get help moving heavy or bulky equipment or equipment that you can't see over. Don't transport multiple items alone; for example, if moving a patient in a wheelchair as well as an IV pole and/or other equipment get help, don't overexert yourself.
Reaching into deep sinks or containers	Washing dishes, laundry, or working in maintenance areas and using a deep sink	Placing an object such as a plastic basin in the bottom of the sink to raise the surface up while washing items in the sink or remove objects to be washed into a smaller container on the counter for scrubbing or soaking and then replace back in the sink for final rinse.

Source: Adapted from the US Department of Labor, Occupational Safety and Health Administration, Health Care Wide Hazards Module.

3.16.2 Medical screenings and Health Promotion

All employees should undergo a health screening prior to employment at the hospital. The health screening can either be done at the hiring hospital or at another health facility. The candidate should submit a medical certificate (except HIV results) prior to employment to show fitness for service. The medical certificate should include a history of current and previous illnesses and a full physical examination.

The OHSO should review the medical certificate of each new employee to identify any special needs of the employee in relation to the workplace or work duties.

Any employee who has completed his/her probationary period is eligible to receive medical services at any government medical facility, free of cost. Through the OHSO the hospital should provide health promotion and disease prevention services for employees and prompt access to medical assessment for workers who have any symptoms of illness. In particular the OHSO should educate employees about signs and symptoms of common diseases (such as TB or malaria) and encourage workers to seek early medical advice should they have signs and symptoms of these diseases. This is especially important for those diseases that may be

transmitted to co-workers or patients (e.g. TB, hepatitis). Health promotion programs dealing with issues such as smoking, substance abuse, stress, and reproductive health at the workplace should be made available to staff.

Voluntary counselling and testing for HIV should be encouraged and made available to all workers.

3.16.3 Immunizations

Many health care workers are at risk for exposure to and possible transmission of vaccine-preventable diseases such as TB, hepatitis B, influenza, measles, mumps, rubella, and varicella. Maintenance of immunity is an essential part of prevention and infection control programs for health care workers.

The OHSO should review the immunization history of each new hospital employee. For those whose vaccination status is incomplete, the hospital should provide all routine childhood immunizations, in accordance with the current national immunization policy. Additionally, ‘booster’ doses should be provided if necessary (e.g. tetanus booster).

The OHSO must assess the need for vaccination on an individual employee basis, taking into consideration any co-morbidities and/or pregnancy status. Some vaccines are contraindicated in cases of pregnant workers (varicella, MMR) and workers with HIV infection (varicella), or AIDS.

3.16.4 Workplace Injuries

As specified in Federal Legislation, any worker who incurs accident, injury or disease as a direct result of their employment is entitled to receive free general and special medical treatment and surgical care expenses; hospital and pharmaceutical care expenses; an all necessary prosthetic or orthopaedic expenses. Additionally, employees are entitled to injury leave with pay, or will be provided with benefits should s/he be (due to a permanent disability) unable to return to work.

Hospitals should seek to reinstate workers who suffer an accident or injury by making adjustments to accommodate the injury/disability. Examples include:

- Rearrangement of working hours
- Modified tasks and jobs, including modifications in the case of HIV-positive workers who may be at risk (e.g. avoiding exposing them to infectious TB patients, particularly MDR TB) or pose a risk to patients by virtue of their performing invasive procedures (this precaution may also apply to workers with other infections such hepatitis B)
- Adapted working equipment and environment
- Provision of rest periods and adequate refreshment facilities
- Granting time-off for medical appointments
- Flexible sick leave
- Part-time work and flexible return-to-work arrangements

3.16.5 Occupational Health and Safety Trainings

The hospital should conduct promotional activities to raise the awareness and strengthen decision-making skills of workers related to infectious exposures and other hazards.

Basic information on infectious exposures and other hazards must be provided to every new health worker within the first week of employment as part of the new employee orientation. Refresher orientation sessions can also be provided to other staff annually. Facilities must have appropriate written informational materials through which updated information on infectious exposures and other hazards is communicated.

The information provided should include:

- identification of potential hazards and infectious and other exposures in the health workplace
- provide information about infection transmission mechanisms and how to reduce the risk of such transmission
- instruct workers on the utilization of safe work practices and standard precautions
- workplace health and safety services
- workers' responsibilities regarding workplace safety and health

- promote the implementation of periodic health screening for health workers including the promotion of voluntary counselling and testing for HIV/AIDS
- provide information on the signs and symptoms of the most frequent illnesses at the workplace, including TB, HIV, malaria, hypertension, and diabetes and instruct workers to report promptly for evaluation should these develop
- disseminate health workers’ rights and responsibilities with regard to workplace safety and health, including the right to confidentiality (See Statement of Workers’ Rights and Responsibilities, in Appendix C)

Section 4 Implementation Checklist and Indicators

4.1 Assessment Tool for Operational Standards

In order to determine if the Operational Standards of Human Resource Management have been met by the hospital an assessment tool has been developed which describes criteria for the attainment of a Standard and a method of assessment. This tool can be used by hospital management or by an external body such as the RHB or FMOH to measure attainment of each Operational Standard. The tool is presented in tool is presented in the Assessment Handbook.

4.2 Implementation Checklist

The following Table can be used as a tool to record whether the main recommendations outlined above have been implemented by the hospital. The Table does not measure attainment of each Operational Standard but rather provides a checklist to record implementation activities.

Table 3 Human Resources Management Checklist

		Yes	No
1.	Policies and procedures for staff recruitment, promotion and transfer have been developed and implemented		
2.	Policies and procedures for performance evaluation have been developed and implemented.		
3.	Policies and procedures for employee recognition have been developed and		

	implemented		
4.	Policies and procedures for training and development have been developed and implemented.		
5.	Policies and procedures for compensation and benefits have been developed and implemented.		
6.	Policies and procedures for occupational health and safety services have been developed and implemented.		
7.	Policies that define when and what type of identification badges and uniforms are worn by staff have been developed and implemented.		
8.	A Human Resource plan has been developed		
9.	Training Need Assessment has been conducted and Training and Development Plan developed		
10.	Adequate budget is allocated for Human Resource Management/Development		
11.	The Human Resource head is represented on the Senior Management Team.		
12.	Adequate HR professionals are assigned to provide human resources management services		
13.	Job descriptions have been developed for each position at the hospital		
14.	Staff job satisfaction survey is conducted regularly.		
15.	HR Audit has been conducted		
16.	Each employee has a personnel file that is maintained by the Human resource directorate/department.		
17.	A Functional Human Resource Information Management System has been established		

4.3 Indicators

In addition, the following indicators may be monitored on a regular basis to assess the effectiveness/outcomes of implementation of the recommendations provided in this chapter.

Table 4 Human Resources Management Indicators

Human Resources Management Indicators				
S/N	Indicators	Formula	Frequency	Comment

1.	% of posts filled as per the standard/approved positions	Total number of posts filled ÷ total number of posts as per standard x 100	Quarterly	HMIS indicator
2.	a) Total number of doctors b) Attrition rate	a) Total number of doctors at end of reporting period b) Total number of doctors who left during reporting period /total number of physicians at beginning of reporting period * 100	Quarterly	HMIS indicator
3.	a) Total number of health officers b) Attrition rate	a) Total number of health officers at end of reporting period b) Total number of health officers who left during reporting period/total number of health officers at beginning of reporting period * 100	Quarterly	HMIS indicator
4.	a) Total number of nurses b) Attrition rate	a) Total number of nurses at end of reporting period b) Total number of nurses who left during reporting period /total number of nurses at beginning of reporting period * 100	Quarterly	HMIS indicator
5.	a) Total number of other clinical staff b) Attrition rate-	a) Total number of other clinical staff at end of reporting period b) Total number of other clinical staff who left during reporting period/total number of other clinical staff at beginning of	Quarterly	HMIS indicator

		reporting period * 100		
6.	a) Total number of - non clinical staff b) Attrition rate	a) Total number of non-clinical staff at end of reporting period b) Total number of non-clinical staff who left during reporting period/total number of non-clinical staff at beginning of reporting period * 100	Quarterly	HMIS indicator
7.	Skills mix- distribution of clinical staffs by occupation, specialization, or other skill-related characteristics	No. of physicians, nurses and midwives(or other categories of health service providers)/ total no. of staff	Quarterly	HRIS/HMIS indicator
8.	Number (%) of staff who underwent performance evaluation	Total number of staff who underwent performance evaluation from beginning of year to end of reporting period ÷ total number of staff at beginning of year * 100	Quarterly	
9.	a) Number of staff with performance that is less than satisfactory b) Proportion of employees with less than satisfactory performance	a) Total number of staff with performance that is less than satisfactory b) Total number of staff with performance that is less than satisfactory/ Total number of staff who underwent performance evaluation*100	Quarterly	
10.	a) Cumulative number of staff who received in service training b) % of staff who received in	a) Total number of staff with in-service training from beginning of year to end of reporting period b) Cumulative number of	Quarterly	HMIS indicator

	service training	staff who received training/total number of staff at beginning of period *100		
11.	<p>a) Number of new staff who received new hire orientation during reporting period</p> <p>b) % of new staff who received new hire orientation</p>	<p>a) Total number of new staff who received a new hire orientation</p> <p>b) Total number of new staff who received a new hire orientation / total number of new staff *100</p>	Quarterly	
12.	Number of grievances received	Total number of grievances recorded by the HR department	Quarterly	
13.	Number of occupational injuries reported	Total number of occupational injuries reported	Quarterly	
14.	Number of functional computers	Total number of working computers	Quarterly	

Source Documents

1. Accel Team. (2006). *Employee Motivation. Motivation in the Workplace - Theory and Practice*. Retrieved November 27, 2006 from http://www.accel-team.com/human_resources/hrm_04.html.
2. African Services Committee. (2004, February). *Work Plan and Performance Evaluation Report*.
3. Davis, W., Haacker, R., Townsend, J. (2004). *The Principles of Health Care Administration*. Second ed. Bossier City, LA: Professional Printing and Publishing.
4. Department of Health and Human Services. *HHS Workforce Planning Model*. Retrieved October 30, 2009 from www.hhs.gov/ohr/workforce/wfpmodel.gif.
5. EngenderHealth. (2003). *COPE Handbook: Process for Improving Quality in Health Services*.
6. EngenderHealth. *Facilitative Supervision Handbook*.
7. Federal Civil Service Agency. (2007). *Federal Civil Service Employees' Employment Implementation Directives*. Addis Ababa.
8. Federal Ministry of Health. (2008, November). *Federal Ministry of Health Business Process Re-engineering Study of Human Resources Supportive Business Process*.
9. Federal Ministry of Health. *System of Management for Employees Results-Oriented Plan Performance*.
10. Fried, B. (2002). Performance Management. In: Fried BJ JJ (Eds). *Human Resources in Healthcare: Managing for Success*. Chicago: HumaChicago: Health Administration Press.
11. Grand Roads Executive. (2006, 13 December) *How to Write a Job Description: Gaebler Ventures*. Retrieved November 9, 2006 from <http://www.grandroads.com/howToWriteAJobDescription.htm>.
12. The Hospital Employees Union. (2004). *Health and Safety Manual*. Retrieved October 26, 2009 from http://www.heu.org/~DOCUMENTS/Miscellaneous/Organizational/HEU_OHS.pdf.
13. Johns Hopkins University, Human Resource Manual.
14. Joint Commission International Accreditation Standards for Hospitals, 2nd edition. Staff Qualifications and Education (SQE).
15. Longest, B.B., Rakich, J., Darr, K. (2000). *Managing Health Services Organizations and Systems*. Fourth ed. Baltimore: Health Professions Press.
16. Massad, M. (2005) The Many Uses of a Job Description. Retrieved November 11, 2006, from <http://www.entrepreneur.com/humanresources/hiring/article78506.html>.
17. Management Sciences for Health. (2005). *Human Resource Management Rapid Assessment Tool for Public and Private-Sector Health Organizations. A Guide for Strengthening HRM Systems*.

18. Management Sciences for Health. (1998). *Performance Management Tool. Health and Family Planning Manager's Toolkit*. Retrieved October 2008 from <http://erc.msh.org/newpages/english/toolkit/pmt.pdf>
19. Montana State Hospital. (2009) *Montana State Hospital Policy and Procedure: Employee Code of Conduct*. Retrieved October 31, 2009 from msh.mt.gov/volumei/humanresources/rulesofconductemployees.pdf.
20. NHS Staff Council Working in Partnership. Partnership Occupational Safety and Health in Healthcare Group. (2009). *Occupational Health and Safety Standard*. Retrieved from July 6, 2009 from <http://www.nhsemployers.org/Aboutus/Publications/Documents/Occupational%20health%20and%20safety%20standards.pdf>.
21. Payos, R and Zorilla, O. (2003). *Personnel Management*. Manila: Rex Printing Company, Inc. Administration Press.
22. Proclamation No.515/2007: *The Federal Civil Servants Proclamation*. (2007, 19 February) Addis Ababa: Federal Negarit Gazette.
23. Shi, L. (2007) *Managing Human Resources*. Subdury: Jones and Bartlett.
24. Stolovitch, H. (1999). *Handbook of Human Performance Technology*. San Francisco: Jossey-Bass/Pfeiffer.
25. Ugandan Ministry of Health. Prepared by Necochea, E. and Bossemeyer, D. Jhpiego. (2007) *Ugandan Ministry of Health Draft Workplace Safety and Health Guidelines for Health Workers*.
26. University of Medicine and Dentistry. (2009). *Maintaining a Compliant and Ethical Environment: A Guide to the University's Compliance and Program and Code of Conduct*. Retrieved October 31, 2009 from www.umdj.edu/ucomweb/pdf/Code_of_Conduct.pdf.
27. US Department of Labor. *Occupational Safety and Health Administration, Health Care Wide Hazards Module*.

18

Health Financing and Asset Management

Table of Contents		Page
Section 1	Introduction	18-1
Section 2	Operational standards for Finance and Asset Management	18-3
Section 3	Implementation Guidance	18-3
3.1	Hospital Governance	18-4
3.2	Hospital Budget Planning	18-4
	3.2.1 A procedures of planning and budget preparation	
3.3	Revenue Retention and Utilization	18-7
	3.3.1 Utilization of revenues	
3.4	Fee Waiver	18-8
3.5	Exempted Health Services	18-9
3.6	User Fee Setting and Revision	18-10
3.7	Private Wing	18-11
3.8	Outsourcing of Services	18-15
3.9	Public Private Partnerships in Hospitals	18-16
3.10	Health Insurance	18-17
3.11	Financial Management	18-20
	3.11.1 Accounting practices for hospitals	
	3.11.2 Cash collection procedures	
3.12	Asset and Procurement Management	18-28
	3.12.1 Fixed asset management unit (FAMU)	
	3.12.2 Procurement of fixed assets	
	3.12.3 Purchase and receipt of fixed assets	
	3.12.4 Register of fixed assets	
	3.12.5 Insurance for fixed assets	
	3.12.6 Accounting for fixed assets	
	3.12.7 Disposal of fixed assets	
3.13	Auditing	18-34
Section 4	Implementation Checklist and Indicators	18-39
4.1	Assessment tool for Operational Standards	18-39
4.2	Implementation Checklist	18-39
4.3	Indicators	18-40
Source Documents/References		18-44
Appendices		
Appendix A	Sample Fee Waiver Beneficiary Register	
Appendix B	Sample Department Fee Waiver Expense Registration Form	

Tables

Table 1 Financial and Asset Management Checklist

Table 2 Financial and Asset Management Indicators

Abbreviations

BOFED	Bureau of Finance and Economic Development
CEO	Chief Executive Office
FAMU	Fixed Asset Management Unit
FMOH	Federal Ministry of Health
GOFAMM	Government Owned Fixed Assets Management Manual
HIV	Human immunodeficiency virus
IT	Information Technology
MOFED	Ministry of Finance and Economic Development
MOU	Memorandum of Understanding
RHB	Regional Health Bureau
SWOT	Strengths, Weaknesses, Opportunities, Threats
SMT	Senior Management Team
TAG	Technical Advisory Group
TB	Tuberculosis
WOFED	Woreda Office of Finance and Economic Development

Section 1 Introduction

Historically, public hospitals in Ethiopia receive an annual block budget from the Ministry or Bureau of Finance and Economic Development (MOFED/ BOFED). This budget is for both capital and revenue expenses. Hospitals were expected to charge patient fees for services provided. However, this income was returned to BOFED/MOFED at the end of each financial year. Hence there was little incentive for hospitals to maximize their income, improve efficiency or improve accounting practices.

The Government of Ethiopia adopted a comprehensive health care financing strategy in 1998. The major policy objectives of the strategy include the increasing of resources to the health sector, enhancing efficiency in the use of available resources, improving the quality and coverage of health services, and ensuring equity and promoting sustainability. With the launch of the health insurance reforms to address demand side barriers and commitment to ensure universal health coverage through primary health care by 2035 as part of the envisioning document, the Ethiopian health delivery system and financing mechanisms are expected to change. Currently, Ethiopia's health system looks very different from that of 1998 and the existing *Healthcare Financing (HCF) Strategy* under review is in its final stage, and contains the following objectives:

- Contribute to the realization of progress towards universal health coverage through enhancing risk protection mechanisms and protecting all indigent;
- Contribute towards increasing domestic source of health financing and strengthen public private partnership to gradually reduce aid dependency over long term;
- Continue investing on the essential health services (exempted health services) sustainably

in addition to the introduction of evidence based planning to ensure resources are invested in high impact and low cost interventions which will enhance effectiveness and efficiency, including fiscal decentralization related provisions (see Box A)..

Box A Decentralized budget and planning

Box A Decentralized budget and planning

Decentralization is the transfer of authority and responsibility for public functions from the central government to lower level tiers. It involves the transfer of authority for decision making to local governments on expenditure assignment, i.e., performing of public functions, including provision of services, and revenue assignment, i.e., generate own revenues and have independent authority in making investment decisions.

Fiscal decentralization is a core component of decentralization and refers to the situation where lower levels of government are entitled to collect and spend revenues of their own and also share some revenue with a higher level government authority. The principle of fiscal decentralization suggests that assigning expenditure responsibilities and decision-making powers to the lower levels of government can substantially improve a state's ability to effectively identify and address its citizens' needs.

In light of this, the government has introduced fiscal decentralization together with basic planning and budgeting procedures. The purpose of planning and budgeting is to ensure that financial resources at the facility level are spent with proper accountability in a timely manner according to expenditure guidelines established by the MOFED/BOFED.

Source: Implementation Manual for Health Care Finance Reform. FMOH, 1995.

On the other hand, efforts have been exerted to encourage private partners to get involved in establishing health care facilities equipped with high-end technologies, and enhance local production of medical technologies and products. However, a huge number of people are still traveling abroad to seek advanced care, and the country is also importing a huge sum of medical products. Ensuring private sector's partnership with the public sector on the aforementioned issues would contribute to the retention/saving of needed foreign currency.

In summary, this chapter describes key activities to support hospital implementation of the Health Financing Reform components including health insurance. The chapter also describes major elements of finance and asset management and public private partnership practices in the hospitals.

Section 2 Operational Standards for Finance and Asset Management

1. The hospital has established finance, procurement and asset management structure, personnel per unit cost and an operational plan , approved by the Senior Management Team that details:
 - The process of submitting procurement requests
 - The responsible body/person for approval of procurement requests
 - The means of procuring
 - Responsible person(s) for procurement activities
 - A five year plan for major capital purchases
2. Bilingual service fee schedule posters are displayed beside each departmental reception desk, in all waiting areas and at all cash points. Each poster shows the fees and advises patients to obtain and keep receipts for all payments.
3. The hospital provides exempted services in accordance with the relevant Federal/Regional Legislation and displays a list of exempted services at appropriate locations through the hospital for the information of patients, staff and the public.
4. The hospital provides all services indicated in health insurance benefit package in accordance with the agreement and should be displayed at appropriate locations through the hospital for information for the patients, staff and the public.
5. The hospital submits timely payment requests/claims /reimbursements for services to the Health Insurance Agency and fee waiver beneficiaries in accordance with established standards and formats.
6. The hospital keeps records of services provided to eligible health insurance agency, fee waiver and exempted service beneficiaries and related financial information as appropriate and, reported to the relevant body.
7. The hospital ensures a private wing service is established in accordance with the required federal /regional directives and approved by the Hospital Governing Board.
8. In a hospital where services are outsourced, procedures are in place to monitor the contract and services provided and contractual agreements comply with relevant government directives.
9. The hospital establishes multi-year budgeting and expenditure which link to programmemes and priorities of each department and fiscal information is channelled through various medium of communication.
10. The hospital stock management ranging from identifying the need for a property to materials and supplies in order to receive, use and dispose complies with the relevant guidelines and disaggregated by each department.
11. The Hospital accounting system should produce and access periodic reports to the relevant bodies at all levels.
12. Internal audit on quarterly basis and external audit at least once in a year conducted and reports are reviewed by the senior management and Governing Board.

Section 3 Implementation Guidance

Health financing refers to the “function of a health system concerned with the mobilization, accumulation and allocation of money to cover the health needs of the people, individually and collectively, in the health system... the purpose of health financing is to make funding available, as well as to set the right financial incentives to providers, to ensure that all individuals have access to effective public health and personal health care” (WHO 2000).

Health financing is fundamental to the ability of health systems to maintain and improve human welfare. At the extreme, without the necessary funds no health workers would be employed, no medicines would be available and no health promotion or prevention would take place. However, Financing is much more than simply generating funds.

3.1 Hospital Governance

Central to the Health Care Financing Strategy is the enhancement of hospital autonomy, with authority decentralized to the hospital in areas such as strategy, planning, budget development and execution.

To achieve this, hospitals should be governed by a Governing Board that is responsible to nominate the Chief Executive Officer/Director (CEO/CED), who in turn leads on all hospital operations and functions. The Governing Board should oversee the operation of the hospital, approve short, medium and long term plans and budget, and examine and decide on all matters that are presented to it by the CEO/CED.

The basic principles relating to the establishment, responsibilities and operating mechanisms of Governing Boards, the role and responsibilities of CEO/CEDs, and hospital planning processes are discussed in *Chapter 1 Hospital Leadership and Governance*.

3.2 Hospital Budget Planning

Few economic sectors depend on financial performance as intensively as does public health, where safety, speed, access, and cost can literally be “life or death” matters. With growing demands to improve health care quality, coverage, and outcomes, health sector decision makers not only face the challenge of allocating resources to the highest priorities, but also of ensuring that those resources are put to good use, deliver “value for money,” and achieve the intended outcomes or impact. Improving a hospital’s budgeting ability and control of the flow of finances is extremely important. By successfully implementing performance-based program budgeting capabilities, with decentralization hospitals are afforded greater financial control to best utilize resources, save money over the long-term, and maintain spending limits related to expected targets and results. Improved financial flows and procurement process within a hospital also create greater efficiency and use of human resources. Hospital budgets should be prepared, approved and appropriated following procedures established by BOFED/MOFED. Procedures for planning and budgeting are necessary to ensure that financial resources within the hospital are spent with proper accountability and in a timely manner according to expenditure guidelines established by the BOFED/MOFED.

3.2.1 A Procedures of Planning and Budget Preparation

A budget is an estimate of the maximum level of resources (financial, human, natural) available to spend in order to achieve a desired set of outcomes. Decentralized planning and budgeting passes

through the following stages; namely, a) Budget planning (preparing work plans, review of work plans, estimation of revenue, allocation of revenue, estimation of capital and recurrent budget, budget call, budget request), b) budget preparation, c) budget hearing and recommendation, d) budget consolidation, e) budget approval, f) budget appropriation, g) budget notification, h) budget allocation, and I) budget implementation, monitoring and reporting. These stages are described below. Further details of each of stages can be found in the Budget Preparation and Management Manual.

Budget Planning

- A. **Preparation of work plans:** The Hospital/Health Center Management, with the active participation of the staff, prepare work program taking into account overall health sector objectives, catchment area activities, improvement of service quality and envisaged projects. The annual plans should include the requirements for outsourcing of non-clinical services and procurement of goods and services. The finance bodies (MOFED/BOFED) issue guidelines as to the direction and priorities which public bodies should incorporate in their annual work plans. Although health facilities are not public bodies, this guidance is equally applicable to them.
- B. **Review of work plans:** After getting the approval of their respective) Boards, Hospitals submit their work plans to FMOH/RHB for review. Federal Ministry of health /Regional Health Bureaus consolidates the work plans and submits them to finance bodies at their respective levels. The work plans include both recurrent and capital components. Past performances are taken into consideration during the review of work plans.

Planning and Budgeting for Retained Revenue

As part of the budget planning process the hospital should estimate the amount of retained revenue it anticipates collecting from different sources in the coming year. Health facilities shall forecast amount of retained revenues they expect to collect from different sources in the budget year (from July eight up to July seven) including expected changes in user fees, expected improvement in the quality of health services and the resulting inflow of patients, etc.

Retained revenue can be estimated on the basis of:

- Trend of past year(s) collections from each source revenue item,
- Total number of visitors and collected revenue from each item of revenue (examination/card, drugs, x-rays, lab tests, etc),
- Estimated number of service seekers and average collections, and
- Change in the amount of user fee and expected facility visitors.

The retained revenue estimate should be included in the budget proposal. **Note:** Expenditure of retained revenue should be budgeted separately from expenditures made from other revenue sources.

All revenue must be appropriated before use. Any unutilized retained revenue should be declared by the hospital at the end of every fiscal year, so that it can be proclaimed and utilized together with the collections of the following budget year and the appropriated block budget.

- a. (The sources of retained revenues for health facilities are listed in this Manual).
- b. Government source: The other source of revenue for health facilities includes what they get from WOFED/BOFED/MOFED in the form of budget allocations from government treasury and foreign sources. At the moment, there is no direct allocation for primary hospitals from WOFED/BOFED/MOFED. Instead, they are notified of their ceilings based on what WOFED /BOFED allocates to Health sector.

Budget adjustments: There are two types of budget adjustments permitted by law:

a) Budget transfers-- moving budgeted funds from one item of expenditure to another (in so far as it is permissible by the law) after the annual budget process is finalized.

b) Supplementary budget-- adding an increment to the authorized budget with approval of OFED/BOFED and appropriation by the respective council. Finance bodies notify the public body by Form Ma/BeMa6 (for recurrent) and Ka/BeMa6 (for capital).

For budget transfers from government subsidies, the Hospital Manager must seek the approval of BOFED/MOFED before the funds have been spent, using The request should be made using Form BeMA1 and should specify from which item(s) in the original approved budget funds will be taken and for what new expenditure categories they will be used.

The Hospital Management Board must approve budget transfers from retained revenues for Hospitals. It is not permissible to transfer and use budget for those categorized as 'negative list' stated in 4.9.2.

Budget Execution: Budget execution refers to the activities undertaken to utilize the appropriated budget for the intended purposes. Hospital and Health Centers shall submit a monthly disbursement request to the respective finance office, either by filling the required form or by writing a letter to BOFED/MOFED according to the existing procedures provided by MOFED/ BOFED

Monitoring and evaluationthe budgets are monitored and evaluated through monthly and quarterly execution reports, audits, supervision etc.

Reporting

Each Hospital shall maintain books of accounts and formats. This will provide complete and adequate monthly information on how funds allocated have been utilized prescribed in the regional financial proclamation and regulation and shall report to the respective Health and Finance Office at all level.

The Health Office, in collaboration with respective Finance office, will assist Hospitals in establishing proper systems for accounting and in submitting disbursement requests and reporting.

3.3 Revenue Retention and Utilization

Ethiopia has a tradition of paying for health services, which dates back to the introduction of the modern health service delivery system. Ethiopia follows a consolidated revenue collection and budgeting system in which all public institutions that are collecting revenue are supposed to channel their revenue to the central treasury and receive their operational funding in the form of a government budget. Similarly, in the health sector, health facilities were channeling all revenue that they had been generating internally to the treasury. This caused a lack of sense of ownership by health facility staff and health facilities, and the amount of money health facilities had been collecting and channeling to the treasury was rather insignificant. On the other hand, health facilities faced a serious shortage of resources to cover their operational costs, and, in most cases, their non-salary operational budget was being depleted by the end of the first quarter causing inefficient use of scarce resources and poor quality of health care. In response to this problem, the health care financing strategy, followed by the respective regional and federal laws, allowed health facilities to retain and use their revenue for health service quality improvements in Hospitals

Sources of revenue of hospitals include:

- Block budget appropriated by the government,
- Fees collected from health care and diagnostic services as well as beds and other services related to medical treatment,
- Sale of drugs and medical supplies,
- Revenue collected from third parties in connection with waiver and health insurance schemes,
- Fees collected from consultancy, teaching learning activities, trainings and research activities,
- Income from non-medical services and goods such as lease of facilities and other similar activities,
- Direct aid in cash and in kind obtained from domestic and outside sources, and
- Other similar revenue sources.

3.3.1 Utilization of Revenues

Positive Lists

Hospitals may use the retained revenue to meet the manpower and equipment requirements and to improve the quality of health services. Specifically, retained revenue may be used to:

- Improve the services provided under the referral system,
- Improve the supply of drugs, medical equipment and supplies,

- Conduct procurement and carryout construction works to improve the health care services of the hospital,
- Develop health care information systems and manuals and to improve procedures,
- Conduct on the job training programs and other similar health related problem solving research so as to improve the efficiency of employees,
- Strengthen health education activities and undertake disease control and preventive activities,
- Undertake other similar revenue utilization activities in line with the objectives designated by the hospital management committee.

Negative Lists

Retained revenue should NOT be used for:

- Any kind of foreign trip and training,
- Long term domestic training program more than three months,
- Any kind of subsidy given to a third party,
- Revenue utilization other than those activities designed to meet the objectives therein, nor
- For any expenditure code in the positive list for which there is no approved budget.

3.4 Fee Waiver

A fee waiver is a right conferred to a household or individual that entitles the household/individual to obtain health services in certain health facilities at no direct charge or at reduced price. Beneficiaries are identified and issued with a ‘fee waiver certificate’ by a Waiver Certificate Granting Authority (generally Woreda or City Administration).

Hospitals should enter into a *Memorandum of Understanding (MOU)* with Waiver Certificate Granting Authorities. This should provide details on the type of service and mode of payment. A sample MOU is presented in Appendix B.

The hospital should maintain a record of expenses incurred for services provided to fee waiver beneficiaries. A sample *Fee Waiver Beneficiary Register* is presented in Appendix C. The Register should be filled by the finance officer, using source information from the patient’s medical record, lab order forms, prescription etc.

Additionally, each case Team should maintain a *case team Fee Waiver Expense Registration Form* to record services provided to fee waiver beneficiaries (Appendix D). This form will provide information for the hospital financial officer to assist completion of the *Fee Waiver Beneficiary Register*.

Every quarter the hospital should submit a request to the Waiver Certificate Granting Authority for reimbursement of expenses incurred for services provided to fee waiver patients. A sample *Bill for Reimbursement of Fee Waiver* is presented in Appendix E.

Upon receipt of the bill, the Waiver Certificate Issuing Authority should verify the request and instruct the respective office of Finance and Economic Development to make the payment to the health facility.

NB: The hospital should make all fee waiver reimbursement requests to the respective Government authority. For patients who have a referral for higher institutions outside their location, reimbursement procedures should be established in a tripartite arrangement between the hospital, the Government administration in which the hospital is located and the Woreda (s) in which the fee waiver beneficiaries reside. Regional and federal agreements should also be reached for reimbursement of certificate holders from different Regions.

3.5 Exempted Health Services

Exempted health services refer to those services that are rendered free of charge to all irrespective of level of income by reason of them being of public health nature that widely affects the general public and improving the health seeking behavior of the society. Exempted services are generally those of a public health nature such as:

- Diagnosis, treatment and follow-up of TB;
- Prenatal, delivery and postnatal services
- Family planning services in health care units;
- Immunization of mothers and children against eight child illnesses;
- HIV Voluntary Counseling and Testing (VCT);
- Leprosy management
- Epidemic follow-up and control;
- Obstetric Fistula management
- Immunization and treatment of health professionals to reduce risk related to occupational hazards
- Other services to be provided free of charge on reason of future endorsement by government.

Federal Ministry of Health and Each Regional Government will approve the list of exempted services for that Federal and Regional Hospitals respectively. Each hospital should provide exempted services in accordance with the relevant Legislation and should display a list of exempted services at appropriate locations through the hospital for the information of patients, staff and the public.

The hospital should finance the costs of exempted services from the appropriated government budget or donations. The hospital should maintain records of exempted services provided and submit monthly, quarterly and annual reports to the FMOH & RHB.

3.6 User Fee Setting and Revision

Government health facilities have collected very little revenue from user fees in comparison to the budget that is allocated from government treasury. This is because user fees charged in government health facilities have remained unchanged for a long time while exemptions and fee waivers have been granted for the majority of the services. In addition, health facilities have been required to remit to treasury what little has been collected and have not been permitted to use the revenue to improve health services. One of the key guiding principles of the Health Care and Financing Strategy is that health services at government health facilities will be based on a *cost-sharing principle*. This means that not all costs of providing health services, apart from those services that are exempted, go into the calculation of user fees. Therefore, user fee revisions should be made with the idea that by sharing in the cost of health care, users are contributing to the improvement of health care quality. This, in turn, will influence the facility users' willingness to pay. All staff involved in user fee collection should have ready access to the current fee schedule. When fee changes are announced, health facility staff should be thoroughly informed through staff meetings and circulars, and fee posters should be prominently displayed.

In setting or revising fees what should be considered is charging the user any additional cost (marginal cost) of providing the service. These additional costs are, for example, costs of drugs, laboratory reagent, cost of any disposable material used to treat the patient, and consumables such as food, bed services, etc. Examples of items that might not be included in fee calculation are costs of buildings, durable assets and staff salary. However, a certain percentage may be added to the user fee to replace these costs bit by bit in the long run.

The process of fee setting is governed by Federal and Regional Proclamations, Regulations and Directives and varies slightly from Region to Region. However, the basic principles, common to all are as follows:

- hospital management can initiate the process for user fee revision,
- the proposed fee structure should be submitted to the FMOH & RHB,
- the FMOH & RHB should review, considering the ability and willingness to pay of users,
- The FMOH & RHB should submit the proposal to the Federal council of Ministers and Regional Cabinet, and they should make the final decision.
- User fees may be revised every 5 years.

Hospitals should keep record of expenses and prices to enable fee-setting authorities to periodically revise and set fees. These reports should be part of the management reports submitted by the facilities.

Further guidance on the fee setting process for public (non-private) patients is presented in Appendix F.

3.7 Private wing

Ethiopian public hospitals are unable to meet increasing financial demands solely using the budgeted funds allocated by the government. This has resulted in a deterioration of the quality of services provided in the public hospitals, decreased motivation and morale of staff, and increased movement of health workers from public to private hospitals in Ethiopia and abroad. This brain drain has been exacerbated under the free market economy that Ethiopia currently follows that promotes the attractiveness of private sector. The health policy of Ethiopia encourages hospitals to look for new sources of revenue to supplement the grants they receive from government in order to expand, organize, support and strengthen the services they provide. Furthermore, the policy encourages upper income people to pay for healthcare services and thus, help to support those who do not have the financial capacity to gain equitable access.

Private wing is an official arrangement for Public hospitals in which clinical services are provided on the bases of fee for service .Hospitals may establish a private wing for the benefit of patients; staff and the hospital (see Box B). Fees charged to patients in the private wing should be set on the basis of *cost recovery* and should be higher than those charged in the regular hospital.

Income raised by the private wing should be shared between the hospital and the professionals providing the private wing services. The income distribution should be approved by the Governing Board based on the federal and respective regional guidelines. The hospital should receive a share of at least 15% of the private wing income.

The hospital management should ensure that the opening of a private wing does not negatively affect the quality and regular operations of the general hospital services and should ensure that the quality of clinical care provided in the private wing is no different from quality of care provided to other patients.

Box B Benefits of a private wing

Benefits for the patient include:

- A higher level of amenities and customer service
- A cleaner, more comfortable and secure environment
- More convenient appointment times
- Personal choice of doctors

Benefits for the staff include:

- A better work environment
- Caring for people with an increased level of patient satisfaction
- For eligible employees, a potential to increase earning

Benefits for the Hospital include:

- Help to retain qualified staff
- Increase revenue for institutional improvement – upgraded equipment, computer system, new
Clinical services, additional investment in staff training, etc
- Establish and role model a higher standard of non-clinical services throughout the facility

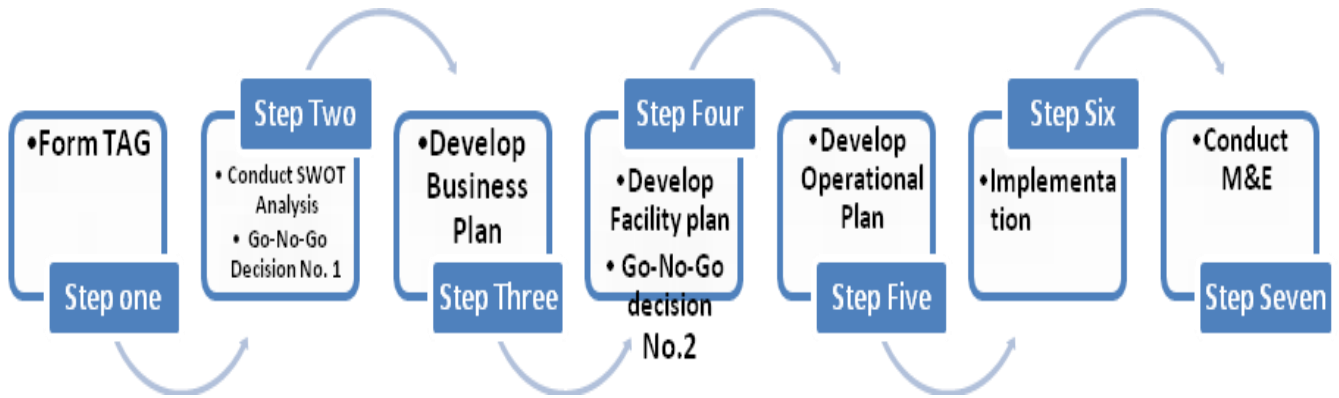
Improve patient satisfaction

Improve reputation

Outpatient private wing client services should be provided out of the normal government working hours including holidays, Sunday and Saturday full day. In patient services should be provided during regular working hours and out of hours. Steps to establish a private wing in public Hospitals are presented in Appendix----

The 7 Steps to Introducing and Implementing a Private Wing

There are many critical issues to consider when starting a private wing. The following section outlines 7 steps one can follow to 1) decide whether to introduce a private wing and 2) implement a private wing from inception to monitoring and evaluation.



3.8 Outsourcing of services

Outsourcing: is the agreement between a health facility as a purchaser, and a third –party provider of services as a vendor pursuant to which the vendor provides to the health facility certain defined services formerly performed by the health facility itself.

Rationale for outsourcing of services:

These days, outsourcing has the potential to become a core business strategy for health facilities. By leveraging the contractors’ core abilities, the health facilities are able to maximize their options to, for example, expand additional services by gaining access to the state-of –the-art technologies without investing directly in development of such technologies. Thus, by allowing the contractor to deal with services that are the core competency of that contractor, the health facilities are able to *focus their efforts on their own core clinical competencies*.

Outsourcing allows the health facilities to leverage the contractor’s knowledge of services and abilities. It provides the health facilities with access to individuals with specialized skills who might otherwise be expensive and difficult for the facilities to attract and

Rationale for Outsourcing:

1. Help health facilities to focus their efforts on core clinical competences.
2. Access specialized skills/expertise that are not available in the facilities.
3. Gain access to the experience of the contractor.
4. Cost reduction

Through outsourcing, the health facilities gain access to the experience of the contractor which may, through its provision of the outsourced services, improve the work pattern or processes of the facilities. This may in turn improve the quality of services provided by the facilities. It allows health facilities to benefit from the ability of the contractors to provide these services at rates that reflect economies of scale.

The main purposes of outsourcing are to:

- Improved Quality of Services.
- Reduce and control operating costs.
- Gain Efficiency and effectiveness.
- Incorporation of external expertise into health facilities operations.
- Free management to focus on core competencies.

Approaches to outsourcing

- There are different approaches to outsource services to a contractor or vendor.

Umbrella Approach Outsourcing:

- This is an approach where contractors or vendors manage more than one type of service in health facilities. For example, one contractor might be hired to manage the food service, laundry and housekeeping departments under a single contract agreement. The advantages and disadvantages to this approach need to be carefully weighed.

i. Advantages of umbrella approach of outsourcing:

- a. Simplified contract process – only one contract to negotiate.
- b. One point of contact for facility management
- c. larger companies with more experience

ii. Disadvantages of umbrella approach of outsourcing:

- a. Services tend to be sub-contracted out by the company
- b. The company often has unequal experience and expertise in the services being provided.
- c. Difficulty in achieving true transparency in accounting and understanding costs for each service department
- d. If the contractor under-performs and the facility decides to cancel the contract, all service department operations covered by the contract are disrupted simultaneously. Health facility management has the great challenge of re-contracting and transitioning management for multiple departments at the same time.

Single Service approach Outsourcing:

- This is the more traditional approach where one contractor with specific expertise is hired to manage one Health facility service process or even one significant portion of a department's operation (i.e., preparation of injera, gardening, security, etc.).

“Letter of Interest” approach:

- If companies with health facility experience do not exist in the locale, a different approach for the health facility is to look for contractors that have the potential to provide services to the health facilities provided *they can learn and meet health facility requirements*.
- The Study Team identifies contractors with good management and meets with the contractor to discuss the company's interest and capability to enter the facility market.
- A “Letter of Interest” is sent to the contractors outlining the health facility's interest in finding businesses capable of expanding and meeting health facility service requirements.
- Interested contractors respond to the Letter of Interest with a pre-bid statement explaining how the contractor would develop its internal capability and expertise in order to be a qualified bidder for the tender.

3. Outsourcing process:

- Reaching at a decision to outsource services in a health facility is a process. There are several critical steps to ensure that the decision to outsource is appropriate, that eligible and competent contractors /vendors are invited to submit bids or proposals, and that the final contract is strong, fair and complete. The steps to outsourcing are displayed in the figure below.



3.9 Public Private Partnership in Hospitals

Public Private Partnership (PPP) is an arrangement between public sector and private sector which aims at joining forces together to meet public needs through the most appropriate allocation of resources, risks and rewards. The Federal Ministry of Health (FMOH) recognizing the potential of the private for profit and private not for profit in expediting health development, it has been allowing collaborative work particularly in the delivery of public health services.

The current stage of health development in the country calls for engaging the private sector in Public Private Partnership in Health (PPPH) particularly in the provision of secondary and tertiary level health services ; manufacturing indigenous health products; alleviation of human resource constraints and nurturing the existing PPPH. With the objective To encourage the private sector for a high end diagnostic services (laboratory and imaging services), high end clinical services such as hemo-dialysis, radiotherapy, neurosurgery and rehabilitation medical services and others unmet need driven PPPH projects in the premises of the public health facilities; To guide out-sourcing of nonclinical services, as appropriate (management service, building and equipment maintenance to the private operators; To

guide the existing partnership to fully complement government public health program in terms of coverage, standardization, insuring transparency and accountability, service quality, public safety and sustainability.

Currently, some hospitals have contracts with the private sectors for clinical services - diagnostic services... The existing PPPH has contributed a great deal in terms of reducing cost of service provision, raising the efficiency and quality of service delivery, availing the private sector expertise, building the health professionals' capacity, and creates conducive environment for private sector collaboration. It is obvious that the expansion of Non Communicable Diseases (NCD) and the growth of the citizens' income put more pressure on the demand for high tech diagnostic and imaging services. Under the existing condition, many public hospitals are not capable of meeting this increasing demand due to financial and technical reasons. For this reason, many patients are compelled either to travel abroad for medical treatment or get treatment in quite a few of the private facilities where some of these technologies are available and the user fees are too expensive to afford for many of them.

The evidence from the international experience suggests that these gaps are met through the public facilities that can play a mediating role through outsourcing of clinical services. There are several reasons why many countries outsourced the clinical services which had previously been provided at public hospitals. Among others, to improve access, quality, and efficiency to engage the private sector in the health service delivery system; to leverage the advanced medical technology available in the private sector and to reduce the cost of foreign treatment were mentioned as major reasons of outsourcing clinical services.

The international experience shows that, while outsourcing clinical services, public facilities have been facing with challenges at the proposal design, decision-making, implementation, and monitoring stages. Some of the challenges happened at the designing stage include changing priorities, setting unrealistic expectations, neglecting to realize the full cost of outsourcing, and failing to strategize an exit procedure. Similarly, permitting the outsourced service getting out of control and pressures from the internal constituent were challenges encountered at the implementation phase. It has also been reported that there were weak monitoring mechanisms, poor capacity to monitor contracts at each level, monitoring indicators not well defined. To resolve these challenges, they took a number of actions including creating enabling political environment, designing legal framework and strategies, building the facilities capacity to manage outsourcing, establishing independent source of monitoring information.

3.10 Health Insurance

The government of Ethiopia has launched two types of health insurance programmes namely social health Insurance (SHI) and community based health Insurance (CBHI) with multiple

objectives of alleviating financial barriers, mobilizing additional resources to the health sector, encouraging community participation, and ultimately improving health service utilization of the population.

Social health insurance covers the part of the population engaged in the formal sector which is constituted by the civil servants, NGO employees, private sector employees, pensioners and police forces, while the CBHI programme is designed to address populations that are engaged in the informal sector i.e. the rural population and the people in petty trade in urban settings.

The implementation of health insurance programmes requires the active involvement of different stakeholders with their distinct roles and responsibilities. Health care providers are one of the key stakeholders that have major role for the successful implementation of the programmes. They are expected to provide quality health services that are indicated in the benefit package. The benefit package covers both outpatient and inpatient services, delivery services, surgical services and provision of generic drugs included in the health insurance agency drug list and diagnostic services at hospital level. Hospitals contracted with the insurance schemes have to be self-contained. In case the services are not available, the hospitals are required to sign a contract agreement with private providers to offer the services on their behalf and account. Insurance beneficiaries should not pay any out of pocket payment when accessing care, apart from the copayment and bypass fee if any.

Not all services are covered by the benefit package and there are services excluded due to various reasons, including diagnosis and treatment abroad, cosmetics surgeries, dialysis except acute renal failure, in vitro fertilization, organ transplantation, hip replacement, periodic checkup except key preventive checkups, occupational injuries and traffic accidents, provision of eyeglasses, contact lenses and hearing aids, dentures, crowns, bridges, implants and root canal treatment except those required due to infection.

The hospital, prior to service provision identify whether the health insurance beneficiary is an active member and holds the necessary referral paper. It is expected that the hospitals provides all services indicated in the benefit package including supply of drugs, laboratory, and diagnostic services. As per the terms and procedures indicated in the contractual agreement, the hospital submit timely, complete and accurate payment requests using agreed upon formats and follow up the reimbursement. The hospital is also expected to keep records of all services provided to eligible health insurance beneficiaries and related financial information as appropriate and the information is compiled into reports. These include, service utilization report, fee schedule of the hospital issued by the authorized body, standard treatment guidelines and contract document. Apart from HMIS

formats, the hospital utilizes formats developed by health insurance schemes to record and document health insurance activities.

Provider Payment Mechanism For insurance beneficiaries

How providers are organized and paid is central to the structure of any health insurance system. The payment mechanisms used to reimburse providers have important effects on system-wide costs and efficiency. Some payment mechanisms encourage over-provision of services while others run the risk of causing providers to restrict the provision of services that are necessary. The provider payment system influences both the quantity of services provided and their price. The provider payment mechanism to be used by health insurance system must be evaluated against its effects on the quality of health care service, cost containment, and administration.

The providers payment systems that are in use today are described below with their strengths and weaknesses.

Fee-For-Service: Fee-for-service payment systems can be completely open, but are often based on an established fee schedule. The schedule may be established by social insurance funds and health plans, or it may be determined as a result of negotiation. Providers can maximize their income under a fee for-service reimbursement scheme by increasing the number of services provided or by reducing the quality (and therefore the cost) of each service provided. If there is competition, however, providers are less likely to skimp on quality and may actually respond by increasing quality to attract more fee-paying customers. The Ethiopian health insurance system uses a slightly varied form of fee-for-service payment mechanism i.e. fee-for service with pre agreed fee schedules to pay outpatient services at hospital level for social health insurance and for inpatient and outpatient services in the case of community based health insurance.

Diagnosis Related Groups (DRG)/ Case Payment: The most widely-known case classification system is the “diagnosis related groups” (DRG) system, which classifies conditions into approximately 470 diagnostic groups. DRG or case based payment systems are most commonly used to pay hospitals for inpatient treatment. Hospitals are forced to examine the number of resources used (operating theatre, supplies, technology, drugs, medical staff, and bed days) to treat a patient with a given diagnosis. Because a fixed fee is received per case, the provider faces incentives to find ways to minimize costs so that a surplus can be generated to use for other things such as increased income. On the other hand, providers also face incentives to code the diagnosis into a more generously reimbursed diagnostic group. This tendency, called “**DRG creep**,” requires an elaborate monitoring system to control. As the health insurance agency has no prior experience on DRG payment mechanism and also since sufficient statistical data has to be available to define the DRGs, the social health insurance system will initially

use a less complicated form of case payment mechanism known as Departmental Based Grouping (DBG) for all inpatient services.

Capitation payment: Capitation payments are made to health plans that receive a fixed payment per member per month to provide a defined package of benefits. The health insurance may contract health centers and hospitals to provide part of the benefits package and may pay those provider groups by capitation payment. If designed and implemented properly, capitation payment systems have many desirable qualities. For a capitation payment system to be effective there must be a large enough base of enrollees to spread the financial risk. With few enrollees and a comprehensive package, one very sick enrollee could bankrupt the provider. It is important for members to have the opportunity to choose among competing capitated plans. Competition to attract members should cause quality to increase, and the pressure to provide a defined package of benefits for a fixed premium should result in controlled costs.

Because capitation payment is for a range of benefits, providers and health insurance schemes have incentives to re-think the structure and organization of the delivery system. Capitation payments encourage a systemic focus as compared to fee-for service payment that encourages a focus on individual procedures or diagnoses. Administrative costs of capitation payment methods are low compared with fee-for-service reimbursement systems. All outpatient healthcare services provided at health center or equivalent level under social and community based health insurance system will be paid using capitation as a payment mechanism.

3.11 Financial management

Financial management means planning, organizing, directing and controlling the financial activities such as the utilization of funds of an organization. Finding adequate resources to finance health systems has become a real challenge for countries around the world. This challenge is exacerbated in vulnerable developing countries that lack sufficient funds to meet their populations' basic health. Increasing public resources for health—or more precisely, expanding “fiscal space” for health—does not necessarily need to come from greater tax revenue or larger budgets. Oftentimes, it is not the amount of health spending, but the efficiency with which those funds are used, that matters most. Efficiency improvements in the health sector, even in small amounts, can yield considerable cost savings and even facilitate the expansion of services for the community.

Public Financial Management (PFM) is about ensuring that public money is used well, and is made to stretch as far as possible. It provides leaders and managers with information to make decisions and to know if they are using resources effectively. Managing finances in the public sector is about much more than accountancy – it is an integral part of bringing services to people.

Hospital Organizational structure of Finance support process

Each hospital should establish a Finances support process with, as a minimum, the following personnel:

- Finance Head
- Senior finance officer
- finance officers
- Assistant finance officer/ Cashier
- Daily Cash Collector/s
- Archive staff

The Finance support process contributes to the hospital sustainability in a number of key ways:

- Increasing revenue,
- Reducing unnecessary costs and assisting in ensuring that all resources are used appropriately, efficiently and effectively, and
- Improving the quality of services and providing decision makers with timely, accurate and useful Programme and financial information.

Duties and responsibilities of key finance personnel will be as per to job descriptions elaborated by Human resource unit of the hospital

3.11.1 Accounting Practices for Hospitals

Purposes of accounting

Accounting is concerned with the recording, analyzing and interpreting of financial data. Hospitals require qualified financial officers to provide information for the regular evaluation of business performance and for periodic appraisal of the ‘value’ or ‘net worth’ of the business. Accounting information is necessary for the preparation of business plans, analysis of business efficiency and costs of services and policy decision-making.

Detailed guidance on accounting systems for hospitals are provided in the *financial management Manual* of the relevant Government bodies with additional guidance provided in the *Healthcare Finance Reform Implementation Manual*.

Each hospital should follow an Accounting Manual which establishes all policies and procedures relating to financial management in the hospital. The hospital financial practices should comply with accounting system as described in the manual, using approved, standardized vouchers and forms.

The following section gives a brief overview of major accounting practices for hospitals in accordance with the procedures established in the *financial management Manual*.

3.11.2 Cash Collection Procedures

General issues:

The Health Care and Finance Legislation makes the following stipulations:

- Hospitals should only charge payments at the user fee or bypass fee set by the respective government authority
- Bilingual fee posters should be put up next to each departmental reception desk, in all waiting areas and at all cash points, the hospitals highly encouraged to indicate the estimated fee in the case of illiterate patents . Each poster should show the fees and exemptions and should advise patients to obtain and keep receipts for all payments,
- Collection points should be readily accessible for all patient services (for further guidance see *other chapters*),
- Cash should be collected only by personnel who are authorized by the hospital,
- Except in emergency cases the fees should be collected after the treatment has been ordered by the clinicians and its availability confirmed, but before the treatment is administered,
- In emergency cases treatment should be administered when needed and the question of payment should be handled when the emergency is under control
- Revenue can be collected as cash, cheque or bank transfer. Where a cheque is received the following issues should be considered:
 - ✓ Cheques must be made payable to the health facility;
 - ✓ Personal or company cheques must be certified by the drawer's bank;
 - ✓ Government agency cheques are acceptable without certification;
 - ✓ No employee has the authority to cash any cheque made payable to the health facility; and
 - ✓ Post-dated cheques shall not be accepted as revenue, and
 - ✓ Bank transfers must be evidenced by a bank deposit slip or bank advice.

Cash Receipt Vouchers

Cash Collectors should collect payments from clients/patients and others by issuing a Cash Receipt Voucher. The Cash Receipt Voucher should be used to acknowledge and evidence the receipt of cash, cheques, the direct deposit of cash into the bank and bank transfers. Only pre-printed sequentially pre-numbered official Receipt Vouchers issued by BOFED (MOFED for Federal Hospitals) should be used.

The Cash Receipt Vouchers should be distributed as follows:

- Original copy to the payer as acknowledgment of the cash receipt;
- Second copy to the main Cashier; and
- Third copy is retained in the pad.

On a daily basis each Cash Collector should submit all cash receipt vouchers and cash collected to the main Cashier/assistance finance officer.

Summary Receipt Voucher

The Summary Receipt Voucher is used by the main Cashier/ assistance finance officer to summarize the cash collected and cash vouchers received from each Cash Collector. Upon receipt of the cash receipt vouchers the main Cashier should summarize these on a pre-numbered Summary Receipt Voucher.

The Summary Receipt Voucher is prepared in triplicate:

- original copy is given to the daily Cash Collector as a receipt when the collected cash is remitted;
- second copy is sent to the Financial officer attaching the Receipt Vouchers and deposit slips; and
- third copy is kept in the pad.

Receipt Voucher Summary by Revenue Code

The Receipt Voucher Summary by Revenue Code is a spreadsheet prepared by daily Cash Collectors to summarize receipt vouchers by revenue account code. On a daily basis each Cash Collector should complete a Receipt Voucher Summary by Revenue Code and submit this to the main Cashier together with the issued receipt vouchers and cash collected. The total amount shown on the Receipt Voucher Summary by Revenue Code should be checked with total amount shown on the Summary Receipt Voucher to ensure that the two amounts are the same.

A copy of the Receipt Voucher Summary by Revenue Code should be submitted to the financial officer together with the Summary Receipt Voucher and supporting Receipt Vouchers.

Deposit Receipt Voucher

This is used to acknowledge and evidence the receipt of cash or cheques as a deposit/advance payment from inpatients. The Deposit Receipt Voucher should be prepared by the Cash Collector and submitted to the main Cashier together with the funds deposited

The daily Cash Collector should summarize all deposit payments in a *Deposit Cash Book*

At the end of the patient stay the total service charge should be calculated:

- a) If the service charge is equal to the deposited amount then a *Cash Receipt Voucher* should be prepared. A copy should be given to the payee and the second copy attached to the *Deposit Receipt Voucher* and submitted to the financial officer.
- b) If the service charge is greater than the deposit then the payee should pay the difference and a Cash Receipt Voucher should be prepared for the total sum, with a copy given to the payee and a second copy attached to the Deposit Receipt Voucher and submitted to the financial officer.

- c) c) If the service charge is less than the deposited amount then a Cash Receipt Voucher should be prepared for the total service charge. The balance should be remitted to the payee using a Payment Voucher. A copy of both the Cash Receipt Voucher and Payment Voucher should be attached to the Deposit Receipt Voucher and submitted to the financial officer.

Cash Register

A Cash Register should be established to record the cash collected each day and the sum deposited in the bank. The Cash Register should be completed by the main Cashier.

Collections from Credit Services

Hospitals may provide services on credit basis. A Credit Agreement should be entered between the hospital and each Institution which would like to subscribe health services on credit basis. The Credit Agreement should describe the reimbursement collection procedure and schedule.

Credit should be granted for a maximum period of three months. Institutions that have a Credit Agreement with the hospital may deposit a sum of money at the hospital's account in advance. That sum can be replenished whenever it is used up.

The hospital financial officer should prepare a monthly report for the Hospital Management with details of credit granted, credit repaid and balance outstanding.

Handling Cash

In monetary terms 'cash' refers to currency, cheques, drafts, cash payment orders and bank remittances.

Cash in hand

Cash in hand should be kept in locked safe box under the responsibility of the main Cashier or the daily Cash Collector. The cash safe box must be used only for those assets belonging to the Hospital. Personal properties should not be kept in the cash safe box.

Wherever a cash safe box has double or triple keys, the reserve keys should be safely kept in a sealed envelope. The sealed envelope should be signed by the Cashier, the Auditor, Financial officer and Finance Head of the Hospital. When the Cashier requires the reserve key, the sealed envelope should be opened with the presence of two or three signatory persons.

Cheque books

When cheque books are received from the bank the Cashier should make sure that the leaves of the cheque books are correct and that each leaf in the cheque is stamped. A Register should be used to record all new cheque books received and cheque books issued. Partly used cheque books should be kept with the financial officer.

Deposit Procedures

All cash and cheques received should be deposited into the hospital bank account on the date of collection or the next working day if it is not possible to deposit on the same day. The amount of cash

kept overnight in the safe box should not exceed the limits set by BOFED. Daily collections should not be mixed up with petty cash funds when revenue is deposited, the Cashier should obtain two copies of the deposit slip – one should be submitted to the financial officer and the other should remain with the Cashier as evidence. In case of direct deposits by the third party, the financial officer should collect copies of deposit slips from the bank.

Bank Accounts

Hospital bank accounts can only be opened or closed with the approval of BOFED/MOFED. Hospital management should assign, in writing, three named individuals as signatories of each bank account. The bank and BOFED/MOFED should be notified of any changes in the signatories.

Each hospital should have a special bank account specifically for retained revenue. Health facilities' retained revenue bank account shall not be blocked at the end of the financial year .To open the bank account the hospital should apply in writing to BOFED/MOFED.

The hospital should establish a bankbook or bank register record for each bank account that shows the movement of funds indicating the beginning balance, deposits, withdrawals and ending balance at any given time.

Every month the Finance officer should prepare Bank Reconciliation for every bank account and should pass any necessary correcting entries. Correcting entries must be evidenced by the signature of Finance officer and also verified by separate persons, in accordance with the government Budget and Accounts Manual.

Petty Cash Fund

Petty cash is a fund from which small cash payments can be made. Petty cash funds should be authorized by the CEO and established under the custody of cashiers. Depending on the size of the hospital the CEO may approve more than one petty cash fund. The CEO, in consultation with the Finance Head and Finance officer should determine the magnitude of the petty cash fund.

Generally this should not exceed ETB 30,000. Approval for the number and magnitude of petty cash funds should be obtained from /BOFED/MOFED. A change in the size of the petty cash fund within a limit of ETB 30,000 can be made by the approval of the CEO. However, if a change in the size of the petty cash fund exceeds Birr 30,000 approval of the BOFED/MOFED is required.

The petty cash fund should be maintained and kept separately from other collections and funds.

Petty cash funds should be replenished when the amount of the cash remaining reaches a minimum level. The Cashier should submit all paid petty cash vouchers and a request form for replenishment to the Finance officer. The Finance officer should verify the vouchers and sum requested and should

prepare a Payment Voucher and cheque for the total expended amount in the name of the Cashier. This cheque should be handed over to the Cashier against his/her signature on the Payment Voucher.

A petty cash book should be established for each petty cash fund to track the balance of cash on hand.

At the end of every month a cash count should be conducted by a person other than the Cashier with a third employee as a witness. Additional 'surprise' cash counts may be conducted. At the end of the budget year the remaining balance of petty cash fund should be deposited into the appropriate bank account.

Payroll Accounting

All employees of the hospital expect and are entitled to receive their remuneration at regular intervals following the close of each payroll period. Regardless of the number of employees and the difficulties in computing the amounts to be paid, the payroll system must be designed to process the necessary data quickly and assure payment of the correct amount to each employee.

The payroll system must also provide adequate safeguards against unauthorized payments to employees and other misappropriations of funds

Various government laws require employers to keep accurate payroll records and to prepare reports and submit to the appropriate governmental units. The law also requires employers to remit the amounts withheld from its employees and for taxes imposed on it. These records must be kept for specified periods of time and be available for inspection by those responsible for enforcement of the laws. Besides, payroll data may be useful in negotiations with labor unions, in settling employee grievances, and in determining rights to vacations, sick leaves, and retirement pensions.

Accounting for payroll in hospitals is particularly important because:

- Payroll often represents the largest expense that the hospital incurs,
- Both federal and state governments require that detailed payroll records be kept, and
- Employees are sensitive to payroll errors or irregularities. To maintain good employee morale payroll must be paid on a timely and accurate basis preferably in banking system.

Disbursement Procedures

Each month and quarter the Finance Head should prepare a cash flow programme detailing income and expenditure for each major budget heading. This should be submitted to the CEO for review and approval. A sample Format for Cash Flow Forecast is presented in Appendix.

Requests for disbursement (payments) should be made to the hospital Finance officer who will prepare a payment voucher and submit, together with supporting documents, to the Head of Finance. The Head

of Finance should review and approve the disbursement, taking into consideration funds available, providing the amount of payment is within the limits set by BOFED/MOFED.

After approval the Finance officer will prepare a cheque and submit for signature by assigned signatories. For cash disbursements the approved voucher should be submitted to the Cashier who will effect payment. Withdrawals from the bank should be recorded sequentially in the transaction register.

Facilities should present disbursement requests to respective BOFED/MOFED for operating expenses of all eligible expenditure from the government block grant. Requests for monthly salary will also follow appropriate BOFED/MOFED guidelines.

Recording/Accounting

The accounting system of Hospitals should follow the Federal/regional government accounting system and should utilize the printed payment voucher for expenses as detailed financial management Manual. The following are some of the recording procedures that need to be followed.

- a. The Health facility shall establish registers for cash collected and the Cashier shall enter daily cash collections into the Cash Receipts Register Book.
- b. The Finance officer shall prepare a Daily Cash Receipt Summary
- c. The Cashier shall keep a record of all cash received and deposited in the bank and record it in a Cash Transaction Register Book as described in the Accounts Manual. The Finance officer will prepare a cash receipt summary at the end of the day.
- d. The Finance officer shall keep a record of all cash received and deposited in the bank account and record it in the Cash Receipts Registration Book. The Receipt Voucher is the source document to record a receipt of cash in the Cash Receipts Register Book.
- e. When the services provided or delivered for particular purpose are entered into transaction register at health facilities, debit payable account and credit cash at bank by utilized amounts.
- f. When a health facility utilizes the fund appropriated to it, it will debit the related expenditure account and credit its bank account.
- g. The outstanding bills at the end of the financial year are paid within the grace period in accordance of federal/regional financial proclamation, regulation and financial management manual.
- h. Health facilities shall make monthly reconciliation of accounting record with related statements.

- i. As of each month ended, reconciliation statement of the balances of Health facility ledger and bank statements should be prepared for all bank accounts. Reconciling items should be shown in sufficient details and should be cleared timely.

Reporting Procedures

The hospital Finance should prepare monthly and quarterly reports on revenue, expenditures, receivables, payables, trial balance, the status of budget utilization and others. Reports should be submitted to the hospital management and Governing Board.

Each identified hospital cost or profit center should have a monthly revenue and expenditure report that should be discussed in SMT as agenda item.

3.12 Asset and procurement Management

The Council of Ministers Financial Regulations No 17/1997 categorizes government assets into two main categories - fixed assets and supplies

A fixed asset is “a tangible asset costing Birr 1000 or more that is in operational use and that has a useful economic life of more than one year, such as furniture, computers, equipment, vehicles, and buildings”.¹

Supplies are all other items owned by the government such as stationary, cleaning supplies, gloves, syringes, etc.

The management of assets includes procurement, inventory, storage, maintenance and disposal of assets. Effective asset management ensures that assets are purchased to meet the needs of the hospital, that assets are maintained in good working order and are disposed of promptly when no longer required or when the end of the useful lifespan has been reached.

The management of hospital assets is governed by National Legislation as set out in Proclamations, Regulations and Directives related to the procurement, inventory control and disposal of assets. The MOFED has also published the ‘Government Owned Fixed Asset Management Manual’ (GOFAMM) to provide guidance on the management of assets. Additionally, in 2009 the Procurement Agency (www.ppa.mofed.gov.et) was established. The main role of the Procurement Agency is to ensure the application of fair, competitive, transparent, non-discriminatory and value for money procurement by public bodies. One specific function of the Procurement Agency is to prepare, update and issue authorized versions of the standard bidding documents, procedural forms and any other documents pertaining to procurement and property administration.

Hospitals should comply with Legislative requirements and with all guidance and forms issued by the Procurement Agency when managing hospital assets.

The guidance below focuses primarily on the management of fixed assets such as medical and non-medical equipment (e.g. generators, vehicles etc.) and is consistent with current Legislative requirements. Additional guidance on Facilities Management (including buildings and non-medical equipment) is presented in *Chapter 16 Facility Management*. Additional guidance on Medical Equipment Management is presented in Chapters 15 and 9; *Laboratory Services* and *Medical Equipment Management* respectively. Guidance on the management of pharmaceuticals is presented in *Chapter 10 Pharmacy Services*.

3.12.1 Fixed asset management unit (FAMU)

Each hospital should assign a unit responsible for the management of fixed assets. Full responsibilities of the FAMU are described in the GOFAMM manual and include:

To establish the fixed asset register,

- To undertake an annual physical count of all fixed assets and reconcile with the register,
- To ensure that all fixed assets are put to appropriate use,
- To calculate depreciation on fixed assets, and
- To identify items for disposal.

Hospitals may also establish a Medical Equipment Committee (MEC) to oversee the management of medical equipment, since this equipment is highly specialized and its effective management requires technical expertise (e.g. clinical knowledge) that may not be necessary for the management of other assets. The MEC should be a subcommittee of the FAMU and the Chair of the MEC should be a member of the FAMU. Further guidance on the establishment and responsibilities of the MEC is presented in *Chapter 9 Medical Equipment Management*. Alternatively, if the hospital is small, the FAMU may take responsibility for the management of medical equipment without the establishment of a separate MEC. In such circumstances it is important that the FAMU includes members with sufficient technical expertise to provide oversight of the management of all medical equipment.

3.12.2 Procurement of fixed assets

PUBLIC PROCUREMENT

Procurement means the purchasing, hiring, or obtaining by any other contractual means of goods, works and services. Public procurement is the process of the acquisition, usually by means of a contractual arrangement after public competition, of goods, services, works and other supplies by the public entity. The public procurement process spans the whole life cycle from initial conception and definition of the needs through to the end of the useful life of an asset or the end of a contract

A) Procurement Plan

Each hospital should prepare a 5 year plan for the purchase of major capital. A detailed annual procurement plan should be prepared showing the procurement for the budget year. The costs of procurement should be included in the annual budget. The procurement plan and budget should consider the entire costs related to the purchase including transport, site preparation, installation, staff training, support, supply of consumables, spare parts etc. The procurement plan should be developed taking into consideration the Medical Equipment Development Plan (see *Chapter 15 Medical Equipment Management*), the hospital annual plan and specific departmental needs.

Hospitals should also budget for the regular maintenance of fixed assets, and for the emergency purchase of any essential assets that it might be necessary to replace unexpectedly during the financial year (for example if equipment is broken and cannot be repaired, or if an item is stolen).

In general, the following guidance gives an estimate of the annual budget required for maintenance and fixed asset replacement costs:

- For medical equipment, each year 5-6% of the 'new' stock value is required.
- For buildings, each year 1-2% of the 'new' construction cost is required.
- For service supplies and plant, each year 3-4% of purchase and installation costs is required.

B) Procurement Policy

All hospitals should have a procurement policy detailing:

- the process of submitting procurement requests,
- the responsible body/person for approval of procurement requests,
- the means of procuring, and
- the responsible person(s) for purchasing activities.

C) Considerations for procurement

When fixed assets and in particular medical equipment is purchased the following considerations should be made:

- Is the item appropriate to the hospital setting? Consider:
 - Environmental factors such as power and water supply, altitude, humidity, heat, dust etc
 - Physical space required and interface with required utilities
- Is it of good quality and safety?
- Is it affordable and cost-effective? Consider: Cost and quality
- Cost-effectiveness when considering lifecycle costs: transportation, installation, training, repair,
- Spare parts, déposables, rageants, etc.
- Costs to get and keep equipment functioning
- Is it easily used and maintained? Consider:

- Skills and training required
- Maintenance and support services available
- Guarantees and warranties
- Consumables accessories and spare parts availability and ease of procurement

D) Methods of procurement

Federal Legislation stipulates that the preferred method of procurement is ‘open bidding’ which is described further below. Public bodies shall not split procurement requirements for a given quantity of goods, works or services with the intention of avoiding the preferred procurement procedure stated under the Proclamation or in the procurement directive. Other options that may be considered when open bidding is not suitable include:

- Request for proposals
- Two stage tendering
- Restricted tendering
- Request for quotation
- Direct procurement

Full guidance on these additional methods, including conditions on their use, is provided in the “Federal, Public Government Procurement Directive”.

3.12.3 Purchase and receipt of fixed assets

After the contract is signed the item should be purchased and delivered as described in the contract agreement. The hospital should prepare for delivery of the item. This could include site preparation, installation of electricity or plumbing if required and staff training for equipment use.

All items should be received into a Central Store where the item will be registered and from where it will be issued to the site of use. The only exception is for extremely large items where it is unfeasible to keep in storage or for items where the vendor is contracted to install the item and to check that it is working correctly. In these circumstances it may be necessary to deliver the item directly to the site of use. None-the-less all items should be registered appropriately and a custodian assigned as described below.

Approved, standardized forms for the receipt and issue of fixed assets should be used.

3.12.4 Register of fixed assets

The hospital should establish a register of fixed assets that contains information on the date of purchase, description, quantity and cost of each item. A custodian should be assigned for each fixed asset. In general the custodian should be an individual who regularly uses the fixed asset or who is in charge of the department/unit where the item is held. The name of the custodians and the locations of the fixed assets under their custody should be recorded in the register of fixed assets. An inventory check to physically verify the inventory against records should be undertaken annually, following the procedures described in the GOFAMM manual. Key steps are outlined below:

- Decide on date of count
- Inform internal audit department,
- Organize a team of counters, checkers and supervisors. Each team should consist of at least three people. The teams should include at least one person capable of identifying the type and condition of the assets, and Provide each team with clear written instructions about how the inventory should be done as well as all of the forms that will be needed including Fixed Assets Count Sheet, Fixed Assets Registration Card and Fixed Assets with User Control Card. Copies of these forms can be Found in the GOFAMM manual.

Inventory team is responsible for visiting every department and cataloguing every item. Items stored in cabinets, closets, store rooms, etc., should be checked during this inventory.

For facilities containing large amounts of unused and/or permanently damaged equipment or other items, the initial inventory activity is a great opportunity to “clean up” the facility, removing any item that is obsolete, un-repairable, inappropriate, or, for any other reason, not of use in the hospital. These items should be physically removed from the ward or other location within the hospital and the formal disposal process should be started.

Once the inventory information is collected, it may be organized in many ways. A computerized inventory database or other computerized method is the easiest way to organize such information, but a card index or similar paper-based system is also possible. Depending on the desired information, information may be sorted in many ways, such as by product, location, manufacturer, use/function, age, inventory code number.

If an inventory of medical equipment has already been conducted it is not necessary to repeat this process, the information gathered can be included within the overall fixed assets inventory. Further guidance is given in *Chapter 9 Medical Equipment Management*.

3.12.5 Insurance for fixed assets

The Council of Ministers Finance Regulations No 17/1997, Article No 62 provides that “the Heads and employees of public bodies are responsible for the protection and preservation of public property.” One of the protection methods for fixed assets is purchasing appropriate insurance policy against unforeseen calamities.

The CEO and the FAMU should assess for which of the assets the hospital should buy insurance cover. Once purchased, the policy should be renewed every year in advance of its expiry date.

3.12.6 Accounting for fixed assets

All fixed assets should be valued and recorded in the hospital accounting records. The cost at which fixed assets are valued should be the historical cost, i.e. the cost incurred at the time the fixed asset was purchase or constructed. While this is available for new purchases, it may not be known for all assets in the hospital, particularly items that were donated or are old. The GOFAMM manual provides guidance on assigning a value to fixed assets in such circumstances.

After the initial valuation hospitals should depreciate all items of property, plant and equipment until the item is derecognized. Depreciation is defined as a systematic allocation of the depreciable amount of an asset over its useful life. There are various methods of depreciation. The simplest of all is the Straight-line method of depreciation. Straight-line method of depreciation assumes that the usefulness of the asset is the same over the entire life of the asset.

The following depreciation rates should be used for depreciating Government Owned Fixed Assets.

- Vehicle and other vehicular transport 20%
- Plant and machinery 12.5%
- Buildings – residential 5%

- Buildings – non residential 5%
- Infrastructure 5%
- Furnishings and fixtures 10%
- Office equipments 10%
- Books 25%

3.12.7 Disposal of fixed assets

Fixed assets may be disposed when the item becomes unserviceable, obsolete, and surplus or abandoned. Government regulations describe three approved methods of disposal:

- Transfer to other public bodies

- Disposal by sale
- Sale by public auction
- Sale through public tender
- Sale as scrap
- Discarding

Whichever method is followed, the description and amount received from all items that are disposed of should be entered in the hospital accounts and the hospital fixed asset register should be amended accordingly.

A Disposal Committee should be established as an advisory body to hospital management. The Committee should be comprised of Heads from appropriate Departments/Units such as procurement, finance, legal etc. The Committee should review all recommendations from the FAMU for the disposal of fixed assets, including the method of disposal, and should follow up on any disposals that are approved by hospital management.

Full guidance on disposal procedures is provided in the GOFAMM manual.

3.13 Auditing

Introduction

1. Audit is derived from a Latin word, meaning, “He hears”. In ancient times, the accounts of an estate, domain or manor were checked by having them called out to those in authority by those who had compiled them. Currently, auditing can be defined as the process by which a competent, independent person, accumulates and evaluates evidence about quantifiable information related to a specific economic entity for the purpose of determining and reporting on the degree of correspondence between the quantifiable information and established criteria.

Types of audits

Auditing can be mainly grouped into four types:-

1. **Financial audit:** involves verification of financial data to express opinion on their validity and reliability
2. **Compliance audit:** involves verifying adherence to policies, plans, procedures, laws and regulations
3. **Value for money (performance) audit:** is a forward looking evaluation of operations to identify areas in which economy, efficiency and effectiveness (the three E’s) may be improved or to evaluate compliance with and the adequacy of operational policies, plans and procedures.

It involves evaluation of inputs, process and outputs. Other names used to describe this type of audit include Operational, Management and Three E audit.

4. **Environmental audit:** is an audit which confirms the degree of compliance with both internally and externally determined emission and pollution standards.

Types of auditor [Internal and External Auditors]

Internal auditors are auditors employed by the organization to carry out an independent appraisal within the organization, which operate as a service to the Organization by measuring and evaluating the effectiveness of internal control system. Internal auditors of public bodies are auditors employed to: -

- Provide an independent and objective opinion to the Head of public body on risk management, control and governance, by measuring and evaluating their effectiveness in achieving the public body's agreed Objectives. Risk management, control and governance comprise the policies, procedures and operations established to ensure the achievement of objectives, the appropriate assessment of risk, the reliability of internal and external reporting and accountability processes, compliance with applicable laws and regulations and compliance with the behavioral and ethical standards set for the public body.
- Provide an independent and objective consultancy service specifically to help management improve the public body's risk management, control and governance. Internal audit applies professional skills through a systematic and disciplined evaluation of the policies, procedures and operations that management put in place to ensure the achievement of the public body's objectives, and through recommendations for improvement. Such consultancy work contributes to the opinion which internal audit provides on risk management, control and governance.
- **External auditors** are auditors who are entirely independent of the audited entity. Their duty is to report primarily to third parties (in the case of audit of limited companies they report to shareholders; in the case of Government of Ethiopia the external auditor is the Office of the Auditor-General which reports to parliament).

External auditors in undertaking an audit of financial statements will: -

- Carry out procedures designed to obtain sufficient and appropriate audit evidence, in accordance with Generally Accepted Auditing Standards to determine with reasonable confidence whether the financial statements are free from material misstatement;
- Evaluate the overall presentation of the financial statements, in order to ascertain whether they have been prepared in accordance with relevant legislation and accounting standards;
- Issue a report containing a clear expression of their opinion on the financial statements.

Why does the head of the internal audit unit have a duty to work with external auditors?

Government financial management is an integrated process, which works best when each component (budgeting, financial control, accounting, reporting, auditing) is working well, and all are well coordinated. Because there are at least two types of government auditors (external and internal), government auditing has to be coordinated in order to avoid duplication or omission of audit work. Too many uncoordinated audits would be a burden and an unnecessary waste of resources. Since internal auditors are employees of the entity, they cannot have as much independence as external auditors. Sometimes they will identify significant risks, which managers do not address, or their audit findings may be ignored. Management may have also steered them away from certain audits or put obstacles in the way of collecting certain types of information. Having a duty to make findings and papers available to the external auditor is a necessary safety valve.

What are the major risks/dangers facing internal auditors?

- Lack of expertise, leading to trivial audit findings and lack of management respect;
- Lack of opportunity for professional development;
- Domination by dishonest management and staff members, leading to the neglect of sensitive areas where controls are weak and encourage abuses;
- Repetitive audit routines which staff members can predict;
- Being assigned to tasks such as accounting and pre-control of expenditures which the internal auditor will subsequently have to audit (conflict of interest);
- Inability to insist on getting significant information because of fears of losing promotion opportunities and job security (lack of independence); Being ignored; Top managers who are engaged in avoiding controls to the detriment of the entity.
- Management and employees do not maintain and demonstrate a positive and supportive attitude toward internal controls;
- Wrong perception of the audit function and auditors by staff of the public body.

Pre audits and Post audits

Auditing especially in government offices takes two forms, commonly referred to as “pre audit” and “post audit.” Pre audit is the examination of transactions before payment. It is the more traditional audit function. Post audit represents an after-the fact examination and is more recent in origin.

Scope and concept of pre audit

The pre audit, perhaps more accurately described as prepayment audit, is generally an integral part of the central accounting and payment process. The basic objectives of pre audit are to provide assurance that; Expenditures are not unreasonable or extravagant;

- Sufficient funds are available to enable payment of the invoice; and there has been compliance with government proclamations, regulations, and directives, procedural and budgetary requirements. It may include an examination of contracts prior to approval and encumbrance, scrutiny of all invoices, and all payrolls before payment.

Limitations of pre audit

Pre audit tends to be clerical and routine in nature. Even the most effective pre audit has significant limitations. For example pre audit procedures may provide adequate assurance that prices shown on invoices for supplies are in accordance with contract prices, but they cannot provide assurance that the supplies were actually needed and efficiently utilized. Previously pre audit was considered as a significant element of internal control. However, through time the internal auditor was considered as a part of management in authorizing payments and as a result of which management tended to rely on the internal auditor instead of discharging its own responsibilities.

Finally, regardless of the effectiveness of pre audit, it must be recognized that the full implications of an Organization basic policy or procedure cannot be discovered through the pre audit piecemeal examination of individual isolated invoices or transactions. Comprehensive audit for financial accountability, efficient performance, or effective programmeme accomplishment must be done through the post audit process.

Scope and concept of post audit

The scope of post audit may be grouped into two general categories:

- Financial accountability and legality – the verification of accounting records and review of internal controls;
- Value for money – the examination of the efficiency, effectiveness and economy of operations which includes the broad examination of the extent to which objectives are accomplished.
- These categories tend to overlap, but they are useful in demonstrating the changing concepts of auditing. The basic limitation of the post audit is that it concentrates on detection of irregularities rather than preventing their occurrence as in the case.

Each hospital should appoint an Internal Auditor who is responsible to conduct regular internal audit as described in the government *Internal Audit Manual*.

The accounts of the hospital should be closed on the last day of the financial year. External audit should be conducted by external auditors from the Office of the Auditor General (Federal or regional Audit office) or other authorized private auditors, approved by the Governing Board, within six months of the closing of the accounts. The audit should consider the recording and bookkeeping system and the

annual retained revenue and expenditure of the hospital. Audit reports should be submitted to the CEO who in turn will present to the Governing Board.

The Health Bureau and BOFED/MOFED have the right to access and investigate all accounting records of health facilities as part of a surprise audit or regular audit.

Section 4 Implementation Checklist and Indicators

4.1 Assessment Tool for Operational Standards

In order to determine if the Operational Standards for health Financing have been met by the hospital an assessment tool has been developed which describes criteria for the attainment of a Standard and a method of assessment. This tool can be used by hospital management or by an external body such as the RHB or FMOH to measure attainment of each Operational Standard. The tool is presented in tool is presented in the Assessment Handbook.

4.2 Implementation Checklist

The following Table can be used as a tool to record whether the main recommendations outlined above have been implemented by the hospital. This tool is not meant to measure attainment of each Operational Standard, but rather to provide a checklist to record implementation activities.

Table 1 Health Financing Checklist

	Yes	No.
1. There are bilingual service fee schedule posters in each service area.		
2. There is a list of exempted services displayed at appropriate locations in the hospital		
3. All type of services provided for eligible health insurance customers that are availed and regularly updated		
4. The Finance sub process prepares monthly reports that are reviewed by the Senior Management Team (SMT) and Governing board (GB).		
5. The Finance sub process prepares and sends complete monthly reports to appropriate bodies.		
6. A cash flow forecast is prepared for the fiscal year, and is updated monthly on the basis of actual cash inflows and outflows.		
7. 7. Internal and external audits are conducted; reports are reviewed by the SMT and GB.		
8. 8. The Hospital makes available the key fiscal information to the public		

9. Few wavier, health Insurance and Exempted services are provided , beneficiaries are registered and reports submitted		
10. The hospital has a private wing procedure for how services are to be provided and compile with the relevant regulations.		
11. An assessment of the feasibility of outsourcing services has been undertaken and project plan developed.		
12. Contractual agreement procedures have been developed that define the outsourcing process and what services are outsourced		

4.3 Indicators

Indicators	Formula	Frequency	Remark
1) Planning and budgeting			
a) Preparation and Approval of Revenue and Expenditure plans	i. Whether revenue and expenditure plans are prepared	Annually	
	ii. Time duration when the plans are prepared	Annually	
	iii. Time duration when the plans are approved	Annually	
2) Revenue Retention			
a) Share of Budget allocated from Treasury source (% of Total Revenue)	i. Allocation from government treasury (ETB)	Quarterly	
	ii. Allocation from government treasury/Total Revenue * 100	Quarterly	
b) Share of Retained Revenue (% of Total Revenue)	i. Amount of actually collected retained revenue (ETB)	Quarterly	
	ii. Retained Revenue collected/Total Revenue * 100	Quarterly	
3) Source of Revenue			
a) Share of revenue collected from out-of-pocket (OOP) payment source	i. Amount of revenue collected from out-of-pocket payment	Quarterly	
	ii. OOP payment/Total Retained Revenue * 100	Quarterly	
b) Share of revenue collected from Community Based Health Insurance (CBHI) source	i. Amount of revenue collected from CBHI	Quarterly	
	ii. Revenue from CBHI/Total Retained Revenue * 100	Quarterly	
c) Share of revenue collected from Social Health Insurance (SHI) source	i. Amount of revenue collected from SHI source	Quarterly	
	ii. Revenue from SHI/Total Retained Revenue * 100	Quarterly	
d) Share of revenue collected from fee	i. Amount of revenue collected from fee waiver service	Quarterly	

waiver service (FW)	ii. Revenue from FWS source/ Total Retained Revenue * 100	Quarterly	
e) Share of revenue collected from credit service	i. Amount of revenue collected from credit service	Quarterly	
	ii. Revenue from credit service/ Total Retained Revenue* 100	Quarterly	
f) Share of revenue collected from private wing service	i. Amount of revenue collected from private wing service	Quarterly	
	ii. Revenue from private wing/ Total Retained Revenue * 100	Quarterly	
4) Budget Utilization			
a)Rate of allocated budget utilization	i. Treasury Budget utilized/allocated budget	Quarterly	
	ii. Total expenditure from Retained Revenue source	Quarterly	
	iii. Retained Revenue utilized/ budget allocated from RR	Quarterly	
b) Proportion of retained revenue spent on quality improving activities	i. Amount spent on drugs and medical supplies/Total Expenditure from RR	Quarterly	Refer to 6214 budget code
	ii. Amount spent on medical equipment/Total Expenditure from RR	Quarterly	Refer to 6313 budget code
	iii. Amount spent on maintenance of equipment and renovation/Total Expenditure	Quarterly	Refer to 6243& 6245 budget codes
	iv. Amount spent on construction of buildings/Total Expenditure from RR	Quarterly	Refer to 6323& 6324 budget codes
c) Proportion of salary expense as % of total treasury budget	i. Total expenditure on Salaries and allowances/Total hospital recurrent expenditure*100	Quarterly	Treasury source
5) Customer Service			
a) Proportion of CBHI beneficiaries visit to total hospital visit	i. Total number of CBHI beneficiaries visit/ total visits* 100	Quarterly	
b) Proportion of SHI beneficiaries visit to total hospital visit	ii. Total number of SHI beneficiaries visit/ total visits* 100	Quarterly	
c) Proportion of reimbursed and rejected claims to total claims submitted	i. Total number of claims submitted	Quarterly	
	ii. Number of claims reimbursed/ total claims submitted	Quarterly	
	iii. Number of claims rejected/total claims submitted	Quarterly	
d) Proportion of health insurance beneficiaries who were forced to buy drugs from outside of the hospital to total health insurance beneficiaries who visited the hospital	i. Number of health insurance beneficiaries who purchased drugs outside of the hospital	Quarterly	
	ii. Number of drug prescriptions purchased from private pharmacies/total prescriptions of insurance beneficiaries	Quarterly	

e) Proportion of fee waiver beneficiaries visit to total hospital visit	i. Total number of fee waiver beneficiaries visit	Quarterly	
	ii. Total number of unde5 fee waiver beneficiaries visit	Quarterly	
	iii. Total number of female fee waiver beneficiaries visit	Quarterly	
	iv. Amount of reimbursement collected from third parties	Quarterly	
f) Proportion of credit service clients visit to total hospital visit	i. Total number of credit service clients visit/ total visits* 100	Quarterly	
g) Proportion of exempted service beneficiaries visit to total hospital visit	ii. Total number of exempted service beneficiaries visit/ total visits* 100	Quarterly	
6) Outsourcing services			
a) Number of non-clinical services contracted out	Number of non-clinical services contracted out	Annually	
7) Budget Utilization Efficiency			
a) Cost per patient-day equivalent	Total recurrent expenditure (Treasury + RR)/ [number of Inpatient days + (OPD visits/4)]	Quarterly	
8) Financial sustainability			
a) Proportion of the compensated amount out of the total exempted fee spending	Amount of drugs and medical supplies donated	Quarterly	
	Amount budget allocated only for exempted services by RHB/FMOH/University	Quarterly	
b) Proportion of reimbursed amount out of the patient total fees waived	Amount of waived fees reimbursed/Total amount of waived fees * 100	Quarterly	
c) Proportion of reimbursed amount out of the patient total claims	Amount of reimbursed fees from schemes/Total amount of claims * 100	Quarterly	
9) Private wing service			
a) Number of private wing attendances (% of total)	i. Number of attendances at private wing	Quarterly	
	ii. Number of attendances at private wing/total number of OPD attendances*100	Quarterly	
	iii. Number of inpatient attendances at private wing/total number of IPD attendances*100		
b) Number of private wing beds (% of total)	i. Number of beds at private wing	Quarterly	
	ii. Number of beds at private wing/total number of beds in the hospital*100	Quarterly	

c) Private wing patients overall rating of private wing	Patient survey. Average rating on a score of 0-10	Biannual	Survey tool presented in Appendix F of <i>Chapter 19 Quality Management</i>
d) Private wing patients willingness to recommend private wing	Patient survey. % of respondents answering 'yes' or 'definitely yes' to the Question "Would you recommend this facility to your family/friends"?	Biannual	Survey tool presented in Appendix F of <i>Chapter 19 Quality Management</i>
e) Number of health professionals serving in private wing (% of total)	Number of health professionals serving in private wing	Quarterly	
	Number of health professionals serving in private wing/total health professionals*100	Quarterly	

Source Documents/References

1. Federal Democratic Republic of Ethiopia. (2006, January). *User's Guide for Procurement of Goods (For National Competitive Bidding)*.
2. Federal Democratic Republic of Ethiopia. (2006, January). *User's Guide for Standard Bidding Document for the Procurement of Works (For International Competitive Bidding)*.
3. Federal Democratic Republic of Ethiopia Ministry of Finance and Economic Development. (1998 EC). *Internal Auditor Standard, Ethical Conduct Guidance and Internal Auditing Manual*. Addis Ababa: Ministry of Finance and Economic Development.
4. Federal Democratic Republic of Ethiopia Ministry of Finance and Economic Development. *Procurement Manual*.
5. Federal Democratic Republic of Ethiopia Ministry of Finance and Economic Development. *Federal Government of Ethiopia Accounting system Volume I Accounting for Modified Cash Transaction Version 1.1*. Addis Ababa: Ministry of Finance and Economic Development.
6. Federal Democratic Republic of Ethiopia Ministry of Finance and Economic Development. *Federal Government of Ethiopia Accounting System volume II Chart 7 Accounting Version 1.1*. Addis Ababa: Ministry of Finance and Economic Development.
7. Federal Democratic Republic of Ethiopia Ministry of Finance and Economic Development. *Federal Government of Ethiopia Accounting system Volume III Accounting for other Assets and liabilities version 1.1*. Addis Ababa: Ministry of Finance and Economic Development.
8. Federal Democratic Republic of Ethiopia Ministry of Finance and Economic Development. (2007, January 12). *Revised Federal Budget Manual (Draft)*. Addis Ababa: Ministry of Finance and Economic Development.
9. Federal Democratic Republic of Ethiopia Ministry of Finance and Economic Development. (2005, July 5). *Federal, Public Government Procurement Directive*. Addis Ababa: Ministry of Finance and Economic Development.
10. Federal Democratic Republic of Ethiopia Ministry of Health. (2005, November 14). *Implementation Manual for Healthcare Financing Reforms Final Document (Revised)*.
11. Federal Democratic Republic of Ethiopia Ministry of Finance and Economic Development. (2007, December). *Government Owned Fixed Assets Management Manual*. Addis Ababa: Ministry of Finance and Economic Development.
12. Office of Public Management NSW Premier's Department SYDNEY NSW 2000.

13. Proclamation No. 57/1996. *Federal Government of Ethiopia Financial Administration* Addis Ababa: Federal Negarit Gazette.
14. Proclamation No. 430/2005: *Determining Procedures of Public Procurement and Establishing its Supervisory Agency*. (2005, January 12). Addis Ababa: Federal Negarit Gazette.
15. Proclamation No.553/2007: *The Ethiopian Federal Government Procurement and Property Administration Proclamation*. (2009, 09 September). Addis Ababa: Federal Negarit Gazette.
16. South Nations Nationalities and People's Regional Government and Health Bureau. (2006, May). *Implementation Manual for Healthcare Financing Reforms*.

Appendices

Appendix B Sample Departmental Fee Waiver Expense Registration Form

_____ **Regional Government** _____ **Woreda** _____ **Hospital/Health Centre**

Fee Waived Patient Charge Form

No	Date	Name of Waived Patient	Card Number	Type of Service Provided	Fee Charged in Birr		Name and Signature of Accountant
1							
2							
3							
4							
5							
6							
7							
8							
Total							

19

Clinical Governance and Quality Improvement

Table of Contents	Page
Section 1 Introduction	19-1
Section 2 Operational standards for Finance and Asset Management	19-2
Section 3 Implementation Guidance	19-3
3.1 Organizational structure for Clinical Governance and Quality Improvement	19-3
3.2 Roles and responsibilities of Clinical Governance and Quality Improvement Unit (CG&QIU)	19-4
3.3 Clinical Governance and Quality Improvement Strategy	19-5
3.4 Clinical process and outcome measures	19-6
3.5 Clinical audit programme	19-9
3.6 Clinical Risk Management	19-14
3.7 Reporting and analysis of incidents	19-16
3.8 Clinical effectiveness	19-18
3.8.1 Clinical Guidelines and Standards	
3.9 Patient focused care	19-20
3.10 Patient and public involvement in healthcare planning and implementation	19-21
3.11 Complaint Handling and Management Procedures	19-23
3.12 Benchmarking	19-24
Section 4 Implementation Checklist and Indicators	19-24
4.1 Assessment tool for Operational Standards	19-24
4.2 Implementation Checklist	19-24
4.3 Indicators	19-26
Source Documents/References	19-28
Appendices	
List of figures	
Figure 1 The PDSA Cycle, a model for Quality Improvement	
Figure 2 Risk Management	
List of tables	
Table 1 Description of the PDSA Cycle	
Table 2 Summary of Qualitative Study Methods	
Table 3 Risk Assessment Matrix	
Table 4 Approaches to Stakeholder Involvement in Healthcare Planning and Delivery	
Table 5 Implementation Assessment Checklist	
Table 6 Indicators	
Boxes	
Box A Selected examples of clinical indicators	

Box B	HMIS/HSTP Clinical Outcome Indicators for Hospitals
Box C	What are incidents, errors and near-misses?
Box D	Selected examples of International and Ethiopian National Evidence Based Clinical Guidelines

Abbreviations

ANC	Antenatal care
ART	Antiretroviral therapy
CEO	Chief Executive Officer
CG&QI	Clinical Governance and Quality Improvement
FMOH	Federal Ministry of Health
HIV	Human Immune Deficiency Syndrome
HMIS	Health Management Information System
OHSO	Occupational Health and Safety Officer
PDSA	Plan, Do, Study, Act
PMTCT	Prevention of mother to child HIV transmission
QC	Quality Committee
RHB	Regional Health Bureau
WHO	World Health Organization

Section 1 Introduction

Clinical Governance is the system through which hospitals are accountable for continuously improving the quality of their services and safeguarding high standards of care, by creating an environment in which clinical excellence can flourish. It is essentially a quality control system that helps hospitals monitor the quality of care they deliver.

Clinical Governance ensures safe, high quality care from all involved in the patient's journey and patients are the main focus and priority. It recognizes the importance of both multidisciplinary teams and the involvement of patients in developing effective hospital care systems. Clinical Governance has several key components and themes, all of which, when effective, combine to make up good clinical governance. Quality Governance ensures high standard of hospital care and encompasses **safety, effectiveness and positive patient experience**. Quality care is not achieved by focusing on one or two aspects of this definition as it encompasses all three aspects with equal importance being placed on each. Quality is a moving target and continuous improvement in quality means that what is considered of an acceptable quality today may not be acceptable this time next year.

The first dimension of quality is to ensure that no harm is done to patients. Researches from America, Australia and the United Kingdom indicates that around 10% of patient contacts result in harm to patients or staff and that half of these harmful or adverse incidents are preventable. The physical and emotional consequences of an incident can be significant for patients, staff and caregivers. Adverse incidents also increase costs for additional treatment, claims and litigation.

Hospital quality governance is focused not only on the quality and safety of healthcare but also the means to achieve this. Hospital Clinical Governance Unit, Senior Management and the Governing Board should ensure that clinical governance systems are in place and should monitor their effectiveness. All staff should participate in clinical governance activities specific to their area of work.

This chapter describes a framework and tools to ensure the clinical governance and quality improvement of hospital services.

Section 2 Operational Standards

1. The hospital has an established Clinical Governance and Quality Improvement Unit that is led by an assigned Senior Physician or General Practitioner.
2. The hospital develops and implements a clinical governance and quality improvement strategy and an operational plan that addresses the key components of quality.
3. Procedures are established to monitor clinical practices and standards through services' specific process and outcome measures to ensure clinical governance and quality improvement problems identified are addressed.
4. The hospital implements a regular clinical audit programme in each service area. Such programme encourages the participation of all clinical staff and includes the implementation of a quality improvement plan derived from audits.
5. Procedures are established to assess and minimize risk arising from the provision and delivery of health care. A system is also in place for reporting and analyzing incidents, errors and near misses.
6. The hospital adopts a statement of patient rights and responsibilities, which is posted in public places in the hospital.
7. The hospital continuously and systematically reviews and improves all aspects of its activities that directly affect patient safety and apply best practice in assessing and managing risks to patients, staff and others.
8. The hospital monitors patients' experiences with care through patient satisfaction surveys conducted on a quarterly basis.
9. The hospital implements a strategy for the involvement of patients and the public in service design and delivery including procedures to be followed when engaging with patients and the public.
10. The hospital develops and implements a strategy to provide patient focused care which incorporates compassion, respect and dignity for patients, effective communication, and better hotel services in the care delivery.
11. The hospital participates in benchmarking activities to learn from and share good practices with other hospitals.

Section 3 Implementation Guidance

3.1 Organizational structure for Clinical Governance and Quality Improvement

The implementation of clinical governance and quality improvement activities in hospitals should be supported by appropriate structures and responsibilities that serve to:

- a. Encourage the participation of all staff in clinical governance and quality improvement processes.
- b. Assign responsibility for clinical governance and quality improvement processes at a senior management team level (an assigned senior physician).

The hospital should establish a clinical governance unit which will be reporting to the Chief Executive Officer (CEO) through the Clinical Governance Unit Head of the hospital. This unit should be led by a senior clinician or a GP in the hospital. He/she will assume the position of the clinical governance director. The director should be selected using the following criteria.

- A leadership capacity
- An excellent clinical skill
- Excellent analytic and research skills
- Commitment

Each clinical department should also establish its own QI team which functions incorporating the various CG&QI activities. Department heads are responsible to ensure that quality activities take place within the different case teams of the department and are responsible to report these activities to the CG&QI Unit. Each clinical department should perform regular auditing of its own performance.

Each department should establish a QI team which will work on improving the quality of services provided in the unit. Department heads should lead the QI team.

3.2 Roles and responsibilities of Clinical Governance and Quality Improvement Unit (CG&QIU)

As outlined above, hospitals should establish a CG&QIU to oversee all clinical governance and quality improvement functions of the hospital. The CG&QIU should be comprised of a director and officers. The CG&QIU should be multidisciplinary, with members from different clinical, administrative and support backgrounds. The director of the CG&QIU should be a member of the hospital senior management team. The CG&QIU director and officers should be full time in their role for CG&QI activities.

Roles of the CG&QI Unit include:

- a) To develop the CG&QI strategy and present to the Senior Management Team for approval,
- b) To develop an implementation plan for the CG&QI strategy and monitor its execution,
- c) To ensure that CG&QI activities relate to the vision and mission of the hospital, and are aligned with the hospital strategic and annual plans,
- d) To co-ordinate all CG&QI activities,
- e) To promote and support the participation of all staff in CG&QI activities,
- f) To receive and analyse feedback information from patients, staff and visitors,
- g) To receive clinical audit reports and maintain a record of all clinical audit activities,
- h) To review selected hospital deaths
- i) To work very closely with the HMIS Focal Officer/Unit in monitoring HMIS performance
- j) To conduct peer review in response to specific quality and safety concerns and to take appropriate action and follow-up when deficiencies are identified, and
- k) To build the capacity of and update hospital staff on quality improvement activities and findings including:
 - a) Comparisons across time
 - b) Comparisons between Case Teams/Departments
 - c) Comparisons with other health facilities.

This unit should work closely with the Medical Director of the hospital as most of the activities are closely related.

Departmental Quality Improvement team

Irrespective of the workload, the hospital should establish a departmental/case team level QI team to undertake some of the above functions, if the hospital has sufficient number of staff. Each departmental QI team should be chaired by the department director and they should provide regular update reports to the CG&QIU. For further reference on the structure of CG&QI and QI activities see *the Clinical Governance and Quality Improvement toolkit*.

3.3 Clinical Governance and Quality Improvement Strategy

The CG Unit should develop and oversee the implementation of the hospital's CG&QI Strategy following its approval by the hospital Senior Management Team. The CG Unit should monitor the implementation of hospital's CG&QI strategy and provide regular reports on implementation to the Senior Management Team. A sample CG&QI strategy is presented in Appendix A

Generally, an effective clinical governance and quality improvement program is underpinned by a cycle of activities involving assessment and problem identification, planning, implementation of an intervention and evaluation. The main steps involved in the cycle are described below.

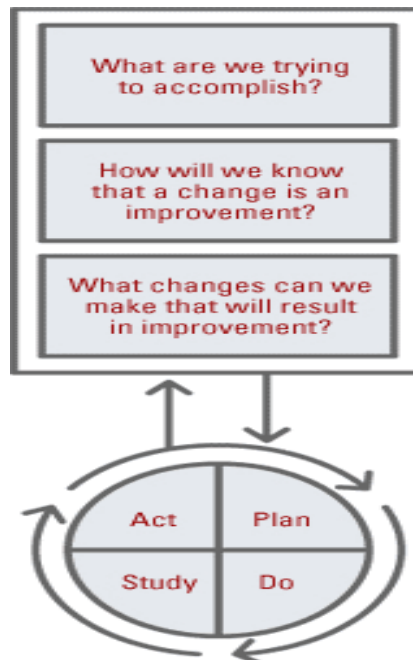


Figure 1 The PDSA cycle, a model for Quality Improvement in Hospitals

Table 1 Description of the PDSA cycle

Plan	Diagnose the situation <ul style="list-style-type: none"> • Define problem and overall objectives • Conduct root cause analysis • Generate alternative interventions, decide how to treat the problem • Conduct a comparative analysis and pick the best solution • Create an implementation plan
Do	Treat the problem – implement the plan Measure while doing/implementing
Study	Evaluate the intervention - Did the solution caused the desired effect?
Act	Revise your intervention based on the evaluation; update or change your plan for intervention as needed.

3.4 Clinical process and outcome measures

Health care managers should ensure the services that they provide for users are, in fact, meeting user needs and being delivered in the most effective and appropriate manner. There is an increasing demand for the development of systems to ensure that clinicians are providing high quality and effective treatments. The measurement of clinical performance (including outcome) is likely to be central to meeting this demand. In this context, providing practitioners with regular feedback on the outcome of their work may well become part of regular personal development reviews of their practice.

The specific outcome measures to be used by particular services or clinicians will be dependent on the purpose for which they are required. Outcome measures are not an end in themselves, but a tool to enable clinicians and others to reflect on their work and to facilitate the improvement of the services provided to users. Examples of uses of outcome measures,

1. To compare outcomes between individual clinicians working in the same service, in order to see if they are achieving comparable results.

2. To compare outcomes between different user groups within the same service; for example, is the service achieving better outcomes for users with depression than those with anxiety or is the outcome significantly different for the several socio economic groups?
3. To provide feedback to a service about the course of response (recovery or deterioration) of those receiving help.
4. As a pointer to the need for further investigation or action as part of a quality improvement process.
5. To contribute to performance monitoring and audit of a service.
6. To contribute to the quality evaluation of individual clinicians' practice, as part of continuing professional development and performance review

Clinical Indicators

Clinical indicators can be used to measure the effectiveness of clinical interventions. Clinical indicators include outcome measures such as mortality or survival rates, complication rates and measures of clinical improvement. Any measure selected must be:

- Valid (does it measure what it is supposed to?)
 - Reliable (is it reproducible when taken at different times or in different circumstances?)
- Sensitive to change (does it discriminate between good and poor quality of care, and can it detect small but worthwhile improvements?)

There are numerous clinical outcome measures. Some are disease or treatment specific while others are generic for a range of diseases or patient groups. Box A gives examples of different types of clinical outcome measures.

Box A Selected examples of clinical indicators

- Inpatient mortality rate
- Disease specific inpatient mortality rate (e.g. Malaria, TB, HIV)
- Post-operative mortality rate
- Post-operative infection rate
- Emergency re-admission rate within 28 days of discharge
- Percentage of all institutional births that are Caesarean Section
- Bed Occupancy Rate
- Average length of stay (in days)
- Emergency patient triaged within 5 minutes

The Health Management Information System (HMIS), has defined a number of clinical outcome measures that should be monitored by health facilities and reported to higher authorities (such as Woreda, Zonal and Regional health offices) and subsequently to the Federal Ministry of Health. The aim of HMIS is to establish a core set of indicators that can be used to monitor implementation of the Health Sector Development Program, progress towards the Millennium Development Goals and other donor programs. However, the most important function of HMIS indicators is to support and strengthen local action-oriented performance monitoring. Hospitals and health offices are expected to analyse and interpret the information, and take appropriate action to address any areas of concern. HMIS clinical outcome indicators for hospitals are presented in Box B. For further discussion on HMIS and hospital monitoring and reporting requirements please see *Monitoring and Reporting* chapter.

Box B HMIS/HSTP Clinical Outcome Indicators for Hospitals

- Contraceptive Prevalence Rate (CPR)
- Unmet need for family planning
- Proportion of women having at least 4 visits of Antenatal Care
- Institutional maternal mortality rate
- Percentage of HIV positive pregnant who received ARV (ART per Option B +) to prevent MTCT of HIV
- Inpatient malaria case fatality rate - < 5 years
- Inpatient malaria case fatality rate - >= 5 years
- % ANC attendees receiving PMTCT
- % HIV positive women delivered in facility and received full course of HIV prophylaxis
- Met need for emergency obstetric care (EmOC) service
- TB case detection rate for all forms of TB
- TB treatment success rate
- Prevalence of Hypertension
- Prevalence of Diabetes

Source: Health Management Information System/Monitoring and Evaluation. Health Sector Transformation Plan FMOH, September, 2015.

The Senior Management Team must ensure that clinical outcomes are monitored within the hospital, and that timely action is taken to address any problems identified. In addition to the HMIS indicators, hospitals may select additional clinical indicators for monitoring on a quarterly or annual basis. These indicators should be selected in consultation with clinical staff and may be modified over time in accordance with local priorities. Selected clinical indicators should be included within the Balanced Scorecard and monitored by the Governing Board on a regular basis (see *Monitoring and Reporting* chapter).

Therefore, hospitals need to establish a clinical process and outcome measure mechanism to ensure that the services provided for service users are indeed effective.

3.5 Clinical audit programme

A further tool to ensure clinical effectiveness is clinical audit. Clinical audit can be defined as “a quality improvement process that seeks to improve patient care and outcomes through systematic review of care against explicit criteria and the

implementation of change”. Clinical audit aims to ensure that all patients receive the most effective, up to date and appropriate treatments, delivered by clinicians with the right skills and experience. Clinical audit against good practice criteria or standards answers the question – are patients given the best care?”

Hospitals should, therefore, establish and implement a clinical audit programme with clearly identifiable service areas to be audited.

Clinical audit involves 5 main steps:

1. Plan for audit

For successful clinical audit, adequate preparation or planning is very important. Planning involves the following three essential components.

- Identifying stakeholders; who will participate in the audit activity. These are those personnel closely related with the activity both the service providers and the users. Additionally, including head or lead of the unit where the audit is conducted will be beneficial.
- Identifying audit topic, it is necessary to decide in advance on what topic the audit is going to be done. In situations where there are several topics, the audit team should prioritize in order to use resources efficiently.
- Planning the delivery of audit field work; the objective of the audit should be clearly understood by all stakeholders, the skills and people needed for the audit should be identified, all staff should be appropriately trained and briefed with regard to their role and a comprehensive audit proposal should be developed with adequate resources and defined timetable.

2. Identify/develop standards or criteria for clinical care in selected area

Standards/criteria that could be considered include:

- National or international drug treatment guidelines,
- National or international diagnostic and treatment guidelines, and
- ‘Best practice evidence’ identified through literature review.

3. Assess current practice against standards

This can be done by retrospective or prospective case note review, direct observation, questionnaire survey or interview.

4. Take action to address identified deficits in clinical care (Conduct QI activities)

If the audit identifies that ‘best care’ is not being achieved the reasons why should be investigated and steps put in place to correct this. Qualitative methods, such as those described in Table 2 below can be used to investigate further. Investigation should involve discussion amongst all relevant stakeholders (for example physicians, nurses, pharmacy, laboratory, case teams, hospital management) to ensure that the problem is addressed comprehensively. The findings of qualitative studies should be used to make recommendations for change in practice.

Table 2 Summary of qualitative study methods

METHOD	ADVANTAGES	DISADVANTAGES
<p>Focus Group Discussion</p> <ul style="list-style-type: none"> • < 2-hour recorded discussion • 6–10 non-random respondents • 2–4 discussions for each significant target population • Moderator leads discussion Respondents have similar characteristics e.g. age, gender, social status • Discussion topics pre-defined • Informal, relaxed, ambient • Reveals beliefs, opinions and motives 	<ul style="list-style-type: none"> • Inexpensive • Quick • Easy to organize • Identifies a range of beliefs 	<ul style="list-style-type: none"> • Groups may not represent the larger population • Successful outcome is very dependent on the skills of the moderator who must balance outspoken participants against shy ones. • Tape recorders may inhibit participants but a note-taker may miss some data
<p>In-depth Interviews</p> <ul style="list-style-type: none"> • One-to-one extended interview • Questions are pre-determined but open-ended • Often covers up to 30 topics 	<ul style="list-style-type: none"> • Can reveal unsought but significant data 	<ul style="list-style-type: none"> • May generate lots of data which are difficult to manage • Time-consuming and expensive • Bias due to respondent saying things to please the interviewer

<ul style="list-style-type: none"> • Reveals beliefs, attitudes, and knowledge 		<ul style="list-style-type: none"> • Different interviewers may interview differently
<p>Structured Observation</p> <ul style="list-style-type: none"> • Data collection instrument is structured • Observers are trained to blend into their surroundings • Observers are trained to record what they actually see • Useful for recording provider – patient interactions • Assesses actual behaviour 	<ul style="list-style-type: none"> • Observes actual behaviour as opposed to stated behaviour, which may not be the same 	<ul style="list-style-type: none"> • May be time consuming and expensive • Observation may cause change in the behaviour of health workers • Different observers may observe differently
<p>Structured Questionnaires</p> <ul style="list-style-type: none"> • Questions are standardized with a fixed set of responses or options • Respondents are selected so as to represent the larger population • Useful for a large sample of respondents • Measures the frequency of attitudes, beliefs, and knowledge 	<ul style="list-style-type: none"> • Can generalize the results to the wider population 	<ul style="list-style-type: none"> • Interviewers may ask questions and interpret answers incorrectly • Different interviewers may ask questions differently • Questions may be ambiguous • Respondents may give answers to please the interviewer

Corrective measures will vary from situation to situation but might involve staff training, providing ‘aide memoires’ for staff, developing and implementing clinical guidelines or ensuring the availability of appropriate drugs or diagnostic procedures.

5. Re-assess practices against standards (Sustain improvements)

After the corrective measures have been put in place, the audit should be repeated to measure the impact of the interventions and identify whether further action is needed.

Clinical audit provides a forum for the participation of all clinical staff in quality improvement activities and is an ideal mechanism for multidisciplinary team members or specific clinical department staff to work together to improve performance. Ideally all clinical staff should take part in at least one clinical audit project each year and the audit findings should be shared across the hospital. All hospital staff should be encouraged to identify possible audit projects, based on their observations of clinical activity and patient outcomes within the hospital. Similarly, hospital management may recommend a specific audit project in response to reported clinical outcome measures. For example, if a high or increasing post-operative infection rate is detected through regular reporting, hospital management may request an audit of the use of prophylactic antibiotics for surgical cases, seeking to identify whether appropriate use was being made of antibiotics in accordance with national or international guidelines.

The Clinical Governance Unit should receive copies of all completed Clinical Audit Reports and should keep a record of all clinical audit projects undertaken. Participation in clinical audit could be used as a performance measure when staff members undergo performance based evaluation, or when assessing the contribution of specific departments or case teams to the hospital's strategic plan.

If possible, a clinical audit officer should be appointed by the hospital to support audit activities. The audit officer would support clinical staff to design audit protocols and data collection tools and would undertake data entry and analysis in consultation with clinical staff. If it is not possible to appoint an audit officer then hospital management should ensure that all necessary equipment and supplies (stationary, access to photocopier, access to computer) are available to staff undertaking audit activities.

The Clinical Governance Unit should ensure that clinical audit activities are undertaken within the hospital. The Governing Board may choose to include the number of audit projects completed as an indicator on the Balanced Scorecard described in the *Monitoring and Reporting chapter*. Also see the Clinical Governance and Quality Improvement toolkit.

3.6 Clinical Risk Management

Risk can be defined as ‘the likelihood, high or low, that somebody or something will be harmed by an unwanted event or incident, multiplied by the severity of the potential harm’. Clinical risk management (CRM) is an approach to improving the quality and safe delivery of health care by placing special emphasis on identifying circumstances that put staff/patients at risk of harm and acting to prevent or control those risks.

Risk management involves assessing the environment for potential risks to patients and staff then taking action to minimize any risks identified. The process of risk management seeks to answer four simple, related questions:

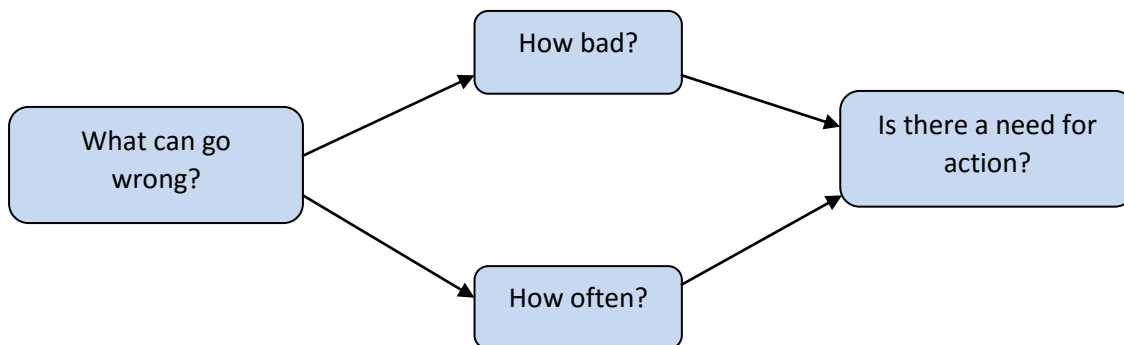


Figure 2 Risk management

Risk management proactively reduces identified risks to an acceptable level by creating a culture founded upon assessment and prevention, rather than reaction and remedy.

Risk assessment looks at:

- Hazards – which are situations with the potential to cause harm; and
- Risks - which are defined as the probability that a specific adverse event will occur in a specific time period or as a result of a specific situation.

Risk assessment involves 5 steps

Step 1 Identify the hazards (what can go wrong?): Take into account the things that have gone wrong in the past and near miss incidents. Walk around the workplace and

talk to patients and staff. Map or describe the activity to be assessed. It may be necessary to involve a multidisciplinary team.

Step 2 Decide who might be harmed and how (what can go wrong, who is exposed to the hazard)?

Step 3 Evaluate the risks (how bad? how often?) and decide on the precautions (is it necessary to take further action?) A risk matrix, such as that presented in Table 3 below can be used to evaluate the risks

Step 4 Record the findings, proposed action and identify who will lead on each action

Step 5 Review the risk assessment and update if needed

Table 3 Risk Assessment Matrix

Consequence	Catastrophic	Yellow	Orange	Red	Red	Red
	Major	Yellow	Orange	Orange	Red	Red
	Moderate	Green	Yellow	Orange	Orange	Red
	Minor	Green	Yellow	Yellow	Orange	Orange
	Negligible	Green	Green	Green	Yellow	Yellow
		Rare	Unlikely	Possible	Likely	Almost certain
Likelihood						

Low risk (green) – quick, easy measures should be implemented immediately and further action planned when resources permit.

Moderate risk (yellow) – actions should be implemented as soon as possible, but no later than one year.

High risk (orange) – actions should be implemented as soon as possible, but no later than six months.

Extreme risk (red) – action should be taken immediately.

Hospitals should establish systems to regularly assess risk arising from the provision and delivery of healthcare and should ensure that steps are taken to minimize risk. Each case team/department should regularly (for example quarterly) conduct a risk assessment and identify actions to minimize risk to patients. The whole team should be involved in the

risk assessment in an open, learning environment. Areas that could be considered by the case team include, but are not limited to:

- The physical environment – is it clean, safe, free from hazards such as broken furniture or equipment?
- Are emergency exits clearly labelled and free from obstruction?
- Are infection prevention policies and procedures implemented adequately?
- Hazardous materials – are these stored safely and securely?
- Is all equipment in good working order, is maintenance required to minimize errors and breakdowns?
- Are policies for medication administration implemented to minimize drug error?
- Are policies for laboratory sample collection, analysis and reporting implemented to ensure that the correct specimen is taken from the correct patient and that accurate results are obtained and reported in a timely manner?
- Are clinical guidelines adhered to in order to ensure evidence based clinical practice?

A ‘Safety Walk-Round’ is a second approach to Risk Management. A ‘Safety Walk-Round’ is where a group of hospital leaders/quality team members and other staff visit areas of the hospital and ask front-line staff about specific events, contributing factors, near misses, potential problems and possible solutions. The leaders then prioritize the events and the case team/department is asked to develop solutions. The information gathered in this process often has the solution embedded in the event description. Thus, this process can often result in prompt changes that improve care and safety. It also can lead to culture change, as the concerns of front-line staff are addressed and as front-line staff are engaged in continuous observation of hazards and solutions for discussion with senior leadership. Leadership Walk-Rounds are a low-cost way to identify hazards of concern to front-line staff and make needed changes. They require no additional staff, equipment, or infrastructure.

3.7 Reporting and analysis of incidents

Hospitals should establish systems to report, analyse and learn from adverse events and service failures that involve risk to patients, visitors and/or staff. Each event is unique. However, there are often similarities and patterns in the sources of risk, which may go

unnoticed if they are not reported and analysed. Reporting of incidents, errors and near-misses helps us to understand why things have gone wrong and to take action to minimize the risk.

Box C what are incidents, errors and near-misses?

1. **Incident:** an unintended or unexpected event that led to patient/staff harm, including death, disability, injury, disease or suffering
2. **Error:** a slip, lapse, mistake or violation that leads to an incident
3. **Near-miss:** any situation that could have resulted in an incident, but did not due to either chance or intervention.

A systems approach to looking at incidents recognises that *human beings make mistakes* and accepts that some errors will happen in the best run health systems in the best organisations. This approach *moves away from blaming individuals* and instead focuses on incidents as a source of learning for change.

Taking a systems approach to looking at patient safety involves looking at what factors contribute to incidents and asking:

- What went wrong?
- Where did it happen?
- Why did it happen?

Once the causes are identified action can then be taken to minimise or prevent the incident happening again. This may involve staff training, development of protocols, or the implementation of defence mechanisms or safeguards such as double checking with colleagues, effective labelling of medications, locked cupboards, pharmacy sign-out etc.

A *successful reporting and learning system* to enhance patient safety should ensure that:

- Reporting is safe for the individuals who report,
- Reporting leads to a constructive response,
- There is expertise to analyse reports, and
- Information and recommendations arising from incident reports are disseminated.

All staff should be encouraged to report incidents, errors and near misses. If necessary this may be done confidentially to encourage reporting of all incidents without any fear of blame or recrimination that might prevent reporting. A sample Incident Report Form is presented in Appendix D

An Incident Officer should be assigned to receive and investigate all Incident Reports. The duties of the Incident Officer in relation to Incident Reporting should be clearly defined in his/her job description. The Incident Officer should be a member of the Clinical Governance and Quality Improvement Unit.

The Incident Officer should investigate all reports received, ideally in collaboration with the relevant Case Team/Department Head. He/she should determine whether further action is necessary. The Clinical Governance and Quality Improvement Unit should receive regular summary reports of all incidents reported.

NB: If an incident involves injury to a staff member the Occupational Health and Safety Officer (OHSO) should also be informed of the incident by the Incident Officer. For further guidance on the role of the OHSO please see *Human Resource Management chapter. .*

3.8 Clinical effectiveness

Clinical effectiveness is the extent to which specific clinical interventions do what they are intended to do, i.e. maintain and improve the health of patients securing the greatest possible health gain from the available resources. Clinical effectiveness can be described as the right person doing:

- the right thing (evidence based practice)
- in the right way (skills and competence)
- at the right time (providing treatment/services when the patient needs them)
- in the right place (location of treatment/services)
- With the right result (clinical effectiveness/maximizing health gain).

Clinical effectiveness depends on *adequatem manpower and resources, including equipment and drugs*. It also requires that *health professionals have up-to-date knowledge* of the most effective diagnostic tests, treatments and procedures.

3.8.1 Clinical Guidelines and Standards

Important tools to support clinical effectiveness include evidence based guidelines and clinical standards. Such tools are particularly important where there is variation between hospitals or geographical areas in clinical outcomes or access to treatments.

Clinical guidelines and standards may be developed internationally, nationally or locally. At hospital level, local guidelines may be developed to address an area of uncertainty or disagreement in clinical practice, or where clinical outcomes are poor. The development of clinical guidelines involves a critical appraisal of the literature, combined with the views of experts in the particular field. Examples of both International and Ethiopian evidence based guidelines are presented in Box D.

Box D Selected examples of International and Ethiopian National Evidence Based Clinical Guidelines

International:

Managing Complications in Pregnancy and Childbirth: A guide for midwives and doctors. World Health Organization, Geneva, 2007

Pocket Book of Hospital Care for Children: Guidelines for the management of common illnesses with limited resources. World Health Organization, Geneva, 2013.

WHO guidelines for safe surgery: safe surgery saves lives. World Health Organization, Geneva, 2009.

Guideline on when to start Anti-Retroviral therapy and on Pre exposure Prophylaxis for HIV. World Health Organization, Geneva, 2015.

National:

National Malaria Guidelines. Federal Democratic Republic of Ethiopia, Ministry of Health, Addis Ababa, January 2012.

Standard Treatment Guidelines for health centers, Primary Hospitals and General Hospitals FMHACA, January 2010

Guidelines for Management of Opportunistic Infections and ART. Federal HIV/AIDS Prevention and Control Office, 2007.

Health professionals have a duty of care to follow national and local clinical guidelines and standards. Each hospital should establish a process to monitor adherence to clinical guidelines. This may be done through clinical audit (See clinical audit section above).

3.9 Patient focused care

Patient focused care includes the quality of *caring* – the compassion, dignity and respect with which patients are treated. Every patient wants to be treated as an individual, and has the right to courtesy, respect, privacy and confidentiality and to receive full information about their condition, investigations provided and treatments offered. Patient focused care involves planning and delivering quality care as a partnership between staff, patients and caregivers.

The effective management of every patient is made up of a mix of professional skill and compassion. It requires a careful balance of:

- Consideration,
- Talking and Listening.

Hospitals should adopt a statement of patient rights and responsibilities. This should be readily available to patients, for example by posting in the outpatient department or inpatient wards. All staff should be aware of the Statement of Patient Rights and Responsibilities to ensure that they treat patients in a manner consistent with the Statement. An example of a Statement of Patient Rights and Responsibilities is presented in Appendix E.

Patient focused care also includes the quality of “hotel” services provided to patients such as housekeeping, nursing, laundry, food services etc. The hospital should ensure that these services are provided to a high standard within the available budget, using opportunities to outsource these services to ensure cost efficiency and to improve quality. For further guidance on the outsourcing of non-clinical services Hospital Financing and Asset Management chapter.

Patient focused care can only be improved by analysing and understanding patients' satisfaction with their own experiences. Hospital management and the Governing Board should monitor patients' perspectives on their care through Patient Satisfaction Surveys. Appendix F Contains both Inpatient and Outpatient Satisfaction Surveys that have been developed, piloted and validated in Ethiopian hospitals. Patient surveys should be conducted on a regular basis and summary results reported to the Governing Board. The summary results can be included in hospital's BSC (See *Monitoring and Reporting chapter*). Additionally, staff attitudes and relationships with patients and caregivers should be a component of performance based evaluation (see *Human Resource Management chapter*).

3.10 Patient and public involvement in healthcare planning and implementation

Health services should be tailored to the needs and expectations of the population served. The perspective of patients and the public can help identify what does and doesn't work in the delivery of treatments and services.

Before involving patients and the public it is important to identify:

- What you want to know,
- Why you want their views,
- How you will use their views, and
- What the patient and service will gain from this involvement.

Involvement of patients and the public can take place in three ways:

- **Informing:** where people passively receive information,
- **Consulting:** where the users of a service are asked to give information or advice,
or
- **Partnership:** involving the public as partners in decision-making.

Decisions about the level of involvement will influence both who is involved and the approach to be taken. For example, if the objective is to give the public information about the appropriate management of diarrhoeal disease this may be done through posters

placed in the community or at the hospital, or through hospital or community based health education lectures. On the other hand, if the objective is to involve the community in the establishment of a new child health clinic this may be done through focus groups, questionnaire survey or participatory public meetings. Each situation will require involvement to be tailored for the purpose.

Using more than one approach will give more people a chance to participate. Every approach has strengths and weaknesses and some may overlap. Table 5 describes different approaches to stakeholder involvement.

Table 4 Approaches to stakeholder involvement in healthcare planning and delivery

Approach	Activity
Informing	<ul style="list-style-type: none"> • Patient information leaflets • Poster displays in hospital or community • Publications in local press • Presentations at public meetings
Consulting	<ul style="list-style-type: none"> • Patient satisfaction surveys • ‘Suggestion boxes’ • Complaints procedures • Participatory public meetings • Patient interviews • Focus groups
Partnership	<ul style="list-style-type: none"> • Community representation on hospital Governing Board • Stakeholder membership of service or hospital planning committees

The process of patient and public involvement may be on a one-off basis, or an ongoing process depending on the circumstances. Whatever approach is taken it should be planned carefully and the outcomes monitored so that it is known whether the goals have been achieved.

3.11 Complaint Handling and Management Procedures

Hospitals should establish a policy for receiving complaints from patients and or the public. The policy should describe: the responsible person to receive complaints, the process by which complaints will be investigated, and the process by which the complainant will receive feedback. The number of complaints received and the percentage of those that were upheld (i.e. where the investigation of the complaint found that the complainant had a valid concern) could be included as an indicator in the Balanced Scorecard and reviewed by the Governing Board on a regular basis (see *Monitoring and Reporting Chapter*).

Complaints provide unique information about the quality of health care from the perspective of patients/clients. Management of a complaint provides the opportunity for complainants to have their issues resolved effectively, ensures that any identified risks are managed appropriately and that action is taken to minimise or eliminate those risks. A key component of complaint management is the systematic recording of issues, risks, complaints, and their resolution.

Complaint Handling Principles

The following are the guiding principles for complaint handling in health care facilities:

- 1. Health care facilities are committed to patients/clients and quality improvement.*
- 2. Patients/clients are encouraged and enabled to provide feedback about the service, including complaints.*
- 3. All complaints are acknowledged and responded to promptly and sensitively.*
- 4. Complaints are assessed by considering risk factors, the known facts, the wishes of the complainant and accountability of staff.*

Adapted from New South Wales, Ministry of Health, Complaint Management Policy

Hospitals should provide a single, publicly recognisable point of contact (a focal person or committee could be established) for the receipt and management of serious complaints from members of the public users and staff, regardless of whether those complaints are of

a clinical or non-clinical in nature. See a sample complaint management procedure Appendix G.

3.12 Benchmarking

Benchmarking involves comparing one or more hospitals with each other on a range of measures. Differences between them can then be investigated so that good practice can be shared. Benchmarking should be a supportive and learning process led by hospitals themselves. It is distinct from hospital ranking, whereby hospitals are assessed by an external body and ‘good performing’ and ‘poor performing’ hospitals are identified. Instead, benchmarking is a tool to facilitate shared learning among hospitals in a non-critical environment.

Hospitals should participate in benchmarking activities and develop networks to learn from and share good practice with each other. There are a variety of ways in which this can be done such as hospital twinning, mentoring of management or professional staff, benchmarking clubs, exchange visits, master classes etc. The impetus to search for good practice must come from within the organization and be part of its culture.

Section 4 Implementation Checklist and Indicators

4.1 Assessment Tool for Operational Standards

In order to determine if the Operational Standards of Clinical Governance and Quality Improvement have been met by the hospital an assessment tool has been developed which describes criteria for the attainment of a Standard and a method of assessment. This tool can be used by hospital CG&QIU or by an external body such as the RHB or FMOH to measure attainment of each Operational Standard. The tool is presented in the *Monitoring and Reporting chapter 20*.

4.2 Assessment Checklist

The following Table can be used as a tool to record whether the main recommendations outlined above have been implemented by the hospital. This tool is not meant to measure

attainment of each Operational Standard, but rather to provide a checklist to record implementation activities.

Table 5 Clinical Governance and Quality Improvement Assessment Checklist

		Yes	No
1.	The hospital has a Clinical Governance and Quality Improvement Unit (CG&QIU) that is led by an assigned Senior Physician or General Practitioner?		
2.	The CG&QIU establishes and leads a multidisciplinary Quality Committee?		
3.	The hospital is implementing a clinical governance and quality improvement strategy and an operation plan that addresses the key components of quality?		
4.	Are procedures established to monitor clinical practices and standards through services' specific process and outcome measures to enable the hospital to address any problems identified?		
5.	Is the hospital implementing a regular clinical audit programme in each service area?		
6.	Are procedures established to assess and minimize risk arising from the provision and delivery of health care?		
7.	A system in place for reporting and analyzing incidents, errors and near misses?		
8.	Is the hospital's statement of patient rights and responsibilities posted in public places in the hospital?		
9.	Is the hospital monitoring patients' experiences with care through patient and satisfaction surveys conducted on a quarterly basis?		
10.	Has the hospital developed and implementing a strategy to provide patient focused care which incorporates compassion, respect and dignity for patients, effective communication, better hotel services and involvement of patients in the care delivery?		
11.	Is the hospital participating in benchmarking activities to learn from and share good practice with other hospitals?		

4.3 Indicators

In addition, the following indicators may be monitored on a regular basis to assess the effectiveness/outcomes of implementation of the recommendations provided in this chapter.

Table 2 Clinical Governance and Quality Improvement Indicators

	Indicator	Formula	Frequency	Comment
1	Inpatient mortality rate	Number of IPD deaths / Total number of admissions * 100	Quarterly	HMIS
2	Proportion of maternal deaths	Number of maternal deaths/total number of deliveries*100	Quarterly	HMIS
	Pressure sore incidence rate	Number of pressure sores/number of admissions*100	Quarterly	KPI
3	Number of Incidents reported by Inpatient Department/Case Team	Number of Incidents reported to Incident Officer by Inpatient Department/Case Team	Quarterly	KPI
4	Inpatient incident rate	Number of incidents reported by Inpatient Department/Case Team/ Total number of admissions*100	Quarterly	KPI
5	Emergency re-attendance rate within 28 days following ER attendance	Number of emergency re-attendances/Number of attendances in same time period *100	Quarterly	KPI
6	Number of clinical audits completed by Emergency Department/Case Team	Number of completed audit reports submitted to Quality Committee by Emergency Department/Case Team	Quarterly	KPI
7	Number of clinical audits completed by Outpatient Department/Case Team	Number of completed audit reports submitted to Quality Committee by Outpatient Department/Case Team	Quarterly	KPI
8	Number of clinical audits completed by Outpatient Department/Case Team	Number of completed audit reports submitted to Quality Committee by Inpatient Department/Case Team	Quarterly	KPI
9	Number of complaints received against Outpatient Case Team	Total number of complaints received in relation to outpatient services	Quarterly	KPI

10	Number of Public Forums conducted	Total number of public forums conducted by the hospital	Biannually	KPI
11	Proportion of managed clinical risks	Number of clinical risks managed/total number of identified risks *100	Quarterly	KPI

Source Documents

1. Department of Health. (2000). *An Organisation with a Memory*. London, England: Her Majesty's Stationary Office.
2. Donabedian, A. (1980). *Explorations in Quality Assessment and Monitoring. The Definition of Quality and Approaches to its Assessment. Vol. I*. Ann Arbor, MI: Health Administration Press.
3. Federal Democratic Republic of Ethiopia Ministry of Health. (2008, January). *Health Management Information System/Monitoring and Evaluation. Strategic Plan for the Ethiopian Health Sector*. Addis Ababa, Ethiopia.
4. Federal Democratic Republic of Ethiopia Ministry of Health. (2008, August). *Performance Monitoring and Quality Improvement Guideline for the Ethiopian Health Sector*. Addis Ababa, Ethiopia.
5. Haynes AB, et al. A Surgical Safety Checklist to Reduce Morbidity and Mortality in a Global Population. *New England Journal of Medicine*, 2009; 360:491-9.
6. Institute of Medicine. (1999). *To Err is Human. Building a Safer Health System*. Washington, DC: National Academy Press.
7. NHS Quality Improvement Scotland. (2005). *National Standards. Clinical Governance and Risk Management: Achieving Safe, Effective, Patient-Focused Care and Services*.
8. Standards Australia and Standards New Zealand. (2004). AS/NZS 4360:2004. Risk Management. Sydney, NSW. ISBN 0 7337 5904 1.
9. World Health Organization. World Alliance for Patient Safety. (2005). *WHO Draft Guidelines for Adverse Event Reporting and Learning Systems. From information to action*. . Retrieved from:
http://www.who.int/patientsafety/events/05/Reporting_Guidelines.pdf.
10. World Health Organization. Patient Safety, World Alliance for Safer Healthcare.(2009). *Implementation Manual Safe Surgery Checklist 2009*. Retrieved from:
http://whqlibdoc.who.int/publications/2009/9789241598590_eng.pdf.
11. World Health Organization. (2009) *WHO Guidelines for Safe Surgery 2009: Safe Surgery Saves Lives*. Retrieved from:
http://whqlibdoc.who.int/publications/2009/9789241598552_eng.pdf.

Appendices

**Appendix A Sample Clinical Governance and Quality
Management Strategy**

RHB Logo

Name of Hospital

**Clinical Governance and Quality
Improvement Strategy**

Regional City:

Date:

Introduction

The (name and chapter number) of the Federal Ministry of Health (FMOH)'s Hospital Transformation Guidelines 2015 outlines the need for hospitals establish, implement and monitor the implementation of a Clinical Governance and Quality Improvement Strategy which “focuses on outcomes and the quality standards that deliver them” and states “improvement in quality process and outcome measures as the primary purpose of all public hospitals ‘care.’”

The FMOH has also developed Data Quality Assurance (DQA) Guidelines and Healthcare Management Information System (HMIS) operating at national, regional and hospital levels with the aim of improving the quality of care while making efficiency savings that can be reinvested in the service to deliver year on year quality improvements. All hospitals are encouraged to review the way that they deliver care within services and across services and to work collaboratively to improve quality and the patient's experience.

This strategy details the approach to quality improvement that (name of hospital GB and senior management team through its CG&QIU) are taking over the next (state number of years here) year/s in order for us to achieve our vision of being:

(State the hospital's vision here).

- The service of choice for service users
- The employer of choice for staff
- The hospital of choice for the public at large

The strategy builds on our success of good quality service delivery and utilises our existing culture of innovation and continuous improvement. It details the approach to quality improvement both for clinical quality improvement and also for quality improvement in our non-clinical services that provide services to our customers (usually patients and their relatives, our government agencies, clinical and managerial staff) in order for us as a hospital to truly achieve our mission.

(*State your mission here*) for example- “Enabling people with health problems to live life to the full”.

Aim of the strategy

The aim of our Clinical Governance and Quality Improvement strategy is to shape the culture within (*Name of hospital here*) so that quality continues to be the top priority and that everyone in the hospital understands the important part that they play in the provision of excellent quality service delivery.

In order to achieve this aim our approach will be focussed on:

- The provision of high quality to our service users;
- The provision of a good employment experience for our staff;
- The achievement of our regulatory requirements; and
- Development and innovation.

In order to achieve this ambition we must continue to place quality as a key hospital’s corporate and clinical governance objective and ensure that all staff in clinical and non-clinical roles and services understand their role in the delivery of quality services and have quality as a key personal objective.

Key steps to achieving this strategy

The major steps in us achieving the hospital’s Clinical Governance and Quality Improvement(CG&QI) are as follows:-

- Set specific aims around quality improvement and overseeing their achievement at the highest level of governance through our CG&QI Unit;
- Link quality improvement initiatives to hospital services’ programmes;
- Develop and resource a Clinical Governance and Quality Improvement Unit to provide leadership, support, tools and services at all service levels in the hospital;
- Engage all of the SMT and relevant staff in the hospital’s quality agenda;
- Effectively measure quality processes and outcomes and experience to ensure that we understand how well we are doing in achieving our ambition; and

- Building improvement capability across the h and support individuals and teams with coaching for improvement.

(Name of Hospital Here) prides itself on being innovative and developmental. We have a structured change management programme that supports our hospital to achieve its ambitions. This Quality Improvement Strategy provides a framework that links quality improvement to the change management programme so that we are all focussed in our improvement efforts in the ultimate aim of improving the quality of service provision.

Our commitment to good governance and of Quality service delivery

Quality

We are committed to quality care that is:-

- **Safe care** – provided in a safe environment, minimal risk to service users and staff.
- **Person centred** – personalised, equitable, open and honest, focussed on achieving agreed person-centred outcomes and maintaining individuals' privacy and dignity and for non-clinical services, customer focussed by providing excellent customer service for our staff.
- **Efficient and effective** – Timely, Consistent, evidence based, lean, value for money.

And by adopting these principles we are all committed to providing, to the very best of our ability, an excellent experience for our patients, service users (and carers) and staff.

Clinical Governance

Clinical governance has been described as “A system through which hospitals are accountable for continuously improving the quality of their services and safeguarding high standards of care by creating an environment in which excellence in clinical care can flourish⁵.”

The clinical risk management and audit programmes, supported by the clinical governance and quality improvement unit team, and provides opportunities to identify areas of good practice that can be spread across the hospital and areas of focus for quality improvement activities.

⁵Scally G and Donaldson LJ (1998) Clinical governance and the drive for quality improvement in the new NHS in England. [British Medical Journal](#) 317(7150) 4 July pp.61-65.

Each service area staff are encouraged to mitigate all risks and identify priority areas of clinical audit activities and these will be linked through to the priority areas identified within this strategy.

By adopting a culture of continuous quality improvement as described in this strategy, our hospital will be able to provide evidence of our performance.

Practice Effectiveness

A simple definition of clinical effectiveness is the provision of services that are effective both in terms of results and cost⁶. There are three major elements to the FMOH's guidelines for achieving greater clinical effectiveness.

- *Inform* - Making sure that high quality is available on which clinical and management decisions can be based.
- *Change* - Realigning services so that they are based on sound evidence of results and cost effectiveness.
- *Monitor* - Constantly assessing and reassessing services to ensure that change results in improvements.

The FMOH believes that clinical effectiveness is about the right person, doing the right thing at the right time and place and getting the right results at the right cost for the benefit of the service users. However, it is important to understand that the delivery of such services is far more complex.

Quality Improvement

As a learning hospital, we encourage all of our staff and service users to make suggestions for quality improvement and be involved in implementing the great ideas that are adopted.

Our philosophy is:

- Quality Improvement occurs as near to patients, as possible;

⁶ Department of Health (2006) Best Research for Best health: A new national health research strategy.

- Quality is everybody's business;
- The quality of non-clinical services is as important as the quality of clinical services in the delivery of our commitment; and
- Support for quality improvement is available to ensure change initiatives are successfully implemented.

The Clinical Governance and Quality Improvement Unit (CG&QIU)

The CG&QIU provides leadership, support, tools and services to all parts of the hospital to enable us to:

- Provide high quality services to our patients.
- Develop and innovate.
- Meet our governmental agencies (Regional and Federal)' requirements.

Our CG&QIU supports front line staff and managers in four ways:-

- Routine support, ensuring good quality service delivery.
- Support to ensure compliance with national, regional and hospital level performance targets.
- Tools and facilitation to support improvement and innovation.
- Horizon scanning to know what's new and considers how we respond.

The responsibilities of staff, CG&QIU's, SMT and Governing Board

Clinical staff:

Safe: Frontline staff are expected to work in a manner that will minimise risk to patients, themselves and the public. If a failure does occur then staff are expected to be open and honest about the failure, report it, learn from the experience and implement any changes required to ensure it does not occur again.

All staff have a responsibility to work to the policies and procedures of the hospital in order to protect patients, carers and themselves from unnecessary harm.

Frontline staff are expected to complete clinical records of all interventions and to undertake all the appropriate actions required that ensure safe practice around information governance.

Person centred: All staff have a responsibility to work in partnership with patients and their carers to ensure that each person is offered the services that they individually require, and that patients and their carers are engaged in deciding the appropriate treatment for their condition through giving of appropriate information in a way that can be understood and working with carers if the patient does not have the capacity to consent.

All staff have a responsibility to ensure that all interactions with patients and carers are undertaken with respect for the individuals. The privacy and confidentiality of the individual is critically important and staff have a responsibility to ensure that service users have appropriate levels of privacy and that confidentiality is maintained.

Efficient and Effective: Frontline staff are expected to consider their working practices and ensure that they are undertaking their roles in the most efficient way possible.

They are expected to follow the policies of the hospital in the delivery of evidenced based care. Staff have a responsibility to seek out national guidance and to provide a level of care to our patients that meets national, regional and locally defined standards.

Case Team Directors/Service/Department Heads

Safe: Service/Team leaders/Managers are responsible for maintaining a risk register based on an ongoing programme of risk assessment, informed by incident reporting, records review, audit and other methods.

The management team have a responsibility to ensure that staff operate in a safe working environment and that any risks that are identified are mitigated as far as is reasonably possible by changing practice or provision of appropriate equipment/resources.

The management teams have a responsibility to ensure all policies and procedures are followed appropriately and to investigate any breach, complaint or incident that occurs to ensure safe practice is followed at all times.

Person centred: Service/Team leaders/Managers are responsible for ensuring that the wider commitment to engaging with patients, carers and the wider public is fully understood and undertaken.

Efficient and effective: Service/Team leaders/Managers are responsible for developing systems with the help of the CG&QIU that enable staff to work in the most effective and efficient way possible.

Support services

These include clinical leadership, CG&QIU, HR, finance, and General services.

Safe: The support services are responsible for ensuring that any advice, service or support is provided in a manner that will minimise risk to the hospital or patient that receives the service.

Person-centred: Support services are responsible for ensuring that they understand who their customers are (usually staff from within the hospital) and provide a customer focussed service that provides what the customer requires, when they need it and in the most efficient way possible.

Efficient and effective: Support services are expected to consider their working practices and ensure that they are undertaking their roles in the most efficient and effective way possible. They should be focussed on reducing delays in processes, reducing any duplication of effort and in simplifying processes so that front line staff and managers can spend their time and energies in providing high quality care to patients rather than on administrative tasks or process issues.

Executive/Senior Management Team (E/SMT)

Safe: The Executive/Senior Management Team is responsible for ensuring that appropriate policies, systems and procedures are developed, implemented, monitored and reviewed to support continuous quality improvement. There is a responsibility of the E/SMT to achieve the corporate and clinical governance requirements.

Person centred: To ensure that the focus of discussions at E/SMT level is always centred on “what is best for our patients and staff” and that the impact of any decisions is linked back to the impact on the community we serve and on the individuals that access our services.

Efficient and Effective: the E/SMT is responsible for agreeing the CG&QI Strategy and any other internal quality standards and outcomes. They are also responsible for monitoring the achievement of services against quality standards. E/SMT are responsible for providing appropriate resource to the CG&QIU, our mechanism for supporting staff in the hospital to

implement the quality improvement strategy and assist the development of a culture of continuous quality improvement.

Hospital Governing Board

The Hospital Governing Board is responsible for setting the strategic direction of the hospital and must be confident that there are systems and processes in place to support the delivery of safe and effective, person centred care within agreed resources and to support the implementation of the Clinical Governance and Quality Improvement strategy. The Board expects to see assurance of continuing improvement against the quality standards.

Involvement of service users and carers in Quality Improvement

The CG&QIU will support teams to involve service users and carers in the identification of and in creating solutions to areas for improvement.

How we measure Quality?

We conduct patient and staff satisfaction survey, establish and manage comment boxes, as well as, seek out additional external validation of the quality of service we provide from RHB/FMOH led supervision site visits, etc.

How we monitor and review Quality?

Quality and quality improvement activities are monitored through the CG&QIU structure within the hospital. This ensures that quality improvement is seen as an everyday activity within the hospital and the solutions that are adopted are more likely to be sustained. The CG&QIU will support and monitor quality improvement initiatives.

Leadership for quality improvement

Clinical Leadership

Clinical leadership is critical to the success of any hospital. This is taken very seriously in (*state the name of hospital here*) and is supported through the new CG&QIU and within the service/department/Case management teams. **Senior physicians** should provide the required clinical leadership for their service areas and should work collaboratively with the **hospital management, general services and frontline staff**.

Professional Leadership

Professional leadership is undertaken by the different professional groups with medical and nurse leads being executive/senior members of the board. Pharmacy and Allied Health Professional leads directly report into these individuals to ensure an appropriate level of support and influence for each professional group.

Case Team/Service Department leadership

The management structure across the hospital provides opportunity for quality improvement initiatives to be developed and implemented at service level, with support from highly skilled **physicians and managers** who have had the opportunity to be involved in a leadership development programme.

Hospital Governing Board leadership

The board leads the hospital strategy for clinical governance and quality improvement and as such takes the responsibility to provide clarity about our hospital's goals, focuses on monitoring progress, provides regular opportunities for quality improvement to be discussed in the board agenda and recognises and rewards improvement.

The board appreciate that quality improvement is a means to developing a continuous improvement learning culture and requires time, skill, infrastructure and resource for full implantation within the hospital. The CG&QIU will provide the required support in using the model for improvement ⁷(below) in implementing QI projects in the hospital.

⁷Langley G.L. Nolan K.M. Nolan T.W. Norman C.L. Provost L.P (2009) *The Improvement Guide: A Practical Approach to Enhancing Organizational Performance* (2nd Edition). Jossey Bass, San Francisco.



This model for improvement is a framework which includes three key questions and a process for testing change ideas.

1. What are we trying to accomplish? The aims statement.
2. How will we know if the change is an improvement?
3. What changes can we make that will result in improvement?

Clinical Governance and Quality Improvement Unit

The Clinical Governance and Quality Improvement Unit team is the main support function for clinical risk management, clinical audit and service evaluation activity and is a multi-disciplinary team established to facilitate and support clinical audit, clinical governance and practice effectiveness.

CG&QIU team works through partnerships with clinical and non-clinical staff, service users and carers, health and social care providers, universities and educational providers and voluntary agencies.

The level of support provided by CG&QIU can be:

- Full project management – which includes project planning, tool design, data entry and analysis, and report and the provision of a template for action planning which will be monitored through the Clinical Audit and Services' Evaluation.
- Partial project management – which includes the provision of advice, production of data collection tool and scanned data entry. Teams will be expected to undertake their own analysis and report with advice from CG&QIU.
- Consultancy only – which includes advice surgeries at each stage of the project. Individuals and teams will be expected to undertake the project themselves.

Increasing capability for quality improvement

Toolkit

The FMOH has developed a toolkit which the CG&QIU can adapt for clinical governance and quality improvement for the hospital. The hospital toolkit (adapted from the national toolkit) should include copies of the strategy, clinical risk assessment form and matrix, clinical audit programme, internal skills and capabilities profile around quality improvement and a information about the quality improvement initiatives already underway in the hospital, along with lessons learned and the measurable impact achieved from the initiative.

Training

The hospital should develop and implement an in-service quality improvement training plan as part of the HR chapter requirement and should be rolled out across the hospital for those people who are in a position to undertake quality improvement initiatives. A train the trainers programme should developed which will be delivered over 3 months. It is then expected that these people will support others to undertake quality improvements utilising the skills that they have developed.

Coaching

The hospital is committed to developing opportunities for people to access coaching and to become coaches to support others in their development. Hospital teams and individuals do face significant challenges and they require a developmental coaching approach that enables them to collectively address real problems in real time and to demonstrate real results.

Reward and recognition for quality improvement

Reward and recognition is an important element of developing a learning culture within the hospital. The CG&QIU will device staff recognition schemes that are important for staff to maintain motivation and energy in quality improvement initiatives.

The hospital runs an awards process (see appendix..... for a copy), “The awards provide teams with an opportunity to celebrate their innovation and high quality care and be recognised across the hospital for their work. We also support members of staff to share their work at regional and national hospitals performance review meetings and to prepare material for internal publication within the hospital or external journal publication.

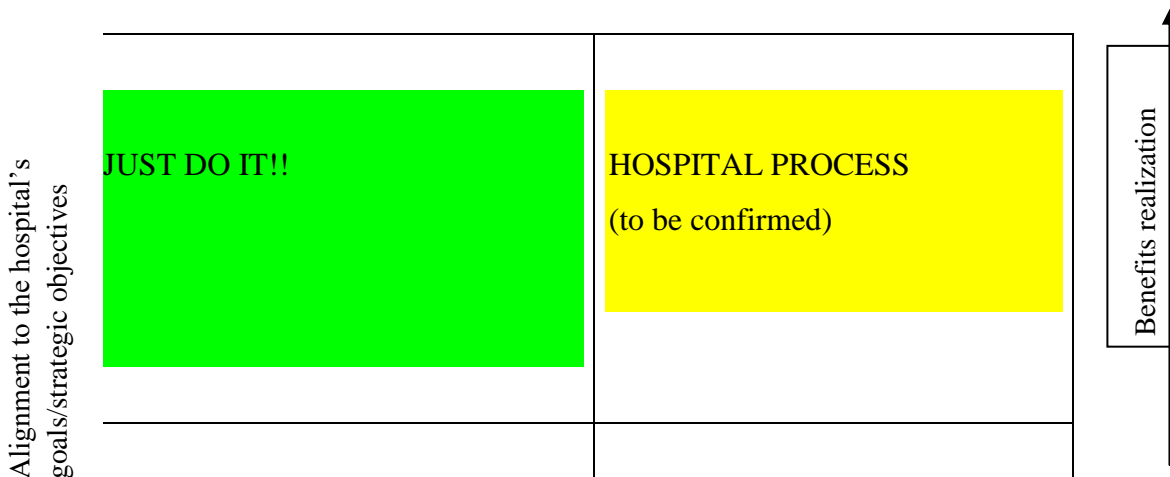
There will be a focus over the next (state the number of years here) year/s on sharing good practice across the hospital and as such a number of opportunities will become available for staff to tell their stories of improvement.

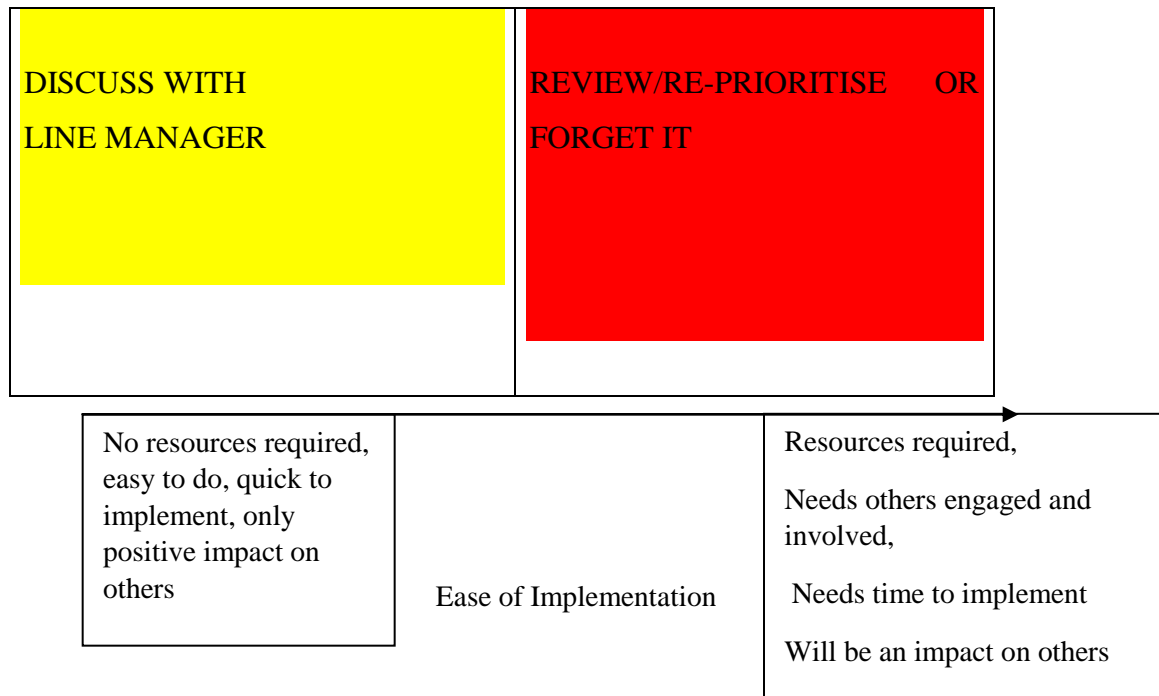
- Teams will be encouraged to display their services and any improvements they have made in public areas across the hospital.
- There will be a regular slot in the *(state the frequency here- e.g. monthly, quarterly, etc.)* Staff Focus newsletter on quality improvement initiatives that are taking place, and the outcomes that are being achieved.
- There will be a database of improvement stories with the CG&QIU for people to share their experiences and improvements that have been achieved.
- Executive/Senior Management Team members have committed to visiting services who have undertaken quality improvements to hear the journey and to recognise the hard work and energy that staff have put in to improvement activities.
- If quality improvement initiatives have saved money there is potential for some of the saved money to be reinvested into the service for staff development and training.

Providing opportunities to communicate about quality improvement topics

The CG&QIU team will be available for staff to share experiences, ask questions and offer solutions to colleagues on their quality improvement initiative. The hospital will establish an “ideas channel” to enable staff who have a bright idea about quality and/or cost improvement to share their idea and develop it to a point where it can be considered as worth pursuing.

The following framework for the bright ideas will be used.





Summary

This Clinical Governance and Quality Improvement strategy provides an overview of the
(*State the hospital name here*) approach to clinical governance and Quality Improvement.

Clinical Governance and Quality Improvement is seen as a fundamental element of everybody's day to day work and as such each person has an element of quality improvement within their job descriptions, and in individuals' quality improvement involvement discussed in the appraisal conversations and included in their PDP's.

It is recognised that there is a spectrum of clinical governance and quality improvement initiatives that can be undertaken and whilst we aspire as a hospital of service delivery must be strong before aspirational innovations can be undertaken. This strategy therefore supports a quality improvement focus to ensure that all teams and services get the "basics right", and supports quality improvement and innovation for those individuals and services that can demonstrate solid foundations and the capability and capacity to undertake more aspirational quality improvements.

The CG&QIU has been established within the hospital as the infrastructure to support teams and individuals in developing skills, experience and leadership in quality improvement.

Further documents that will support this strategy in the coming months include:-

1. The CG&QIU and Monitoring and reporting of the hospital transformation guidelines
2. The hospital's clinical audit programme
3. Quality Improvement Toolkit

Source Documents

1. DH (2010) White Paper, "Equity & Excellence, Liberating the NHS"
2. Department of Health (2006) Best Research for Best health: A new national health research strategy. Langley G.L. Nolan K.M. Nolan T.W. Norman C.L. Provost L.P (2009) The Improvement Guide: A Practical Approach to Enhancing Organizational Performance (2nd Edition). Jossey Bass, San Francisco.
3. Scally G and Donaldson LJ (1998) Clinical governance and the drive for quality improvement in the new NHS in England. British Medical Journal 317(7150) 4 July pp.61-65.
4. The Health Foundation (2010) Quality Improvement Made Simple. What every board should know about healthcare quality improvement

Appendix B Sample Risk Assessment Template

Date of Risk Assessment: dd/mm/yy

Case Team/Service Area: Example- Operating Theatres

Participants who took part in Risk Assessment: (list names and positions)

Risk Assessment Matrix:

Consequence	Catastrophic	Yellow	Orange	Red	Red	Red
	Major	Yellow	Orange	Orange	Red	Red
	Moderate	Green	Yellow	Orange	Orange	Red
	Minor	Green	Yellow	Yellow	Orange	Orange
	Negligible	Green	Green	Green	Yellow	Yellow
		Rare	Unlikely	Possible	Likely	Almost certain
Likelihood						

Hazard identified	Consequence(negligible, minor, moderate, major, catastrophic)	Likelihood(rare, unlikely, possible, likely, almost certain)	Category(green, yellow, orange, red)	Action to be taken	Responsible person	Date for completion of action
1. Old broken equipment in corridor and potential that patients or staff may trip and fall, or injure themselves on the items	Moderate	Likely	ORANGE	Remove equipment to maintenance department	Head of Case Team(name)	Within one week by dd/mm/yy
2.No sharp boxes available and potential to cause needle-stick injury to staff or patients	Major	Likely	RED	Install sharp boxes	Senior Nurse(name)	Within two days by dd/mm/yy
3.Interrupted electrical supply potential for failure of lights, anaesthesia machine during surgical procedure and hence patient harm	Catastrophic	Possible	RED	Back-up generator to be installed	CEO	As soon as possible, no later than 3 months dd/mm/yy
4.Shortage of nursing staff to monitor patients in 'recovery' area and potential harm due to poor monitoring and clinical care	Catastrophic	Possible	ORANGE	Add more nursing staff to department or change skill mix of existing staff	Case Team Head and Head of Human Resource Department	Within three months, i.e. by dd/mm/yy
5.Lack of pre-surgical checklist and potential for cancelled surgery because patient not prepared adequately	Major	Possible	ORANGE	Prepare pre-surgical checklist and train ward staff in its use	Senior Surgeon(name)	Within two months, i.e. by dd/mm/yy

Appendix C Sample Incident Report Form

This form should be completed and submitted to the Clinical Governance and Quality Improvement Unit(CG&QIU) Head (insert name and contact details of the Head) who will follow up on the incident and investigate further, if necessary.

Section A – to be completed by person reporting the event	
Date and time of event:	
Location of event:	
Description of event(please describe what happened and who was involved):	
Action taken in response to event(please describe any action that was taken immediately or in response to the event):	
Other comments(please add any other information that you think is relevant):	
Name of person reporting the event:	
(NB: This is necessary for the CG&QIU Head to follow up and investigate the event further if necessary. However, the name of the person reporting the incident will be kept confidential by the CG&QIU Head)	
Contact details of the person reporting the event:	
Section B- to be completed by the CG&QIU Head	
Date of review of incident report form:	
Is further investigation required?	Yes <input type="checkbox"/> No <input type="checkbox"/> (please tick or circle)

If yes, please describe below action taken to investigate further and the results of investigation(for example, name(s) of staff/patients interviewed for further information, summary of the information gathered, etc):

Recommendations(please describe below any recommendations or action that must be taken to prevent a similar event occurring in the future):

Responsible person to act on recommendations(please state the name and position of an individual who is responsible to act on the recommendations above):

Any other comments(please describe any other relevant information or comments that are not captured above):

Name of CG&QIU Head who completed Section B:

Date of completion of report

Appendix D Sample Statement of Patients' Rights and Responsibilities

Your Rights and Responsibilities as a Hospital Patient

We consider you a partner in your hospital care. When you are well-informed, participate in treatment decisions, and communicate openly with your doctor, nurse and other hospital staff, you help make your care as effective as possible. This hospital encourages respect for the personal preferences and values of each individual.

While you are a patient in our hospital, your rights include the following:

1. You have the right to considerate, respectful and safe care.
2. You have the right to be well informed about your illness, possible treatments, likely outcomes and unexpected outcomes and to discuss this information with your doctor.
3. You have the right to know the names and roles of people treating you.
4. You have the right to consent to or refuse a treatment, as permitted by law, throughout your hospital stay. If you refuse a recommended treatment, you will receive other needed and available care.
5. You have the right to have an advance directive, such as a living will or health care proxy. These documents express your choices about your future care or name someone to decide if you cannot speak for yourself. If you have a written advance directive, you should provide a copy to the hospital, your family, and your doctor.
6. You have the right to privacy. The hospital, your doctor and others caring for you will protect your privacy as much as possible.
7. You have the right to expect that treatment records are confidential unless you have given permission to release information or reporting is required or permitted by law. When the hospital releases records to others, such as lawyers or insurers, it emphasizes that the records are confidential.
8. You have the right to review your medical records and to have the information explained, except when restricted by law.
9. You have the right to expect that the hospital will give you necessary health services to the best of its ability. Treatment, referral, or transfer may be recommended. If transfer is recommended or requested, you will be informed of risks, benefits, and alternatives. You will not be transferred until the other institution agrees to accept you.
10. You have the right to know if this hospital has relationships with outside parties that may influence your treatment and care. These relationships may be with educational institutions, other health care providers, or insurers.
11. You have the right to consent or decline to take part in research affecting your care. If you choose not to take part, you will receive the most effective care the hospital otherwise provides.

12. You have the right to be told of realistic care alternatives when hospital care is no longer appropriate.
13. You have the right to know about hospital rules that affect you and your treatment and about charges and payment methods. You have the right to know about hospital resources, such as social and religious services, or ethics committees, that can help you resolve problems and questions about your hospital stay and care.
14. You have the right to have an autopsy done by a physician who is not affiliated with this hospital and/or to have it done at an unaffiliated institution. Any person authorized to give consent for an autopsy will receive this information before signing the consent or giving consent by telephone.
15. You have the right to be free from all forms of abuse or harassment.

Your Rights and Responsibilities as a Hospital Patient

You have responsibilities as a patient.

1. You are responsible for providing information about your health, including past illnesses, hospital stays, and use of medicine. You are responsible for asking questions when you do not understand information or instructions. If you believe you can't follow through with your treatment, you are responsible for telling your doctor.
2. This hospital works to provide care efficiently and fairly to all patients and the community. You and your visitors are responsible for being considerate of the needs of other patients, staff, and the hospital.
3. You are responsible for providing information for insurance and for working with the hospital to arrange payment, when needed.
4. Your health depends not just on your hospital care but, in the long term, on the decisions you make in your daily life. You are responsible for recognizing the effect of life-style on your personal health.
5. A hospital serves many purposes. Hospitals work to improve people's health; treat people with injury and disease; educate doctors, health professionals, patients, and community members; and improve understanding of health and disease. In carrying out these activities, this institution works to respect your values and dignity.

Addendum

You have the right to be free from restraints of any form (physical or chemical) and/or seclusion that are not medically necessary.

A restraint can only be used if needed to improve your well-being and when less restrictive interventions have been determined to be ineffective. A restraint may be used to ensure your safety and/or that of others.

There must be an order for restraints, and that order should never be written as standing or as needed. This order must:

- be followed by consultation with the treating physician as soon as possible if not ordered by the treating physician
- be in accordance with a written modification to the plan of care
- be implemented in the least restrictive manner possible
- be in accordance with safe and appropriate restraining techniques
- end at the earliest possible time

Your condition must be continually assessed, monitored and reevaluated.

Staff involved must have ongoing restraint education and training.

Seclusion is the involuntary confinement of a person where the person is physically prevented from leaving. A physician or other Licensed Medical Practitioner (LMP) must see and evaluate the need for the restraint or seclusion within one hour after its initiation.

Time limits exist for which orders for restraint or seclusion are valid, depending upon your age. After the order expires, the physician or LMP must see and assess you before issuing a new order.

A restraint and seclusion may not be used simultaneously, except in certain situations.

For more information about your rights regarding restraint or seclusion, please contact (Hospital state the contact person and details here).

Complaints and Grievances

We would like to resolve any concern you might have as soon as possible. Please first discuss it with the staff looking after you; you may also request to speak to the nurse in charge, assistant manager or manager. If you are not satisfied with the results, you may contact the (Hospital to specify here).

Appendix E Sample Patient Satisfaction Survey Tools

Outpatient Assessment of Health Care (O-PAHC) Survey

Survey No.		Health Facility Name:	
Male <input type="checkbox"/> ₁	Female <input type="checkbox"/> ₂	Age	Ethiopian Date (DD/MM/YYYY):
Morning/Afternoon		Department:	

	Strongly Disagree	Disagree	Agree	Strongly Agree
1. During this visit, <u>nurses</u> treated me with courtesy and respect.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
2. During this visit, <u>nurses</u> listened carefully to me.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
3. During this visit, <u>nurses</u> explained things in a way I could understand.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
4. During this visit, <u>doctors/health officers</u> treated me with courtesy and respect.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
5. During this visit, <u>doctors/health officers</u> listened carefully to me.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
6. During visit, <u>doctors/health officers</u> explained things in a way I could understand.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
7. I could distinguish between doctors/health officers and nurses.	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No			
8. The outpatient department was clean.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
9. The bathrooms/latrines were clean (leave blank if not applicable).	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
10. I was prescribed new medication at this visit.	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No, Skip Q11, 12, & 13			
11. The staff told me what the medication was for.	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No			
12. The staff described the medications possible side effects in a way I could understand.	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No			
13. All the medications I needed were available at the drug dispensary here.	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No			
14. Someone discussed with me what symptoms to look out for after I left the health facility.	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No			
15. It was easy for me to find my way around the facility.	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No			
16. On a scale of 0-10 (0 being the worst facility, 10 being the best facility), how would you rate this health facility?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 1 2 3 4 5 6 7 8 9 10 Worst.....Best			
17. I would recommend this outpatient department/clinic to my friends and family.	1 <input type="checkbox"/> Definitely no	2 <input type="checkbox"/> Probably no	3 <input type="checkbox"/> Probably yes	4 <input type="checkbox"/> Definitely yes
18. I had to pay for this outpatient visit.	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No, Skip Q19			
19. I consider this outpatient visit too expensive.	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No			

Inpatient Assessment of Health Care (I-PAHC) Survey

Survey #	Health Facility Name	Department	Ward:
Male <input type="checkbox"/> _1 Female <input type="checkbox"/> _2	Ethiopian Date (DD/MM/YYYY):		Age:

	Never	Sometimes	Usually	Always
1. During this health facility stay, how often did <u>nurses</u> treat you with courtesy and respect?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
2. During this health facility stay, how often did <u>nurses</u> listen carefully to you?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
3. During this health facility stay, how often did <u>nurses</u> explain things in a way you could understand?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
4. During this health facility stay, how often did <u>doctors/health officers</u> treat you with courtesy and respect?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
5. During this health facility stay, how often did <u>doctors/health officers</u> listen carefully to you?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
6. During this health facility stay, how often did <u>doctors/health officers</u> explain things in a way you could understand?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
7. I could distinguish between doctors/health officers and nurses.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
8. During this health facility stay, how often was the room you were sleeping in kept clean?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
9. During this health facility stay, how often was the area around you quiet at night?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
10. During this health facility stay, how often did you have enough personal privacy?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
11. During this health facility stay, did you experience any pain?	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No, Skip 12 & 13			
12. During this health facility stay, how often was your pain well controlled?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
13. During this health facility stay, how often did staff do everything they could to help you with your pain?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
14. During this health facility stay, were you given any medication that you had not taken before?	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No, Skip 15 & 16			
15. Before giving you any new medication, how often did staff tell you what the medicine was for?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
16. Before giving you any new medication, how often did staff describe possible side effects in a way you could understand?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
17. Did anyone discuss with you what symptoms to look out for after you left the health facility?	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No			
18. Was it easy to find your way around the health facility?	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No			
19. On a scale of 0-10 (0 being the worst facility, 10 being the best facility), how would you rate this health facility?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0 1 2 3 4 5 6 7 8 9 10 Worst facility.....Best facility			
20. Would you recommend this health facility to your friends and family?	1 <input type="checkbox"/> Definitely no	2 <input type="checkbox"/> Probably no	3 <input type="checkbox"/> Probably yes	4 <input type="checkbox"/> Definitely yes

21. Did you have to pay for this health facility stay?	<input type="checkbox"/> ₁ Yes <input type="checkbox"/> ₂ No, Skip Q22
22. Do you consider this health facility stay too expensive?	<input type="checkbox"/> ₁ Yes <input type="checkbox"/> ₂ No

Appendix F Sample Complaints Management Procedure

Introduction

Any hospital complaint management process tries to answer the following questions:

- How easy is it for patients to make complaints?
- Are patients' complaints analyzed systematically?
- Do changes occur to the way patients are cared for and treated as a result?
- How are staff trained and supported in patient (customer) care? Communication skills? Confidentiality issues? Complaints handling?
- Is there recognized customer care practice e.g. codes of conduct?

It is important that all hospitals have an effective complaint management process (referred to as 'the complaints system' in this guide) in place for identifying, receiving, handling and responding appropriately to complaints and comments patients/service users or persons acting on their behalf make in relation to a service/s or care received.

Even hospitals in high income countries do receive complaints from their service users and complaints are a fact of hospitals' business- from minor staff behavioral issues to serious accusations of incompetence or misconduct.

Patient/client feedback comes in three forms: compliments, comments and complaints. All three are worth recording as they act as pointers to what's going right or wrong within your hospital.

Everybody hears and remembers compliments-although they sometimes seem rarer than comments and complaints! However, even the negative comments worth your attention too as they can be useful early warnings of dissatisfaction or a weakness in the hospital delivery service system. Ignoring a negative comment may lead to a full-blown complaint and take up much of your time and energy.

It is important to remember that whoever receives a complaint is the patient's or client's first point of contact. You will win points both for yourself and the hospital if you seem genuinely concerned and interested in helping to resolve the matter

This guide is designed to help all hospital staff deal with complaints as quickly and effectively as possible. It is split into two parts: Section I is for front line staff and contains general tips for all hospital staff dealing with complaints; Section II deals with general advice for those responsible for hospital policies and procedures. We hope this guide will help you in handling complaints from the unhappy patients/clients/service users.

Section I: Dos and don'ts in handling complaints

What is a complaint?

A complaint is a clear expression of dissatisfaction with a given hospital service and it may be:

- A verbal comment serious enough to demand a direct response
- A letter from a client/patient
- A letter on behalf of a patient/client

The must dos at hospital level

For the purposes of assessing, preventing or reducing the impact of unsafe or inappropriate hospital care, the hospital must:

- Bring the complaints system to the attention of service users and persons acting on their behalf in a suitable manner and format(including notice/leaflets);
- Provide support to service users and persons acting on their behalf on how to bring a complaint or make a comment, where such assistance is necessary;
- Ensure that any complaint made is fully investigated and ,so far as reasonably practicable, resolved to the satisfaction of the service user and person acting on their behalf and;
- Take appropriate steps to coordinate a response to a complaint where that complaint relates to care or treatment provided to a service user, and share or notify the appropriate regulatory body where patient safety has been compromised through professional misconduct/incompetence/negligence.

Top tips for those handling hospital complaints

Listening to a complaint

The most important thing is to make sure the complainant feel you're really listening, if you can take the time and space to listen properly first time around when a client/patient/family member/friend complains to you in person or by phone. It will save a lot of extra time and trouble later on! Here are some useful tips to bear in mind:

- Stay calm
- Take the client/patient/complainant to a private , seated area or take their call in a quiet zone
- Thank the client or complainant for bringing the matter to your attention
- Ask them to tell you the full story from the beginning, just listen and keep listening-don't interrupt or argue

- Empathize-but it is generally better to avoid phrases such as “I know how you feel”(you can’t)
- Pick up on key words, e.g., ‘You must have been very worried about x (etc....)’
- Take notes- and check that the complainant agrees with what you’ve written
- Summarize for the complainant what has been said to make sure you haven’t misunderstood or missed anything.

Say sorry and mean it

Once you’ve listened carefully, express regret that the complainant is dissatisfied. This is often all the complainant needs, but it must sound genuine. So...

- Be sincere- the person you’re talking to will detect and resent an automatic response
- Remember, an expression of regret will make the complainant feel heard and understood. It doesn’t mean you are admitting liability-it simply means you are acknowledging the upset and are ‘sorry that something has happened’, not ‘ sorry it was caused by anyone’s fault’
- Try not to make apologies on behalf of someone else-or let someone else apologize for you. The complainant may feel put off and could end up unhappier than before!
- Get the complainant on your side by saying things like, *‘How can we solve the problem?’*

Explain quickly and clearly

A prompt and thorough explanation can work wonders too. Here are some key points that might help, most of which apply to written explanations too:

- Focus on the key issues the complainant is concerned about- and ask in what order they’d like you to cover them
- Use clear language and explain any health jargon
- Encourage the complainant to ask questions throughout
- Check they have understood, e.g., *‘I’m not sure I’ve put that clearly. Did that make sense?’*
- Ask the complainant if your explanation has answered their concerns
- Reassure them that the matter will be dealt with promptly and that you’ll keep them informed of progress
- To identify the specific issues of a complaint, it may be helpful to ask the client/patient/relative to put something in writing
- Never blame other members of staff.

What to do next?

Refer any clinical problems to the hospital medical director or equivalent for university hospitals as soon as possible

- Ask the complainant what they'd like you to do at this stage and if possible do it
- If the complaint is now satisfied, record the complaint and how you resolved it and send a copy to the CG&QI Unit.

What if the complainant isn't satisfied?

- If the complainant isn't satisfied, ask if they wish to take the complaint further and explain the '*Hospital's Complaints Procedure*'. Give them a copy of the hospital's complaints' leaflet
- Agree a plan within the hospital of what action will be taken by whom and by when
- Look at the root causes of the problem and see if there are any changes you could make to stop it happening again, e.g.:
 - Bringing a policy on what to say when a patient's appointment has been cancelled
 - Putting up a notice in the waiting areas inviting patients and visitors to make comments on a new change in service, etc.
 - Displaying information sheets or TV programs on standard treatments or procedures.
- Tell the complainant which member of the hospital service/case team is going to deal with the complaint and by when.

How to respond in writing

First send out an immediate, brief letter of acknowledgment (see appendix G for a sample acknowledgement letter) when you receive a written complaint from a complainant. This should inform the complainant who is going to deal with the complaint and by when.

Remember to respond within 24 hours on receipt of a written complaint and within 28 days to provide a full response in writing after a full investigation has been carried out.

Appendix G A sample hospital's acknowledgement letter to a complaint

[Complainant name]

[Address 1]

[Address 2]

[Address 3]

[

[Date]

Dear [Salutation]

RE:

Thank you for the information you have shared with us about < service name> that we received on <date>.

The first step is for <name and position of hospital staff> to look at what you have told us. We will then write to you within <insert date/working days> to inform you about how we will respond to this information.

A leaflet is enclosed that gives you information about what the Hospital's Complaint Procedure.

<Additional closing information if appropriate>

Yours sincerely

<Name>

<Job Title>

Encl: Hospital's Complaint Procedure

Appendix H Hospital's Complaint Procedure

Most issues can be resolved without you having to make a formal complaint. Try having an informal chat with your doctor or a member of staff first.

A formal complaint takes time and minor issues are resolved quicker if you just speak to a person on site. For example, if you are worried about something during your hospital outpatient appointment talk to one of the nurses or the team leader.

The Federal Ministry of Health calls this informal process 'local resolution' and urges everyone to see if things can be solved there and then before they escalate to a real problem.

However, if despite everything this doesn't solve your problem, or even if it does but you would still like to make a formal complaint, you should follow the '*Hospital's Complaints Procedure*' as described below.

Giving feedback and comments

Not all issues have to end up with a complaint. Sometimes it is enough to give feedback or leave a comment. All hospitals do welcome feedback as it will help improve the quality of their services.

You can give feedback about the hospital service or staff in person or in writing and the hospital may respond to your comments.

Stage one: Thinking of making a complaint

If you don't feel like you can solve issues informally then you should make a formal complaint to the hospital directly. If you cannot make a complaint yourself, then you can ask someone else to do it for you.

Every hospital has a complaints procedure. To find out about it, ask a member of staff, look on the hospital's noticeboards or website, or contact the "*Clinical Governance and Quality Improvement Unit*" for more information. Each hospital has this unit.

What to consider before making a complaint

If you decide to make a complaint it's important to consider what you want to happen. For example:

- Are you content with an apology?
- Do you want action to be taken against a member of staff?
- Do you want a change to the system?

Whatever action you're seeking, make this clear. Before you make your complaint, make a note of:

- The relevant events;

- Dates
- Times
- Names and conversations, and include all necessary details.

Your notes will also help you to remember all the details in the future. Processing a complaint can take a while, and you might be asked to verify some information at a later stage.

Whether you decide to complain orally or in writing, try to make your explanations as short and clear as possible. Focus on the main issues, and leave out irrelevant details.

If you can, talk through what you want to say with someone else, or ask them to read what you've written before you send it.

If you complain in writing, keep a copy of everything you give to the hospital, and make a note of when you sent it.

Who can help you make a complaint?

Making a complaint can be daunting, but help is available. Ask a hospital staff to show you where the “Clinical Governance and Quality Improvement Unit” is and they will offer confidential advice, support and information on health-related matters to patients, their families and their carers.

What happens if you are not happy with the hospital response or reply to your written complaint?

If you have already complained to the Case Team Leader/Department Leader/Service Head of the hospital and you are still unhappy with their response, then contact the hospital manager (address to be included here). You should provide as much information as possible to allow your CEO to investigate your complaint, such as:

- Your name and contact details
- A clear description of your complaint and any relevant times and dates
- Details of any relevant hospital staff or services
- Any relevant correspondence, if applicable

When should I complain?

As soon as possible. Complaints should normally be made within 12 months of the date of the event that you're complaining about, or as soon as the matter first came to your attention. The time limit can sometimes be extended (so long as it's still possible to investigate the complaint). An extension might be possible, for instance in situations where it would have been difficult for you to complain earlier, for example, when you were grieving or undergoing trauma.

If you made your complaint to the hospital manager you will receive the findings of the investigation together with an appropriate apology and the changes or learning that have taken place as a result of the investigation.

Stage two: I am not happy with the outcome of my complaint

If you are unhappy with the outcome of your complaint you can refer the matter to the Health Service Ombudsman, who is independent of the healthcare system and the address is:

.....
.....

Include the following details in your complaint:

- Your name, address and telephone number
- Name and contact details of anyone helping you with the complaint
- Name and contact details of the hospital you wish to complain about
- The factual details of your complaint (listing the main events and when they happened)
- Why you think your previous complaint wasn't resolved to your satisfaction, and how this has caused you injustice
- Details of the complaints you've already made to the hospital and the outcome of their investigations
- Copies of any relevant documents (it's usually helpful to number these and provide a list)

Keep copies of everything you post, and make a note of when you send it. The Health Service Ombudsman's decision is final but this does not take away your human rights to pursue a civil law suit.

How long will it take to complete an enquiry?

We will aim to complete our enquiry within 20 working days. If we are not able to do this, we will keep you informed of what is happening.

Contact details

Our contact details are –

<Hospital's contact details>

20

Monitoring and Reporting

Table of Contents		Page
Section 1	Introduction	20-1
Section 2	Operational Standards for Monitoring and Reporting	20-1
Section 3	Implementation Guidance	20-2
3.1	Health Management Information System	20-2
	3.1.1 HMIS data registration	
3.2	Data Quality Assurance in Hospitals	20-4
	3.2.1 Dimensions of data quality	
	3.2.2 Types of data quality assurance	
	3.2.3 Methodology of LQAS	
3.3	Role of the Governing Board to Monitor Hospital Performance	20-7
3.4	The Balanced Scorecard	20-8
3.5	Integrated Health Information Platform	20-9
Section 4	Implementation Checklist and Indicators	20-10
4.1	Assessment tool for Operational Standards	20-10
4.2	Implementation Checklist	20-10
4.3	Indicators	20-10
Source Documents		20-11
 Appendices		
Appendix A	HMIS indicators	
Appendix B	M&E Implementation Roles and Responsibilities	
Appendix C	Sample BSC for a Governing Board and Emergency Room	
 Tables		
Table 1	Reporting level and time of private health facilities	
Table 2	Data Accuracy Check Sheet	
Table 3	LQAS decision rules	
Table 4	Implementation Checklist	
Table 5	Implementation Indicators	
 Figures		
Figure 1	Sample Balanced Scorecard for Governing Board	
Figure 2	Sample Balanced Scorecard for Emergency Case Team	
 Abbreviations		
BSC	Balanced Scorecard	

BOFED	Bureau of Finance and Economic Development
FMOH	Federal Ministry of Health
HMIS	Health Management Information System
LQAS	Lot Quality Assurance Sampling
MOFED	Ministry of Finance and Economic Development
RHB	Regional Health Bureau
WOFED	Woreda Office of Finance and Economic Development

Section 1 Introduction

Hospital management and Governing Boards are responsible to monitor hospital performance. Monitoring has a number of objectives including:

- To ensure that activities are proceeding as planned and on schedule (i.e. to ensure that the annual plan is being implemented),
- To maximize the quality, effectiveness and efficiency of services,
- To ensure financial viability of the hospital, and
- To ensure that the hospital contributes to attainment of national health sector targets and objectives.

In addition to internal monitoring, hospitals are required to report a core set of indicators defined in the Health Management Information System (HMIS) to the relevant Health Office (Woreda, Zonal, Regional or Federal). As described in *Chapter 18 Financial and Asset Management* hospitals should also submit regular budget reports to the appropriate finance office (WOFED, BOFED or MOFED).

This chapter considers the role of the Health Management Information System (HMIS) for the internal monitoring of hospital performance, and as a tool through which RHBs and the Federal Ministry of Health (FMOH) can oversee hospital performance and measure the contribution of the hospital towards national targets and goals.

Additionally, the chapter considers the role of the hospital Governing Board to monitor hospital performance and introduces a tool and a set of indicators (the Balanced Scorecard) that could assist Governing Boards in this function.

Section 2 Operational Standards for Monitoring and Reporting

1. The hospital has an HMIS Monitoring Team (or equivalent) which collaborates with the CG&QIU in reviewing the HMIS indicators and takes action to address any areas of concern.
2. The hospital conducts a self-assessment of its own performance at a minimum every quarter, using HMIS indicators and any additional local indicators determined by hospital management.
3. The hospital submits monthly, quarterly and annual HMIS reports to the relevant higher office within the agreed timelines.
4. The correspondence between data reported on HMIS forms and data recorded in registers and patient / client records, as measured by Data Quality Assurance (DQA) and Lot Quality Assurance Sample (LQAS) is $\geq 85\%$.
5. In collaboration with the Governing Board through the CEO, the Clinical Governance and Quality Improvement Unit have established performance indicators for the hospital that are described in hospital performance reports presented by the CEO to the Governing Board as a minimum every quarter.

6. Indicators included in the hospital performance monitoring system are a combination of national/regional indicators and other local indicators as determined by the Governing Board.
7. Hospital staff receive orientation on all performance indicators and case teams/departments determine indicators and monitor their own performance using the process improvement model.

Section 3 Implementation Guidance

3.1 Health Management Information System

The Health Management Information System (HMIS) is a national database of indicators that were developed by the FMOH and partners with the primary aim to support and strengthen local action-oriented performance monitoring. Additionally, the indicators can be used at National level to monitor implementation of the Health Sector Development Program, progress towards the Millennium Development Goals and other donor programs.

HMIS defines 122 indicators in 8 main categories:

- Access to Health Services
- Community Ownership
- Resource Mobilization and Utilization
- Quality of health Services
- Pharmaceutical Supply and Services
- Evidence Based Decision Making
- Health Infrastructure
- Human Capital and leadership

The full list of HMIS Indicators is presented in Appendix A. Definitions of each indicator, reporting forms and the methods of data collection can be found in the FMOH HMIS Implementation Manuals. Hospitals should establish mechanisms to collect and report all indicators defined within HMIS. The list of requirements for a hospital to implement HMIS is presented in Appendix B.

Each HMIS Performance Monitoring Team should work with hospital's CG&QIU (or equivalent) to review the hospital data and take action to address any areas of concern. The HMIS Focal Officer/team is responsible to ensure that:

- The hospital uses standard HMIS procedures and recording and reporting forms
- Staff get proper orientation/training on HMIS procedures and formats
- HMIS stationary and supplies are readily available
- HMIS data is complete and valid before being used or reported
- Data is collected and reported according to the HMIS timeframe
- Data is reviewed by hospital management and used to identify problems with service delivery
- Action is taken to address any problems identified using HMIS data

HMIS/M&E guidelines call for each health institution to internally assess its own performance at least quarterly (self-assessment). For further discussion on the role of the HMIS Monitoring Team as part of

the hospital's overall clinical governance and quality improvement activities please see *Chapter 19 Clinical Governance and Quality Improvement*.

Additionally, hospitals should collect and report monthly, quarterly and annual HMIS indicators to the relevant higher office, using standardized formats, as described in the FMOH HMIS Implementation Manuals.

In order for the data to be useful, it is important that HMIS data is accurate, complete and reported within agreed time frames. A 'Lot Quality Assurance Sample' (LQAS) can be used to check the accuracy of HMIS data reporting. A description of the methodology for LQAS is given in Appendix C. HMIS has set a minimum target of 80% as the correspondence between data reported on HMIS forms and data recorded in registers and patient /client records, as measured by

3.1.1. HMIS data registration, aggregation and reporting

The Federal Ministry of Health (FMOH) has developed standardized registers, tally sheets, abstract and reporting formats. An integrated data collection and reporting system provides the foundation for harmonizing the requirements of information consumers need within and outside the FMOH. It creates the basis for the harmonisation concept (one report).

These registries and reporting formats should be correctly filed in order to have quality data at all levels of the health system. Inappropriate use of the registries will lead to erroneous data entry, aggregation into reporting formats and poor data quality, unhelpful for planning, decision making and process improvement.

Therefore, correct and appropriate use of the registers and reporting formats is crucial in maintaining data integrity and quality.

The HMIS is designed to generate different types of reports that can capture important data elements required to monitor and evaluate health programmes in Ethiopia.

Types of reports by period:

- Weekly
- Monthly
- Quarterly
- Annual

Types of reports by content

- OPD disease IPD morbidity and mortality
Service PHEM

Table 1 Reporting level and time of private Health Facilities

Health Facility	Reporting level	Latest date reports should be submitted	Frequency of reporting	Comment
HP	HC		Monthly & Annual	
Health facility	WoHOs	26 th of the month	Monthly, Quarterly & Annual	
WoHOs	ZHD / RHB	2 nd of the month	Monthly, Quarterly & Annual	Including private health facilities
ZHD	RHB	7 th of the month	Monthly, Quarterly & Annual	Including private health facilities
RHB	FMOH	15 th of the month	Monthly, Quarterly & Annual	Including private health facilities

NB: Registers are closed on the 20th of each month

3.2 Data Quality Assurance in hospitals

Data quality can be defined as the state of completeness, validity, consistency, timeliness, accuracy, integrity and confidentiality that makes the data appropriate for specific use. And in some cases it can be defined as the totality of features and characteristics of data that bears on their ability to satisfy a given purpose or the sum of the degrees of excellence for factors related to data.

Data should be accurate and reliable enough to express the actual scenario of care delivery in hospital. Such data can then be relied on to make informed and evidence based decisions for the hospital. It can also help modify the way a hospital delivers health care. On the other hand, inaccurate data leads to erroneous understanding of the actual scenario of service delivery and lead to inappropriate decisions. It is difficult to improve the quality of service with inaccurate data. Therefore, data quality is very important and requires attention by all.

3.2.1 Dimensions of Data Quality

Data quality assessment in any information system involves a comparison of data within the system against an agreed set of standards for the data usually referred to as dimensions of data quality. Some of the most common and relevant sets of standards or dimensions of data are listed and defined as follows:

- **Accuracy:** Also known as validity. Accurate data are considered correct if the data measure what they are intended to measure. Accurate data minimize errors (e.g., recording or interviewer bias, transcription error, sampling error) to a point of being negligible.
- **Timeliness:** data is collected, transmitted and processed according to the prescribed time and available for making timely decisions.

- **Completeness:** At service delivery point, it refers to all the relevant data elements in a patient/client register are filled

Data completeness has two meaning for the health administrative unit:

1. All the data elements in a database or report are filled.
 2. The health administrative unit has reports from all the health facilities and/ or lower level health administrative units within its administrative boundary.
- **Precision:** Data collected and analysed should be large enough and have sufficient detail to support to support the decision and to take action.
 - **Integrity:**Data have integrity when the system used to generate them is protected from deliberate bias or manipulation for political or personal reason.
 - **Reliability:**The data generated by a program's information system are based on protocols and procedures that do not change according to who is using them and when or how often they are used. The data are reliable because they are measured and collected consistently.
 - **Confidentiality:** Confidentiality means that clients are assured that their data will be maintained according to national and/or international standards for data. This means that personal data are not disclosed inappropriately, and that data in hard copy and electronic form are treated with appropriate levels of security (e.g. kept in locked cabinets and in password protected files).

In general, a health care provider who delivers service should document the relevant information in the recording tools with legible handwriting. The register shall be filled on the date of service delivery. No cell of register shall be left empty unless the service is not provided in the health facility.

3.2.2. Types of data quality assurance tools

There are different kinds of data quality assurance tools. The most commonly used include the following:

1. Lot Quality Assurance (LQAS)
2. Routine Data Quality Assurance (RDQA) and
3. Performance of Routine Information System Management (PRISM)

Hospitals are recommended to do Lots Quality Assurance (LQAS) for data quality assurance. This will be the activity of the performance monitoring team HMIS focal or team together with the CG&QI team in the hospital.

3.2.3. Methodology of LQAS

If the monthly data report is inaccurate, then decisions based on those data may not produce the effects that are intended. Lot quality assurance sampling (LQAS) is a methodology that originated in manufacturing as a low-cost way to assess and assure quality. Based on a small sample size, one can estimate the level of quality. In recent years this methodology has been applied to assess the quality of various aspects of health services, including data quality.

The following steps show how the quality of HMIS data can be estimated using a sample of 12 data elements and comparing the results with a standard LQAS table. Selected data elements from the monthly report submitted to the Woreda are compared with the tallies and register sums that are the

sources of these data elements. If a high proportion of the numbers are the same, then the quality of the data can be assumed to be high; if a low proportion is the same, then the quality of the data is low.

Selection of data elements is random, which means data elements are selected without any preference. A broad representation of the data elements from different sections of the monthly report form is required to assure all data elements are given equal opportunity for selection. A sample of 12 data elements is required based on LQAS table.

Select randomly one data element from each section of the previous monthly report. Write the selected data element in the first column of the data accuracy check sheet given below. Repeat the procedure until all data elements from different sections are entered in first column.

Copy the figures of the selected data elements as reported on the monthly report form in second column of data quality check sheet, under the heading of “figures from monthly report form”.

Pick the register or tally sheet which has the selected data element. Sometimes there may be several registers or tally sheets. Count the actual entries in the register or tally related to a specific selected data element. Put the figure you counted in third column of check sheet, under the heading “figure from register”. Repeat this procedure for all data elements.

If the figures in column 2 and 3 are same, tick under YES in column four. If they are not the same (do not match), put a tick under NO in column four. Repeat this procedure for all data elements.

Count the total ticks under “YES” and write in row of total for “YES”. Repeat the procedure for “NO” column. The sum of YES and NO totals should be equal to the sample size of 12.

Table 2 Data Accuracy Check Sheet

Week for which data accuracy is checked _____				
Randomly Selected Data Elements from the monthly reporting form	Figures from the Monthly report form (2)	Figures counted from registers & tallies (3)	Do figures from columns 2 & 3 Match?	
			YES	NO
1. Disease cases for a single disease / age / gender group				
2. OPD attendance for a single age / gender group				
3. Family planning monthly report section				
4. Maternal health monthly report section				
5. Child health				
6. EPI monthly report section				
7. Logistics				
8. TB (if service provided)				
9. HIV/AIDS (if service provided)				
Total				

The total in number in the “Yes” column corresponds to the percentage of data accuracy in the following LQAS table. For example, if total “yes” number is 2, the accuracy level is between 30-35%; if total number in the “yes” column is 7, the accuracy level is between 65-70%.

Table 3 LQAS decision rules

LQAS Table: Decisions Rules for Sample Sizes of 12 and Coverage Targets/Average of 20-95%																	
Sample Size	Average Coverage (Baselines)/ Annual Coverage Targets (Monitoring and Evaluation)																
	Less than 20%	20 %	25 %	30 %	35 %	40 %	45 %	50 %	55 %	60 %	65 %	70 %	75 %	80 %	85 %	90 %	95 %
12	N/A	1	1	2	2	3	4	5	5	6	7	7	8	8	9	10	11

Circle the data accuracy percentage and write it in section D3.2 of the monthly report and submit to the woreda office.

- You could set a target for achievement in a specified period and use it for monitoring progress. The target can be broken down on monthly basis. For example, if data accuracy is improving by 5% on monthly basis, the correct match number should increase accordingly as shown in the LQAS table. As the correct match number increases compared to previous months, it reflects improvement in level of data accuracy.
- Achievement of data accuracy level at 95% means a high level of accuracy and needs to be maintained at that level.

Note: Please note that with sample size of 12 data elements, the data accuracy ranges +15%. That means that if the data accuracy is 30%, the range is between 15% and 45%.

3.3 Role of the Governing Board to monitor hospital performance

The hospital Governing Board is responsible to direct and supervise the overall activities of the hospital, to provide proper financial oversight, to ensure adequate resources for hospital operations, and to ensure that the hospital provides services to the highest possible standard in an environment that is safe for patients, staff and visitors.

As described in *Chapter 1 Hospital Leadership, Management and Governance* the Governing Board fulfils these functions by establishing corporate strategies, plans and policies and by overseeing the performance of the CEO who is responsible for implementation of these.

The Governing Board cannot and should not monitor day-to-day activities of the hospital. Similarly, it is not feasible for the Governing Board to review and monitor the full set of HMIS Indicators for the hospital. None-the-less, the Board must have sufficient information to assure itself that the hospital is performing to a high standard and that proper mechanisms are in place to deliver safe, efficient and high quality services. One means to achieve this is to monitor a core set of indicators of hospital performance.

Ideally, the number of indicators should be small and should be presented in a ‘user friendly’ format that aids understanding.

The Balanced Scorecard is a tool that can be used by Governing Boards to achieve this.

3.4. The Balanced Scorecard

The Balanced Scorecard (BSC) is a planning, monitoring and evaluation tool that considers performance in four key areas:

- Customer perspective
- Finance perspective
- Internal processes
- Learning and growth of the organization

The BSC is recommended by the FMOH as a management and measurement tool for all levels of the health sector. The use of the BSC as a monitoring tool assists Governing Boards to oversee the performance of the hospital. The indicators within the BSC provide only a summary of hospital performance. The Governing Board should review each BSC report, identifying areas of good performance and areas of concern and should discuss these with the CEO, seeking clarification or further information where necessary.

Governing Boards should determine selected indicators within each of the four key areas and should receive quarterly reports from hospital management on these indicators. (NB Patient surveys may be conducted on a bi-annual basis, but all other indicators within the BSC should be reported to the Governing Board as a minimum every quarter). A sample BSC for a hospital Governing Board is presented in Figure 1 below. In the figure, the additional domain of ‘safety and quality’ has been added to highlight the importance of patient safety and quality of services provided. A definition of each indicator presented in Figure 1 is given in Appendix D. An assessment tool measuring the attainment of the Operational Standards of the Ethiopian Hospital Transformation Guidelines is presented in tool is presented in the Assessment Handbook.

The BSC can also act as a tool to orient staff to the objectives of the hospital and strengthen staff engagement with hospital improvement efforts. To achieve this, hospital staff should be oriented to the BSC and in particular should be familiar with the BSC indicators that will be reviewed by the Governing Board. The Governing Board may choose to consult with hospital staff when defining the core set of indicators that will be monitored on the BSC. Staff should understand the purpose of each indicator and method of data collection in order to strengthen the completeness and accuracy of the data.

Additionally, each Case Team/Department should set its own objectives (in consultation with Senior Management) and should monitor its own performance using defined indicators. In this way, the activities of each Case Team can be aligned with the objectives of the hospital and each Case Team can be encouraged to improve its own performance. A sample BSC for the Emergency Case Team is given in Figure 2 below.

NB: The sample BSC for Governing Boards presented in Figure 1 contains some, but not all HMIS indicators. Hospital management should ensure that there is a monitoring process for all HMIS indicators

but it is not necessary for the Governing Board to review each and every HMIS indicator. For this reason, the BSC in Figure 1 contains only a selected number of HMIS indicators that should be reviewed by the Governing Board. Additionally, the BSC contains indicators that are not part of the HMIS data set but that would be useful to the Governing Board to effectively govern the hospital.

3.5 Integrated Health Information platform

Integrated health information platform is about enabling data visualization, reporting and charting across multiple information sources so that data might be used for planning, identification and prioritization of problems, performance monitoring, and providing feedback reports to support transformative and sustainable evidence-based decision making.

No single source can provide sufficient information for monitoring service delivery. Thus, a service delivery monitoring system relies on multiple sources of data brought together for analysis and decision-making. Data from routine health facility reporting systems needs to be supplemented with data from health facility assessments, etc. In addition, data generated through facility assessments should be complemented or cross-checked with data from other sources, such as the databases of health workers, infrastructures, equipment, and procurement, which are often available in various departments of the hospital. This can serve as complementary or benchmarking material for data on service delivery generated through the routine HMIS.

Health information is often not available to those who are best placed to use it to improve performance of the health system. Hence, data visibility refers to analysing the health and health-related data and making accessible different data presentation techniques from display charts in the health institutions to stakeholders and mass media.

Major Activities that should be exercised to bring data comparability and synthesis practice across multiple information sources are:

- Improve advanced analytical skill (in depth analysis, data mining)
- Conduct regular self-assessment (PMT establishment & functionality)
- Enhance accountability scorecard system
- Strengthen the decision support system
- Implement an integrated platform
- Develop data access protocols for users
- Improve data triangulation mechanisms from different data sources
- Pool health and health-related studies raw data

Section 4 Implementation Checklist and Indicators

4.1 Assessment Tool for Operational Standards

In order to determine if the Operational Standards of Monitoring and Reporting have been met by the hospital an assessment tool has been developed which describes criteria for the attainment of a Standard and a method of assessment. This tool can be used by hospital management or by an external body such as the RHB or FMOH to measure attainment of each Operational Standard. The tool is presented in tool is presented in the Assessment Handbook.

4.2 Implementation Checklist

The following Table can be used as a tool to record whether the main recommendations outlined above have been implemented by the hospital. This tool is not meant to measure attainment of each Operational Standard, but rather to provide a checklist to record implementation activities.

Table 4 Monitoring and Reporting Checklist

		Yes	No
12.	An HMIS Monitoring Team (or equivalent) has been established.		
13.	Self-assessments of hospital performance are conducted.		
14.	Monthly, quarterly and annual HMIS reports are submitted to relevant bodies.		
15.	Lot Quality Assurance Samples have been done.		
16.	Lot Quality Assurance Samples show a result $\geq 80\%$.		
17.	The CEO and Governing Board have defined performance indicators (that are a combination of national, regional and other local indicators) in a Balanced Scorecard		
18.	Performance indicators in a Balanced Scorecard (BSC) have been reported to the Governing Board.		
19.	BSC orientations have been provided to staff.		

4.3 Indicators

Table 5 3Monitoring and Reporting Indicators

	Indicator	Formula	Frequency	Comment
6.				
7.				
8.				
9.				
10.				

Source Documents

1. Federal Democratic Republic of Ethiopia Ministry of Health (2008, July). *Business Process Reengineering: Policy, Planning and Monitoring & Evaluation Core Process*.
2. Federal Democratic Republic of Ethiopia Ministry of Health (2008, January). *HMIS/M&E. Strategic Plan for Ethiopian Health Sector*.
3. Federal Democratic Republic of Ethiopia Ministry of Health (2008, January). *HMIS/M&E. Indicator Definitions. HMIS/M&E Technical Standards Area 1*.
4. Federal Democratic Republic of Ethiopia Ministry of Health (2007, May). *HMIS/M&E. Disease Classification for National Reporting. Technical Standards Area 2*.
5. Federal Democratic Republic of Ethiopia Ministry of Health. (2008, January). *HMIS Procedures Manual: Data Recording and Reporting Procedures. HMIS/M&E Technical Standards Area 3. HMIS/M&E*.
6. Federal Democratic Republic of Ethiopia Ministry of Health. (2008, January). *HMIS/M&E. Information Use Guidelines and Display Tools. HMIS/M&E Technical Standards Area 4*.
7. Federal Democratic Republic of Ethiopia Ministry of Health. (2008, August). *Performance Monitoring and Quality Improvement Guideline for the Ethiopian Health Sector*.
8. Federal Democratic Republic of Ethiopia Ministry of Health (2009, June). *Performance Monitoring and Quality Improvement Guideline for the Ethiopian Health Sector. FMOH*.

Appendices

Appendix A HMIS Indicators by Level and Frequency of Collection

		Monthly						Quarterly						Annually							
		HF			Admin			HF			Admin			HF			Admin				
		HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH	HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH	HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH
Total Indicators: 122																					
C1 Access to health service : Total indicators: 97																					
C1.1 Maternal and Child health : Total indicators: 35																					
C1.1.1 Maternal Health ; Total indicators: 13																					
1	Contraceptive Acceptance Rate	X	X	X	X	X	X														
2	Antenatal Care Coverage – First Visit	X	X	X	X	X	X														
3	Antenatal Care Coverage – Four Visit	X	X	X	X	X	X														
4	Percentage of pregnant women attending antenatal care clinics tested for Syphilis		X	X	X	X	X														
5	Proportion of births Attended by Skilled Health Personnel		X	X	X	X	X														
6	Proportion of births Attended by health extension workers at health posts	X	X		X	X	X														
7	Early Postnatal Care Coverage	X	X	X	X	X	X														
8	Caesarean Section Rate		X	X	X	X	X														
9	Number of women receiving comprehensive abortion care services		X	X	X	X	X														
10	Institutional Maternal Death Rate		X	X	X	X	X														
11	Number of maternal death in the	x	x		X	X	X														

		Monthly						Quarterly						Annually								
		HF			Admin			HF			Admin			HF			Admin					
		HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH	HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH	HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH
	community																					
1	Stillbirth Rate	x	x	x	x	x	x															
2																						
1	Proportion of kebeles declared "home delivery free"	x	x		x	x	x															
3																						
C1.1.2 PMTCT ; Total indicators: 7																						
1	Percentage of pregnant and lactating women who were tested for HIV and who know their results		X	X	X	X	X	X														
2	Number of HIV Positive pregnant and lactating women who received ART at ANC+L&D+P NC for the first time based on option B+.		X	X	X	X	X	X														
3	Number of HIV-positive pregnant women who were on ART and linked to ANC		X	X	X	X	X	X														
4	Percentage of infants born to HIV infected women receiving a virological test for HIV within 12 months of birth		X	X	X	X	X	X														
5	Percentage of Infants born to HIV-infected women started on co-trimoxazole prophylaxis within two months of birth		X	X	X	X	X	X														
6	Percentage of		X	X	X	X	X	X														

		Monthly						Quarterly						Annually								
		HF			Admin			HF			Admin			HF			Admin					
		HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH	HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH	HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH
	infants born to HIV-infected women receiving antiretroviral (ARV) prophylaxis for prevention of mother-to-child transmission (PMTCT)																					
7	Percentage of HIV exposed infants receiving HIV confirmatory (antibody test) test by 18 months		X	X	X	X	X	X														
C1.1.3 Child Health: Total Indicators: 15																						
1	DPT1-HepB1-Hib1 (pentavalent First dose) immunization coverage (< 1 year)	X	X	X	X	X	X	X														
2	DPT3-HepB3-Hib3 (Pentavalent third dose) immunization coverage (< 1 year)	X	X	X	X	X	X	X														
3	Pneumococcal conjugated vaccine first dose (PCV1) immunization coverage (< 1 year)	X	X	X	X	X	X	X														
4	Pneumococcal conjugated vaccine third dose (PCV3) immunization coverage (< 1 year)	X	X	X	X	X	X	X														
5	Rotavirus vaccine first dose (Rota1) immunization coverage (< 1 year)	X	X	X	X	X	X	X														

		Monthly						Quarterly						Annually									
		HF			Admin			HF			Admin			HF			Admin						
		HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH	HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH	HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH	
6	Rotavirus vaccine second dose (Rota2) immunization coverage (< 1 year)	X	X	X	X	X	X	X															
7	Measles immunization coverage (< 1 year)	X	X	X	X	X	X	X															
8	Full Immunization Coverage (< 1 year)	X	X	X	X	X	X	X															
9	Proportion of infants protected at birth against neonatal tetanus	X	X	X	X	X	X	X															
10	Vaccine Wastage Rate	X	X	X	X	X	X	X															
11	Early institutional neonatal death rate		X	X	X	X	X	X															
12	Neonatal death rate at community	x	x		X	X	X	X															
13	Proportion of children treated for pneumonia	X	X	X	X	X	X	X															
14	Proportion of newborns treated for Sepsis		X	X	X	X	X	X															
15	Proportion of newborns treated for asphyxia at health facility		X	X	X	X	X	X															
C1.2 Nutrition: Total Indicators: 6																							
1	Percentage of Low birth weight newborns	X	X	X	X	X	X	X															
2	Percentage of underweight Children aged <5 years	X	X	X	X	X	X	X															
3	Proportion of children 6 - 59 months with	X	X	X	X	X	X	X															

		Monthly						Quarterly						Annually									
		HF			Admin			HF			Admin			HF			Admin						
		HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH	HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH	HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH	
	severe acute malnutrition																						
4	Treatment outcome for management of severe acute malnutrition in children 6-59 months		X	X	X	X	X	X															
5	Proportion of children aged 6-59 months who received vitamin A supplementation	X	X	X	X	X	X	X															
6	Proportion of children aged 2-5 years dewormed	X	X	X	X	X	X	X															
C1.3 Hygiene and Environmental Health - Total indicators: 3																							
1	Proportion of households' access to latrine facilities								X	X				X	X	X	X						
2	Proportion of HHs using latrine								X	X				X	X	X	X						
3	Kebele declared "Open Defecation Free"								X	X				X	X	X	X						
C1.4 Prevention and Control of Diseases: Total indicators: 53																							
C1.4.1 All Diseases: Total Indicators: 3																							
1	Top 10 Causes of Morbidity	X	X	X	X	X	X	X															
2	Top 10 Causes of Institutional Mortality		X	X	X	X	X	X															
3	In patient mortality rate		X	X	X	X	X	X															
C1.4.2 Communicable Diseases: Total indicators: 45																							
C1.4.2.1 HIV/AIDS: Total indicators: 14																							
1	Number of individuals Tested and counseled for HIV and who received their test results		X	X	X	X	X	X															
2	Number of PLHIV newly		X	X	X	X	X	X															

		Monthly						Quarterly						Annually								
		HF			Admin			HF			Admin			HF			Admin					
		HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH	HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH	HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH
	enrolled in Pre-ART care																					
3	HIV positive persons receiving co-trimoxazole prophylaxis	X	X	X	X	X	X															
4	Number of ever started on ART	X	X	X	X	X	X															
5	Number of adults and children receiving antiretroviral therapy (Currently on ART)	X	X	X	X	X	X															
6	Number of adults and children with HIV infection newly started on ART	X	X	X	X	X	X															
7	Survival on ART	X	X	X	X	X	X															
8	Percentage of ART patients with an undetectable viral load at 12 month after initiation of ART	X	X	X	X	X	X															
9	Proportion of clinically undernourished People Living with HIV (PLHIV) who received therapeutic or supplementary food	X	X	X	X	X	X															
10	Number of HIV-positive adults and children Currently receiving clinical care	X	X	X	X	X	X															
1	Number of	X	X	X	X	X	X															

		Monthly						Quarterly						Annually									
		HF			Admin			HF			Admin			HF			Admin						
		HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH	HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH	HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH	
1	HIV-positive adults and children newly enrolled in clinical care																						
1 2	Number of persons provided with Post-exposure prophylaxis (PEP)		X	X	X	X	X	X															
1 3	Health Facilities Providing ART that Experienced Stock-out of at least one required ARV								X	X	X	X	X	X									
1 4	Percentage of HIV infected women using a modern family planning method		X	X	X	X	X	X															
C1.4.2.2 Tuberculosis: Total indicators: 16																							
1	Tuberculosis case detection rate (All forms)								X	X	X	X	X	X									
2	Tuberculosis re-treatment rate								X	X	X	X	X	X									
3	Cure rate for bacteriologically confirmed new PTB cases (CR)								X	X	X	X	X	X									
4	Treatment Success Rate (TSR) among bacteriologically confirmed PTB cases								X	X	X	X	X	X									
5	Treatment success among of clinically diagnosed new TB cases								X	X	X	X	X	X									
6	Death rate among all forms of TB cases								X	X	X	X	X	X									

		Monthly						Quarterly						Annually								
		HF			Admin			HF			Admin			HF			Admin					
		HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH	HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH	HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH
7	Lost to follow up rate among all forms of TB								X	X	X	X	X	X								
8	TB case Detection through community TB care								X	X	X	X	X	X								
9	Proportion of TB cases (all forms) provided treatment observation (DOT) by the community among all TB cases								X	X	X	X	X	X								
10	Proportion of AFB Microscopy centers (HF) with adequate EQA performance								X	X	X	X	X	X								
11	Proportion of TB cases (all forms) contributed by private sector								X	X	X	X	X	X								
12	Proportion of presumptive MDR TB cases with result for drug susceptibility testing (DST)								X	X	X	X	X	X								
13	Number of MDR TB cases detected								X	X	X	X	X	X								
14	MDR-TB cases enrolled on Second Line Drugs (SLDs)								X	X	X	X	X	X								
15	MDR TB Treatment Six month Interim result								X	X	X	X	X	X								
16	Final outcome MDR-TB cases								X	X	X	X	X	X								

		Monthly						Quarterly						Annually								
		HF			Admin			HF			Admin			HF			Admin					
		HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH	HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH	HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH
C1.4.2.3 Leprosy: Total indicators: 3																						
1	Leprosy case notification									X	X	X	X	X	X							
2	Grade II disability rate among new cases of leprosy									X	X	X	X	X	X							
3	Leprosy treatment completion rate									X	X	X	X	X	X							
C1.4.2.4 TB/HIV Co-infection: Total indicators: 5																						
1	HIV screening for TB patients									X	X	X	X	X	X							
2	TB Screening for HIV positive Clients									X	X	X	X	X	X							
3	Ant-Retroviral Therapy (ART) for HIV positive TB patient									X	X	X	X	X	X							
4	INH Preventive therapy (IPT) for HIV positive clients									X	X	X	X	X	X							
5	Co-trimoxazole preventive therapy during TB treatment									X	X	X	X	X	X							
C1.4.2.5 Malaria: Total indicators: 5																						
1	Morbidity attributed to malaria	X	X	X	X	X	X	X														
2	Facility based Malaria deaths		X	X	X	X	X	X														
3	Malaria positivity rate	X	X	X	X	X	X	X														
4	Proportion of targeted HH covered with LLIN in the last 12 months															X	X		X	X	X	X
5	Proportion of unit structure covered by Indoor residual spraying																		X	X	X	X
C1.4.2.6 Neglected Tropical Diseases (NTDS) : 2																						
1	Therapeutic Coverage for								X	X		X	X	X	X							

		Monthly						Quarterly						Annually									
		HF			Admin			HF			Admin			HF			Admin						
		HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH	HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH	HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH	
	preventive chemotherapy diseases (PCT)																						
2	Number of lymph edema cases treated							X	X	X	X	X	X	X									
C1.4.3 Non-communicable diseases: 5																							
1	Morbidity attributed to hypertension		X	X	X	X	X	X															
2	Morbidity attributed to diabetes mellitus		X	X	X	X	X	X															
3	Morbidity attributed to asthma		X	X	X	X	X	X															
4	Cervical cancer screening in women age 30 – 49 using VIA/PAP smear		X	X	X	X	X	X															
5	Cataract surgical rate																X	X	X	X	X	X	X
C2 Community Ownership: 2																							
1	Proportion of Model households graduated / Households Currently Model/							X	X		X	X	X	X									
2	Proportion of functional 1 to 5 networks	X	X		X	X	X	X															
F1 Resource Mobilization and Utilization: 4																							
1	General government expenditure on health																		X	X	X	X	
2	Health budget utilization																X	X	X	X	X	X	
3	Share of internal revenue generated															X	X	X	X	X	X	X	
4	Proportion of reimbursed amount out of total patient fees waived															X	X	X	X	X	X	X	

		Monthly						Quarterly						Annually								
		HF			Admin			HF			Admin			HF			Admin					
		HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH	HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH	HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH
P1 Quality of health Services: 6																						
1	Outpatient attendance per capita	X	X	X	X	X	X	X														
2	Admission rate		X	X	X	X	X	X														
3	Bed occupancy rate		X	X	X	X	X	X														
4	Average length of stay		X	X	X	X	X	X														
5	Proportion of blood units utilized from blood bank service																					
6	Serious adverse transfusion incidents and reactions																					
P3 Pharmaceutical Supply and Services: 1																						
1	Essential drugs availability	X	X	X	X	X	X	X														
P5 Evidence Based Decision Making: 4																						
1	Integrated Supportive Supervision								X	X	X	X	X	X	X							
2	Report Completeness		X		X	X	X	X														
3	Report Timeliness		X		X	X	X	X														
4	Data quality (LQAS at HF)	X	X	X																		
CB1 Health Infrastructure: 4																						
1	Functional Facility to population ratio																		X	X	X	X
2	Health institutions newly constructed and upgraded																		X	X	X	X
3	Health institutions with functional infrastructure															X	X	X	X	X	X	X
4	Primary health care coverage																		X	X	X	X
CB2 Human Capital and leadership: 4																						
1	Health Staff to population ratio by															X	X	X	X	X	X	X

	category	Monthly						Quarterly						Annually								
		HF			Admin			HF			Admin			HF			Admin					
		HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH	HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH	HP	HC/Clinic	Hosp	WoHO	O	RHB	FMOH
2	Health staff skill mix														X	X	X	X	X	X	X	X
3	health professional attrition rate														X	X	X	X	X	X	X	X
4	Facilities staffed as per the standard														X	X	X	X	X	X	X	X

Appendix B HMIS / M&E Implementation Roles and Responsibilities at Hospitals

1. Obtain sanction for HMIS, Hospital Information System (HIS), and card room posts and hire staff.
 - Optimal
 - a. HMIS / HIS
 - One person/ 150 patients/clients/ day
 - Professional background: Diploma in HMIS or Medical Records or Statistics
 - b. Card room: 5 minimum + 1/100 patients/clients/ day
 - Required to begin implementation
 - a. Minimum 1 full time HMIS professional person.
 - b. Card room: 5 minimum
2. Establish an HMIS implementation team.
 - a. Composed of Medical Director (team leader), Medical Administrator, Matron, HMIS staff, and at least one Disease Prevention and Control and Family Health specialist (MD, HO, or senior nurse).
 - b. Prepare Hospital HMIS implementation plan. In the plan, care should be taken to ensure that all reengineering and personnel requirements are fulfilled before training begins at the Hospital.
 - c. Monitor execution of implementation plan and provide guidance and support as necessary.
 - d. Assist woreda / sub city, regional and FMOH training teams in training and follow-up supervision.
 - e. Provide orientation / sensitization to other public sector and civil society organizations as required.
3. Training.
 - a. Assist woreda / sub city, regional, and FMOH training team to train all hospital staff.
 - b. Provide post-training follow-up supervision, in collaboration with regional and federal training teams, to ensure that training is put into practice.
4. Resource mobilization for all.
 - a. HMIS and medical statistics staff and their office furnishings, including ICT, if any, and an HMIS storage area including space for archives and storage of stationery.
 - b. Budget for hospital HMIS work – stationery, office supplies, and, if appropriate, ICT consumables (paper, ink cartridges, CDs, etc) and ICT maintenance.
 - c. Estimate costs, if any, for reengineering card room for integrated medical records folder and fast track. Estimate costs for additional card room staff needed, if any. Higher level hospitals request funds from RHB; district hospitals from woreda.
5. Establish a performance monitoring team, as specified in HMIS Information Use Guidelines. Include HMIS implementation progress on regular management agenda during preparation phase,

and monthly / quarterly performance monitoring when the HMIS has been installed. Conduct meetings with other groups as specified in Harmonization manual.

6. Specific responsibilities of HMIS officer.
 - a. In collaboration with clinical staff, supervise recording of client/patient information on cards and registers according to standard.
 - b. Perform monthly data quality checks
 - c. Ensure that HMIS reports are completed in a timely fashion
 - d. Provide tables and charts as needed for performance monitoring team
 - e. Ensure that display charts, worksheets, and performance monitoring team meeting minutes are maintained.
 - f. Establish mechanism for ensuring a supply of HMIS reporting and recording formats.

Appendix C- Sample BSC for a Governing Board and an Emergency Room

Sample Balanced Scorecard for Governing Board

Hospital Name:						
No. of approved beds:		Catchment population				
No. of operational beds:		Catchment area (km ²)				
HOSPITAL EFFICIENCY			Current period	Last period	QUALITY INDICATORS	
					Current period	Last period
UTILISATION					Healthcare acquired infection rate	
Inpatient admissions					Inpatient mortality rate	
New outpatient visits					Pressure sore incidence rate	
Repeat outpatient visits					Unplanned readmission rate within 28 days	
Number (%) of persons with exempt service					Drug stock out days of tracer drugs	
Number (%) of persons with 'fee waiver' service					Number of clinical audits completed	
REFERRALS					Number of occupational injuries reported	
Number (rate) of referrals received					FINANCE	
Number (rate) of referrals made					REVENUE MIX	
WAIT TIME					Govt. Allocation (% of total revenue)	
ER wait time to triage					Private wing (% of total revenue)	
OPD wait time to triage					Insurance payment (% of total revenue)	
OPD consultation transit time					Non insurance patient fees (% of total revenue)	
DELAY FOR ELECTIVE ADMISSION AND PROCEDURE					Other sources (% of total revenue)	
Medical admission					Operating margin	
Surgical admission					Ratio of budget utilization to allocation	
Delay for elective surgical procedure					% reimbursed amount to total fees waived	
BED OCCUPANCY RATE					PATIENT AND COMMUNITY PERSPECTIVE	
AVERAGE LENGTH OF STAY					Inpatient overall rating of hospital	
BED TURNOVER RATE					Inpatient willingness to recommend hospital	
PRODUCTIVITY RATIOS					Outpatient overall rating of hospital	
Number of major surgeries per surgeon					Outpatient willingness to recommend hospital	
Inpatient days per doctor					Staff overall rating of hospital	
Inpatient days per nurse					Staff willingness to recommend hospital	
Inpatient days per other clinical staff					Number of complaints received	
OPD visits per practitioner per day					Number (%) of complaints upheld	
Doctors per bed					GROWTH AND INNOVATION	
Nurses per bed					% of posts filled as per the Regional standard	

Other clinical staff per bed			Total number (attrition rate) medical staff		
COSTS			Total number (attrition rate) health officers		
Salary expenses (% of total expenses)			Total number (attrition rate) nursing staff		
% of hospital recurrent budget spend on administration			Total number (attrition rate) other clinical staff		
Cost per patient day equivalent			Total number (attrition rate) non clinical staff		
% OF HOSPITAL REFORM OPERATIONAL STANDARDS MET			Cumulative number (%) of staff evaluated		
			Cumulative number (%) of staff who received in service training		
			Number of functional computers		

Sample Balanced Scorecard for Emergency Room (ER)

Hospital Name:						
No. of approved beds:		Catchment population				
No. of operational beds:		Catchment area (km ²)				
			Current period	Last period		
HOSPITAL EFFICIENCY					QUALITY INDICATORS	
UTILISATION						
Number of ER attendances					ER mortality rate	
New of patients admitted to hospital from ER (% of ER attendances)					Unplanned re-attendance within 28 days	
Number of patients kept in ER for up-to 24 hours (% of ER attendances)					Number of clinical audits complete by ER staff	
REFERRALS					Number of occupational injuries reported by ER staff	
Number of ER referrals received from other facilities (% of all ER attendances)					PATIENT AND COMMUNITY PERSPECTIVE	
Number of ER referrals made to other facilities (% of all ER attendances)					ER patient overall rating of hospital	
WAIT TIME					ER patients willingness to recommend hospital	
Average ER wait time to triage					Number of complaints received about ER service	
Average ER transit time from arrival to discharge					% of complaints about ER service upheld	
Average ER wait time from completion of ER treatment to admission to inpatient bed					GROWTH AND INNOVATION	
PRODUCTIVITY RATIOS					Cumulative number (%) of ER staff appraised	
Average daily number of attendances per doctor					Cumulative number (%) of ER staff who received in-service training	
Average daily number of attendances per health officer					STAFFING	
Average daily number of attendances per nurse					Total number (attrition rate) ER medical staff	
Average daily number of attendances per 'other clinical' staff					Total number (attrition rate) ER health officers	
FINANCE					Total number (attrition rate) ER nursing staff	
ER salary expenses (% of ER operational expenditure)					Total number (attrition rate) ER 'other clinical' staff	
Cost per ER attendance						
Number (%) of ER patients provided with free service						

Appendix D

Definition of Indicators in Sample BSC for Governing Board

Indicator	Definition	Methodology/Formula
HOSPITAL EFFICIENCY AND EFFECTIVENESS		
UTILIZATION		
Inpatient admissions	The number of patients admitted (including transfer ins) to an inpatient bed during the reporting period	Total number of admitted (including transfer in) patients
New outpatient visits	The number of new outpatient visits (including emergencies and specialized clinics such as ART, VCT) during reporting period	Total number of new outpatient visits
Repeat outpatient visits	The number of repeat outpatient visits (including emergencies and specialized clinics such as ART, VCT) during reporting period	Total number of repeat outpatient visits
Number (%) if persons provided with exempt services	Number of patients provided with an exempt services (as % of all attendances) during the reporting period	a) Total number; and b) Number of patients provided with exempt services ÷ Total number of OPD, ER and inpatient attendances x 100
Number (%) of persons provided with 'fee waiver' service	Number of 'fee waiver' patients, (as % of all attendances) during the reporting period	a) Total number; and b) Number of 'fee waiver' patients ÷ Total number of OPD, ER and in patient attendances x 100
REFERRALS		

Number (Rate) of referrals received	The total number of OPD attendances, ER attendances and inpatient admissions who were referred <i>from</i> another facility with a referral paper (as a % of total OPD attendances, ER attendances and inpatient admissions) during the reporting period	<ul style="list-style-type: none"> a) Total number of OPD attendances, ER attendances and admitted in patients with referral paper from another facility; and b) Number of OPD attendances, ER attendances and admitted in patients with referral paper from another facility \div total number of OPD attendances, ER attendances and admitted inpatients x 100
Number (Rate) of referrals made	The total number of OPD attendances, ER attendances and inpatient admissions who were referred <i>to</i> another facility with a referral paper (as a % of total OPD attendances, ER attendances and inpatient admissions) during the reporting period	<ul style="list-style-type: none"> a) Total number of OPD attendances, ER attendances and admitted in patients referred to another facility; and b) Number of OPD attendances, ER attendances and admitted in patients referred to another facility \div total number of OPD attendances, ER attendances and admitted inpatients x 100
WAIT TIME		
ER wait time to triage	Average time from arrival at the emergency department to initiation of triage (minutes)	Σ time from arrival at the emergency department to initiative of triage \div number of attendances
OPD wait time to triage	Average time from arrival at the outpatient department to initiation of triage (minutes)	Σ time from arrival at OPD to initiative of triage \div number of attendances
OPD consultation transit time	The time from beginning of OPD consultation to discharge from the facility (following completion of investigations and purchase of any necessary drugs)	Σ Time from beginning of OPD consultation to discharge from facility (following completion of investigations and purchase of any necessary drugs) \div number of attendances
DELAY FOR ELECTIVE ADMISSION AND PROCEDURE		
Medical admission	The average number of days from when a patient was added to the medical waiting list to admission	Σ number of days on waiting list \div number of patients
Surgical admission	The average number of days from when a patient was added to the surgical waiting list to admission	Σ number of days on waiting list \div number of patients

Delay for elective surgical procedure	The average number of days from when a patient was admitted for elective surgery, to the actual procedure being performed	Σ number of days in hospital awaiting surgery \div number of elective surgical admissions
BED OCCUPANCY RATE	The average percentage of occupied beds during the period under review	Total length of stay in days (sum total of each daily inpatient census) during reporting period \div [Number of beds available x number of days in period]
AVERAGE LENGTH OF STAY	The average number of days from admission to discharge for each inpatient.	Total length of stay in days (sum total of each daily patient census) \div [Total discharges + transfer outs + deaths]
BED TURNOVER RATE	The ratio of patient discharges to beds	Total number of discharges (including transfer outs and deaths) \div Average number of beds during reporting period
PRODUCTIVITY RATIOS		
Number of major surgeries per surgeon	The average number of major surgical procedures per specialist surgeon	Total number of major surgeries \div total number of surgeons
In patient days per doctor	The average number of in-patient bed days per doctor	Total length of stay in days (sum total of each daily patient census) \div number of physicians
In patient days per nurse	The average number of inpatient bed days per nurse	Total length of stay in days (sum total of each daily patient census) \div number of nurses
In patient days per other clinical staff	The average number of inpatient bed days per other clinical staff	Total length of stay in days (sum total of each daily patient census) \div number of other clinical staff
OPD visits per practitioner per day	The average number of OPD visits per OPD practitioner (physician, nurse, health officer) per day	Total number of outpatient visits \div [number of OPD practitioners x 22 x number of months in reporting period]
Doctors per bed	The ratio of doctors per bed	Number of doctors \div average number of beds
Nurses per bed	The ratio of nurses per bed	Number of nurses \div average number of beds

Other clinical staff per bed	The ratio of other clinical staff per bed	Number of other clinical staff ÷ average number of beds
COSTS		
Salary expenses as % of total expenses	The total amount expensed for salaries divided by the hospital's total operational expenditure during the reporting period	Total expenditure on salaries ÷ total hospital operational expenditure x 100
% of hospital recurrent expenditure spent on administration	Proportion of hospital recurrent expenditures spent on administration during reporting period	Amount of recurrent expenditure on administration ÷ total amount of recurrent expenditure x 100
Cost per patient-day equivalent	The average cost for a 'patient day equivalent'. The Cost per PDE is obtained by dividing the total hospital operational costs by the number of inpatient days plus the number of OPD and ER visits divided by four. It assumes that the cost of one inpatient day is equivalent to four OPD visits	Total operational costs ÷ [number of inpatient days + (OPD and ER visits/4)]
% OF HOSPITAL REFORM STANDARDS MET	% of Operational Standards of the National Hospital Reform Implementation Guidelines that are met	Number of standards met ÷ Total number of standards x 100
QUALITY INDICATORS		
Healthcare acquired infection rate	An infection occurring in a patient in a hospital or other health care facility in whom the infection was not present or incubating at the time of admission. Infections occurring >48 hours after admission.	Number of patients with an infection arising >48 hours after admission ÷ total number of admissions x 100
Inpatient mortality rate	% of deaths among admitted inpatients	Number of IPD deaths ÷ Total number of admissions x 100
Pressure sore incidence rate	A chronic ulcer of the skin caused by prolonged pressure on it (as in bedridden patients)	Number of pressure sores ÷ number of admissions x 100

Unplanned readmission rate within 28 days following discharge	Proportion of discharged patients who are re-admitted to hospital for the same condition or a complication of that condition within 28 days of discharge. Planned admissions (e.g. for further treatment or investigations) are excluded	Number of unplanned readmissions ÷ Number of admitted patients x 100
Drug stock out days of tracer drugs	Average stock out duration is the number of days in which a tracer drug was not available averaged over all tracer drugs.	\sum of stock out days of tracer drugs throughout reporting period ÷ total number of tracer drugs
Number of clinical audits completed	Number of completed audit reports submitted to clinical audit officer	Number of completed audit reports submitted to clinical audit officer
Number of occupational injuries reported	Number of occupational injuries reported to Incident Officer	Number of occupational injuries reported to Incident Officer
FINANCE		
REVENUE MIX		
Government allocation (% of total revenue)	Amount of govt. allocation (as a % of total revenue)	a. Revenue from Govt. allocation; and b. Revenue from govt. allocation ÷ total revenue x 100
Private wing (%)	Amount of private wing revenue (as a % of total revenue)	a. Revenue from private wing; and b. Revenue from private wing ÷ total revenue x 100
Insurance payment (%)	Amount of insurance payments revenue (as a % of total revenue)	a. Revenue from insurance payments; and b. Revenue from insurance payments ÷ total revenue x 100
Non insurance patient fees (%)	Amount of patient fee revenue (as a % of total revenue)	a. Revenue from patient fees; and b. Revenue from patient fees ÷ total revenue x 100
Other sources (%)	Amount of revenue from other sources (as a % of total revenue)	a. Revenue from other sources; and b. Revenue from other sources ÷ total revenue x 100

Operating margin	The % of operating revenue remaining after all operating expenses are paid	$\frac{[\text{Total operating revenue} - \text{total operating expenses}]}{\div \text{total revenue}} \times 100$
Ratio of health budget utilization to allocation	Proportion of allocated health budget that was utilized during the reporting period	$\text{Budget utilized} \div \text{budget allocated} \times 100$
% of reimbursed amount out of the patient total fees waived	Proportion of patient fees waived that were reimbursed.	$\frac{\text{Amount of waived fees reimbursed}}{\div \text{amount of fees waived}} \times 100$
PATIENT AND COMMUNITY PERSPECTIVE		
Inpatient overall rating of hospital	Average rating of hospital on a score of 0-10 from inpatient satisfaction survey	$\frac{\sum \text{scores given}}{\div \text{number of inpatients surveyed}}$
Inpatients' willingness to recommend hospital'	% of respondents answering 'definitely yes' or 'probably yes' to the question "Would you recommend this hospital to your family/friends?" from inpatient satisfaction survey	$\frac{\text{Number of respondents answering 'definitely' or 'probably' yes}}{\div \text{total number of inpatients surveyed}} \times 100$
Outpatient overall rating of hospital	Average rating of hospital on a score of 0-10 from outpatient satisfaction survey	$\frac{\sum \text{scores given}}{\div \text{number of outpatients surveyed}}$
Outpatients' willingness to recommend hospital	% of respondents answering 'definitely yes' or 'probably yes' to the question "Would you recommend this hospital to your family/friends?" from outpatient satisfaction survey	$\frac{\text{Number of respondents answering 'definitely' or 'probably' yes}}{\div \text{total number of outpatients surveyed}} \times 100$
Staff overall rating of hospital	Average rating of hospital on a score of 0-10 from staff survey	$\frac{\sum \text{scores given}}{\div \text{number of staff surveyed}}$

Staff willingness to recommend hospital'	% of respondents answering 'definitely yes' or 'probably yes' to the question "Would you recommend this hospital to your family/friends?" from staff survey	Number of respondents answering 'definitely' or 'probably' yes ÷ total number of staff surveyed x 100
Number of complaints received	Number of written complaints received by hospital	Total number of written complaints received by hospital
% of complaints supported (upheld)	Number of complaints supported (upheld) by complaints review committee as a % of all complaints	Number of complaints supported ÷ total number of complaints received x 100
GROWTH AND INNOVATION		
% of posts filled as per regional standard	Proportion of posts filled as per regional standards.	Total number of posts filled ÷ total number of posts as per regional standard x 100
Total number (Attrition rate) - medical staff	a. Total number of physicians at end of period; and b. Proportion of physicians who left during reporting period	a. Number of physicians at end of reporting period; and b. Number of physicians who left during reporting period ÷ total number of physicians at beginning of reporting period x 100
Total number (Attrition rate) - health officers	a. Total number of HOs at end of reporting period; and b. Proportion of HOs who left during reporting period	a. Number of HOs at end of reporting period; and b. Number of HOs who left during reporting period ÷ total number of HOs at beginning of reporting period x 100
Total number (Attrition rate) - nursing staff	a. Total number of nurses at end of reporting period; and b. Proportion of HOs who left during reporting period	a. Number of nurses at end of reporting period; and b. Number of nurses who left during reporting period ÷ total number of nurses at beginning of reporting period x 100
Total number (Attrition rate) – 'other clinical staff'	a. Total number of 'other clinical staff' at end of reporting period; and b. Proportion of 'other clinical staff' who left during reporting period	a. Number of 'other clinical staff' at end of reporting period; and b. Number of 'other clinical staff' who left during reporting period ÷ total number of 'other clinical staff' at beginning of reporting period x 100

Total number (Attrition rate) - non clinical staff	<ul style="list-style-type: none"> a. Total number of non-clinical staff at end of reporting period; and b. Proportion of non-clinical staff who left during reporting period 	<ul style="list-style-type: none"> a. Number of non-clinical staff at end of reporting period; and b. $\text{Number of non-clinical staff who left during reporting period} \div \text{total number of non-clinical staff at beginning of reporting period} \times 100$
Cumulative number (%) of staff who underwent performance evaluation	Total number of staff who underwent performance evaluation from beginning of year to end of reporting period (as a % of all staff)	<ul style="list-style-type: none"> a. Total number of staff evaluated from beginning of year to end of reporting period; and b. $\text{Total number of staff evaluated} \div \text{number of staff at beginning of year} \times 100$
Cumulative number (%) of staff who received in service training	Total number of staff who received training from beginning of year to end of reporting period (as a % of all staff)	<ul style="list-style-type: none"> a. Total number of staff trained from beginning of year to end of reporting period; and b. $\text{Total number of staff trained} \div \text{number of staff at beginning of year} \times 100$
Number functional computers	Number of functional computers at the facility	Number of functional computers