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POLICY AND PRACTICE INFORMATION FOR ACTION

*Better Information
Better Decision
Better Health*

*Better, Bigger, Faster:
Working Together
Towards the Achievement
of the Millennium
Development Goals*

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SUPPORTING EVIDENCE-BASED DECISION MAKING: TOWARDS THE ACHIEVEMENT OF THE HEALTH MILLENNIUM DEVELOPMENT GOALS

Kesetebirhan Admasu¹

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This edition of the Quarterly Health Bulletin “Policy and Practice – Information for Action” focuses on the ongoing efforts to improve the performance of the health sector, and on its contribution towards the achievement of the Millennium Development Goals (MDG). In this perspective, it is necessary to bring a sharper focus on reducing the unacceptable gap between unprecedented knowledge on health and disease and the implementation of that knowledge. Using evidence can help improve health, be it through promoting better health practices, introducing innovative technologies, or applying evidence in health policy formulation. This is achieved through the establishment of an effective cycle of data gathering, sharing, analysis, understanding, reporting, and application in decision making - the process whereby data are transformed into information and knowledge for action.

The first article under the section “*Health Sector Development Programme*” is “*Envisioning the future of the health sector: an update*”, which provides an overview on the ongoing work to develop the 20-year health sector vision to achieve the health outcomes that are commensurate with lower-middle income country by 2025 and middle-middle income country by 2035. The purpose of this visioning document is to define the framework for strategic action to enable Ethiopia to advance toward this objective, consolidating achievements and addressing challenges. The strategy is to expand universal health coverage (UHC) through strengthening primary health care (PHC). Guaranteeing access to health services for everyone while providing protection against financial risk are the two main features of UHC. Therefore, services must be physically accessible, financially affordable and acceptable to patients if UHC is to be attained. As Ethiopia advances to middle income country status, its goal is to realize progress towards UHC and ultimately to achieve UHC for all Ethiopians.

The second article under the section “*Health Sector Development Programme*” is “*The last lap towards Millennium Development Goals: the performance of the health sector in EFY 2005*”, which gives an overview of the planned activities, main achievements and key

challenges encountered in EFY 2005. It tries to address the critical question of how to speed the pace of change observed in the past into dramatically faster progress during the Health Sector Development Programme (HSDP) IV period, whose end in 2014/15 corresponds to the deadline of the quantitative, time-bound framework of accountability of the MDGs. Central to Ethiopia’s health performance is the country’s strategy to deliver more and better health care to women and children. To this end, the HSDP has been successful in putting in place the Health Extension Program which has contributed in a major way to improved availability and accessibility of PHC services, and paved the way for the achievement of the MDGs. In this perspective, the implementation of the Health Development Army is underway with the aim to drive behavioural change and expand safe health practices at community level, with a vision of considering the community as a potential producer of health, instead of as a mere consumer of medicines and curative services.

A key strategy is to bridge the continuum of care from pregnancy, through childbirth and neonatal period, and beyond, and also between places of care giving (households and communities, outpatient and outreach services, and clinical-care settings). It is for this reason that different programs in place are focusing on ensuring continuum of care and strengthening the referral linkages across the levels of the health system. For example, the National Nutrition Programme (NNP) has been designed on the basis of evidence showing the consequences of stunting across the lifecycle starting with the first 1,000 days of life, with subsequent plan of high-impact interventions at community and higher levels using a multisectoral approach to reduce stunting prevalence. The article “*Child nutrition in Ethiopia: a review*” under the section “*Child Health*” provides an overview of achievements and challenges in implementing the NNP as well as documentation on progress in improving child nutrition status in Ethiopia.

However, analyzing improvements through an equity lens reveals that the impressive gains in health experienced in recent years are unevenly distributed, and aggregate indicators do often hide striking variations in health

outcomes across population groups (i.e. between men and women, rich and poor, etc.). A major area of concern is gender inequalities: despite the intense concern frequently expressed in national and international fora, most health information systems and disease control programmes fail to produce sex-disaggregated data, and few studies in Africa have focused on differences in health between females and males. In particular, in Ethiopia, it is crucial to develop such analysis to guide informed decision and evidence-based practice. The article “Describing differences in disease patterns between females and males across age groups: analysis of 54,519 medical records of in-patients admitted to Wolisso Hospital (2005-2011)” under the section “Gender and health” is an example of analysis of data routinely collected in a non-profit hospital, offering interesting insights into the ways in which delivery of health care interacts with the patient’s demand and meets gender-specific health needs, the most obvious differences being related to reproductive health needs. It helps also to disentangle biological differences between females and males from those which are created by the social construct of gender.

Furthermore, the organization of the family-based services in Ethiopia has called for the reorganization of information systems to collect and use information for action at local level using Family Folder. The transition to unified and standardized data collection tool for HEWs is a unique opportunity to promote health practice based on evidence at the community level. The article “*Implementing the Family Folder as a tool of the Community Health Information System in Ethiopia: what’s new? what’s different?*” under the section “*Information System*” shows the innovative features of the Family Folder system, including the expansion of focus from the individual to the whole family, the shift of approach from “transversal” registration of individual services to “longitudinal” follow-up of family, and the change of design from multiple registers to unified data collection tool. Such “bottom-up” approach focused on local priorities and based on sustainable data collection systems may ensure immediate and practical benefits in terms of “better information, better decision, and better health”.

The section “*Health News*” provides an update of the activities and initiatives in the health sector, including new programmes, latest achievements and upcoming events.

Approaching 2015 - the target year for the achievement of the MDGs - we are mindful of the significant gaps and challenges that still confront us, and we cannot afford to fail. To attain these goals requires evidence for informed decision, actionable plan and effective implementation. This bulletin is an important tool to disseminate best practices, innovative experiences and successful

interventions to support evidence-based decision making and bridge the gap between policy and practice. As it has been repeatedly said: “it is not because countries are poor that they cannot afford good health information; it is because they are poor that they cannot afford to be without it”.

ENVISIONING THE FUTURE OF THE HEALTH SECTOR: AN UPDATE

Kesetebirhan Admasu¹, Addis Tamire², and Sentayehu Tsegaye³¹ Minister, Federal Ministry of Health (FMOH)² Chief of Staff, Office of the Minister (FMOH)³ Advisor, Office of the Minister (FMOH)**Summary**

Ethiopia is developing with a promising rate to join middle income countries in a decade. The health sector should be the contributor to the economic growth by turning the vision of seeing healthy and prosperous Ethiopians to reality as well as benefit from the economic growth to avail adequate resources to provide quality services. Envisioning the future of Ethiopia's health sector has taken into account the assumption of Ethiopia becoming a lower-middle income country by 2025 and a middle-middle income country by 2035 to come up with indicative targets with benchmarking of other countries and strategic recommendations to meet those targets. The coming health sector strategies are expected to cope with a changing landscape in socioeconomic situations as well as addressing existing and anticipated challenges such as quality of care and inequalities. A feasible approach to address such challenges is to rehearse universal health coverage through ever improving primary health care with seamless continuation to higher level of care.

1) Introduction

It is high time to envision the future of the health sector as we are at the final year of the current Health Sector Development Program (HSDP), which is the fourth phase (HSDP IV) of the twenty year plan launched in 1997 (FMOH, 2010). HSDP IV is aligned with the Millennium Development Goals (MDG) (UN, 2000): while Ethiopia has already met MDG 4 and most of the targets of MDG 6, further efforts are needed to meet MDG 5 by 2015 (FMOH, 2013). The next health sector strategies are expected to set goals based on lessons learned from current and past experiences, as well as anticipating the future in the socio-economic dynamics of the country in general and the health sector in particular.

It is for these reasons that the Ministry of Health (MOH) is developing the 20-year health sector vision to achieve the health outcomes that commensurate with lower-middle income country (LMIC) by 2025 and middle-middle income country (MMIC) by 2035 (FMOH, 2014). The purpose of this visioning document is to define the framework for strategic action to enable Ethiopia to advance toward this objective.

This visioning exercise is not intended to be a detailed operational plan, but rather to set directions for further development and analysis. It is not a substitute for strategic planning and, therefore, it does not provide specific actions or timetables; rather, it lays out key

strategic directions, which will form the basis for strategic planning in the future.

Prevention of diseases remains an important element of the health system coupled with health promotion which will become more important as the notion of good health is evolving. In fact, the notion of good health is shifting towards creating and maintaining good health and well-being, rather than only preventing and treating cases. Besides, a health system needs to focus on a people-centered approach, which thrives to provide health care from health promotion and diseases prevention to curative and rehabilitative services in seamless continuum of care. There might be interventions designed in different programs; however, their implementation should be in an integrated manner with primary focus of benefiting the client, particularly at service delivery points.

Coping with changing landscape in socioeconomic situations and epidemiology as well as widening gap of inequalities as the country grows, and ensuring quality of care to meet people's needs, are expected to pose challenges to the health sector. A plausible approach to address these challenges is to expand universal health coverage (UHC) through strengthening the primary health care (PHC).

UHC has been defined as guaranteeing access to all necessary services for everyone while providing

protection against financial risk. Therefore, services must be physically accessible, financially affordable and acceptable to patients if UHC is to be attained (Evans et al. 2013). As Ethiopia advances to middle income country status, its goal is to progressively realize progress towards UHC and ultimately to achieve UHC for all Ethiopians. Achieving UHC requires progress along two related dimensions of health system development. First, quality health services must be provided to all those in need; second, mechanisms to pay for these services must be developed that protect those who need and use the services from facing significant financial risks from direct payment of services. Ethiopia has put in place significant efforts to advance along both dimensions. Ethiopia is developing PHC through its Health Extension Program (HEP) and Primary Health Care Units (PHCU) as the principal means to achieve service coverage, the first dimension. It is investing to reduce disparities and improve equity in access. This will be complemented by strengthening of hospitals at various levels and other complementary services. Ethiopia has also made efforts to assure financial risk protection through the expansion of community-based health insurance and social health insurance, the second dimension. Expanding both service coverage and financial protection will emphasize equity in reaching the more disadvantaged and reducing disparities within Ethiopia's population.

1.1) The visioning exercise

Over the last couple of years, the MOH is engaged in a visioning exercise to think broadly and strategically about the long-term development of the Ethiopian health system with a particular emphasis on the primary care system. This activity was carried out by a "Visioning Committee" which included staff of MOH and partners. The purpose of the exercise was to envision a system that will be equitable, sustainable, adaptive and efficient, and will meet the health needs of a changing population between now and 2035. It is anticipated that, in the coming 20 years, Ethiopia will continue its fast pace of development, and will transition to being a LMIC by 2025, and a MMIC by 2035. As the country transitions, the MOH intends to continue to invest in the primary care in order to advance the overall health and wellbeing of the population, and serve the priority health needs of the majority of its people. Strong investments in primary care with seamless continuum of care to hospitals are anticipated to result in continued improvements in health outcomes, which are already being seen since the launch of the HEP.

1.2) Methods used for the visioning exercise

Multiple sources of data and analysis were used to produce a draft document for a wider consultation in the near future, which has been completed by the MOH Visioning Committee in collaboration with a team from Harvard and Yale Universities. The process is being supported by the Bill and Melinda Gates Foundation.

To ground the strategic analysis, a situation analysis was conducted. The situation analysis synthesized data from a comprehensive literature review, including data used from the Ethiopia Demographic Health Surveys (EDHS) 2000 (CSA and ORC Macro, 2001), 2005 (CSA and ORC Macro, 2006), and 2011 (CSA and ICF, 2012) and the Ethiopia Health Extension Program Evaluation Study (CNHD, 2011), key strategic planning documents from the Government of Ethiopia and the MOH as well as 50 in-depth interviews with individuals and groups, including directorates within the MOH and its agencies, Development Partners (DP) and other stakeholders. An experience sharing meeting was held in Boston (USA) to learn lessons from countries with relatively good progress in the PHC, including Brazil and Sri Lanka.

The Visioning Committee identified six strategic areas for health sector:

- Empower the community to play a significant role in the health sector;
- Strengthen PHCU within the wider health sector context;
- Ensure a robust Human Resources Development that commensurates with socio-economic development of the country as LMIC by 2025 and MMIC by 2035;
- Engage the private sector and Civil Society Organizations (CSO) in support of the MOH's vision;
- Develop sustainable financing mechanisms necessary to achieve a better health outcome; and
- Develop institutional capacity at MOH, Regional Health Bureaus, and related agencies to be responsive to changing economic, social, environmental, technical, and epidemiologic context.

Leadership and good governance, multi-sectoral collaboration, research, use of technology and regulatory functions of the health sector are among the main cross cutting issues identified in the visioning exercise.

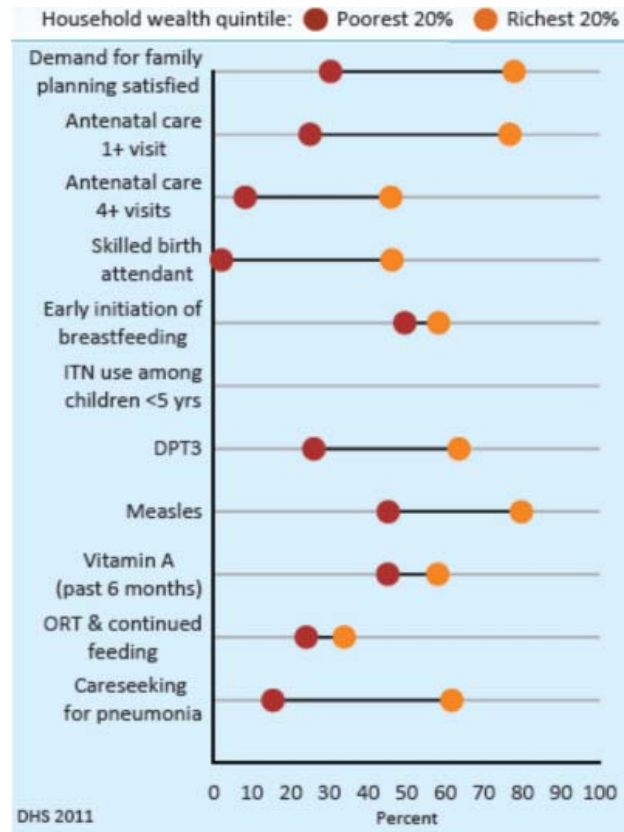


Figure 1. Socioeconomic inequalities in health service coverage (UN, 2013).

To align the recommended strategic frameworks with the post-MDG discussions, a team of international experts from Sustainable Development Solutions Network reviewed the draft visioning document in December 2013.

It is worth noting also that, in the next sections, the graphs on benchmarking are deliberately presented as line graphs to clearly elaborate the benchmarking even if the variables are not continuous ones.

2) Situational Analysis

The situation analysis using document reviews, in-depth interviews with key informants and inputs from technical working groups identified many areas where Ethiopia is excelling in both increasing inputs into its health care system (i.e. HEP), as well as health outcomes being achieved (i.e. reduction in child mortality) (FMOH, 2013). It was also pointed out inadequate capacity to implement a decentralized health system, weak referral network, poor quality of health information system, low effective coverage of high impact interventions, inadequate pharmaceutical supplies at health facilities, lack of human resource (HR) motivation and retention, shortage of highly skilled professionals, and low utilization of health services among the main weaknesses of the sector. Inequalities in health service coverage as well as in high impact indicators are also among the

challenges (UN, 2013), which might worsen unless timely actions are taken in the years to come (Figure 1).

3) Benchmarking

The benchmarking exercise was made mainly through document reviews. The main purpose of the benchmarking exercise was: (i) to study the health status of LMICs and upper-middle income countries (UMIC) and understand how far Ethiopia's health profile needs to improve to have a health profile of middle income countries (MIC); (ii) to understand the health system resources of MICs; and (iii) to understand the health care system performance of MIC.

The 2013 WHO World Health Statistics report (WHO, 2013) and reports of the World Bank (WB, 2013) were the main documents reviewed for this exercise to make comparison from the same sources of information. Through document review, 48 LMICs and 55 UMICs were identified. Averages of health impact indicators, health performance outcomes, risk factors and health system resources were considered to benchmark targets for Ethiopia for 2025 as a LMIC and for 2035 as a MMIC. In some of the indicators, the average of LMICs was found to be minimal to set as a benchmark target for Ethiopia. Hence, further analysis was made to identify best performing countries to benchmark targets as best case scenario for Ethiopia.

Countries with a population more than 10 million and GDP of low income countries in 1970's as well as above-average performance for the following health indicators were identified:

- Maternal Mortality Ratio (MMR) lower than 260 and 53 per 100,000 live births for LMICs and UMICs, respectively;
- Under 5 Mortality Rate (U5MR) lower than 42 and 20 per 1,000 live births for LMICs and UMICs, respectively;
- Age-standardized mortality rates by cause less than 223 and 125 per 100,000 population for communicable diseases (CD), and less than 658 and 600 for non-communicable diseases (NCD) and injuries for LMICs and UMICs, respectively;
- Cause-specific mortality rate less than 14, 22 and 25 per 100,000 population for malaria, TB and HIV, respectively, for LMICs, and less than 1, 6 and 22 for the same diseases for UMICs; and

- Average Life Expectancy (ALE) at birth greater than 66 and 74 years for LMICs and UMICs, respectively.

3.1) Benchmarking for high impact health indicators

The average of health status and health care performance achievements of best countries selected by the above criteria are considered as a benchmark target for Ethiopia as a best case scenario (average achievements of best LMICs for Ethiopia's 2025 target as a best case scenario and average of achievements of best UMICs for Ethiopia's 2035 targets as a best case scenario).

The average of health status and health care performance achievements of all LMICs and UMICs countries are considered as a benchmark target for Ethiopia as a base case scenario (average achievements of all LMICs for Ethiopia's 2025 target as a base case scenario and average achievements of all UMICs for Ethiopia's 2035 targets as a base case scenario).

Tables 1 and 2 summarize benchmarking targets of high impact health indicators.

Table 1. Benchmarking of high impact indicators for 2025.

Lower-middle income countries	MMR	NMR	IMR	U5MR	Age-standardized mortality rate by cause per 100,000 population			Cause-specific mortality rate per 100,000 population			ALE
					CD	NCD	Injuries	Malaria	TB	HIV	
Egypt	66	7	18	21	76	749	34	No data	0.6	0.9	73
Guatemala	120	15	24	30	225	471	130	0	2.4	17	69
Indonesia	220	15	25	32	244	647	70	3.6	27	6	69
Morocco	100	19	28	33	104	597	37	No data	8.7	5	72
Philippines	99	12	20	25	231	599	55	0.2	29	0.5	69
Sri Lanka	35	8	11	12	79	623	233	No data	5.4	1.2	75
Syrian Arab Republic	70	9	13	15	56	619	45	0	1.8	No data	75
Average of selected LMICs (best case scenario for Ethiopia in 2025)	101	12	20	24	145	615	86.3*	0.5	11	4.4	72
Average of all LMICs (base case scenario for Ethiopia in 2025)	260	28	46	42	223	658	82	14**	22**	25	66
Ethiopia-2011 status	350	31	52	77	721	903	139	4	18	No data	60

* Since Ethiopia is planning to achieve a better target, benchmark less than 80 per 100,000 population has been taken (consistent with average of all UMICs).

** Since Ethiopia's 2011 status is already better than average of all LMICs, benchmark less than 1 and 6 per 100,000 population has been taken for malaria and tuberculosis, respectively (consistent with average of all UMICs).

HEALTH SECTOR DEVELOPMENT PROGRAMME

Table 2. Benchmarking of high impact indicators for 2035.

Upper-middle income countries	MMR	NMR	IMR	U5MR	Age-standardized mortality rate by cause per 100,000 population			Cause-specific mortality rate per 100,000 population			ALE
					CD	NCD	Injuries	Malaria	TB	HIV	
Brazil	56	10	14	16	97	534	76	0.1	2.9	No data	74
China	37	9	13	15	58	604	70	0	3.5	No data	76
Colombia	92	11	15	18	64	404	97	0.4	1.9	21	78
Cuba	73	3	5	6	47	468	48	0	0.3	1.4	78
Ecuador	110	10	20	23	105	400	81	0	4.6	13	76
Islamic Republic of Iran	21	14	21	25	82	599	90	0	2.9	11	73
Malaysia	29	3	6	7	185	526	51	0.1	5.7	21	74
Mexico	50	7	13	16	68	493	57	0	1.7	No data	75
Peru	67	9	14	18	173	387	52	0.1	7.4	10	77
Tunisia	56	9	14	16	134	465	36	0	3.1	0.7	76
Turkey	20	9	12	15	53	590	31	0	0.7	0.1	76
Average of selected UMICs (best case scenario for Ethiopia in 2035)	45.5	8.5	13.4	15.9	96.9	497.3	62.6	0.1	3.2	7.1	76
Average of all UMICs (base case scenario for Ethiopia in 2035)	53	10	16	20	125	600	81	0.6	5.7	22	74
Ethiopia-2011 status	350	31	52	77	721	903	139	4	18	No data	60

3.2) Benchmarking of health service coverage and comparisons of risk factors

As it has been demonstrated in Figures 2 and 3, Ethiopia is expected to increase high impact health service coverage in order to achieve a health profile that is similar to selected middle income countries in the benchmarking exercise.

One of the determinants of the epidemiologic features of countries is their profile of risk factors. The benchmarking has tried to identify some indicative risk factors for both communicable and non communicable diseases. Use of improved drinking water, sanitation facilities, housing conditions and nutritional status are among the

risk factors for communicable diseases. As it is shown in Figure 4, Ethiopia has to do much to reduce risks for communicable diseases.

Risk factors for non-communicable diseases, particularly for cardiovascular diseases and cancer, include obesity, high blood pressure, high blood glucose level and smoking habits. Even though the prevalence of risk factors appears lower than in middle income countries, due emphasis should be given to reduce risk factors for non-communicable diseases as such behaviors are highly associated with economic growth and urbanization (Figure 5).

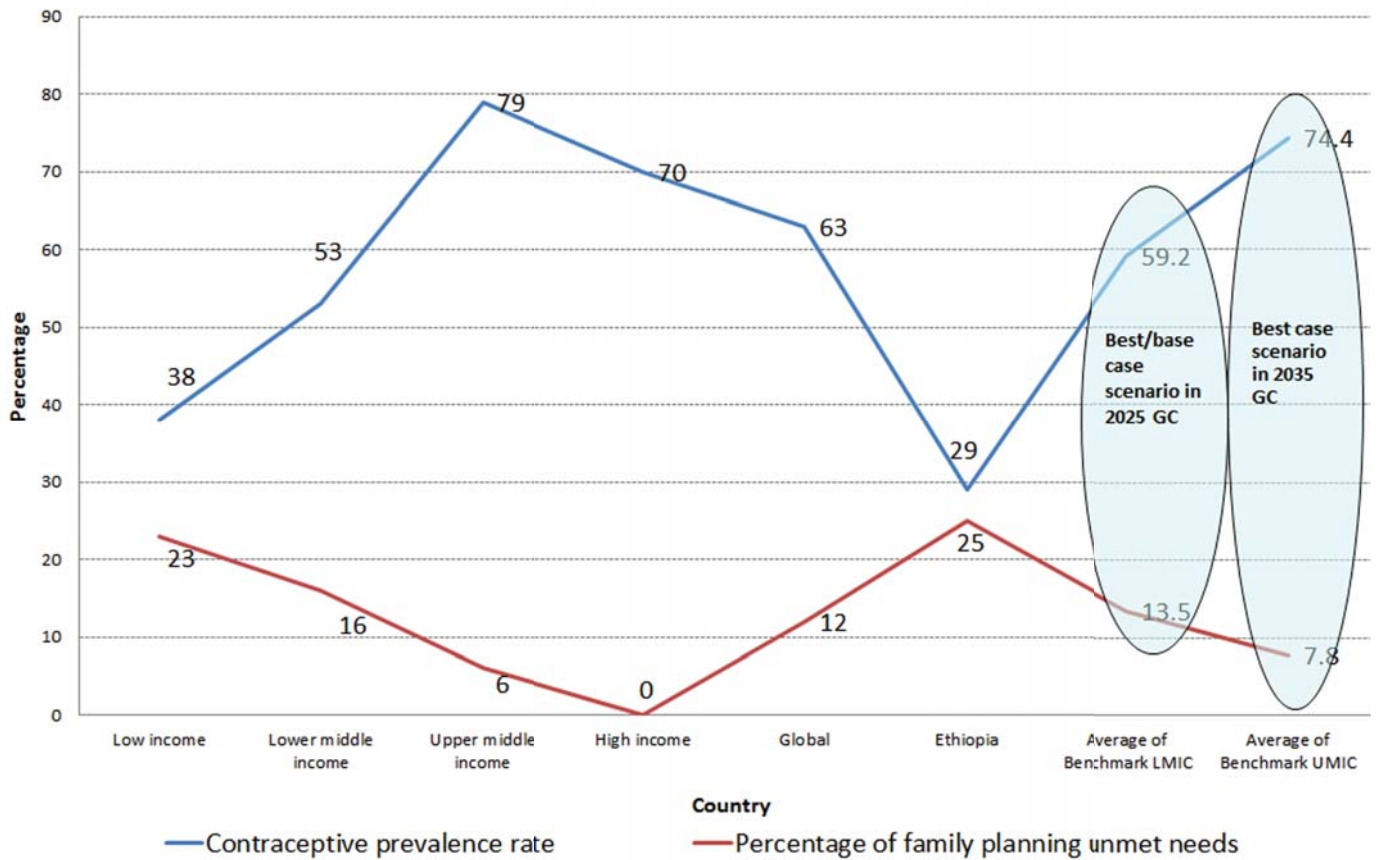


Figure 2. Contraceptive prevalence rate and percentage of family planning unmet need.

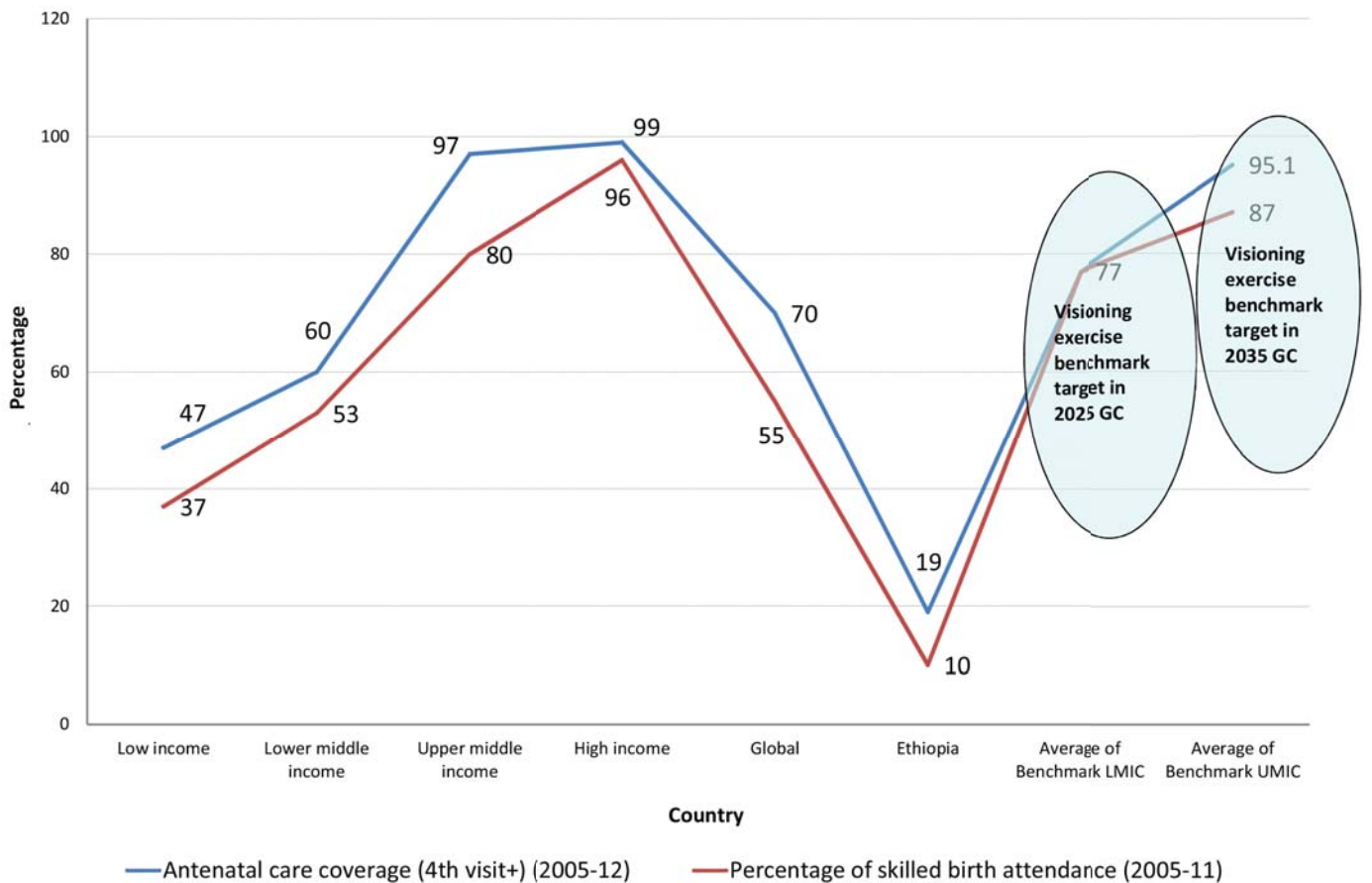


Figure 3. Antenatal care coverage (4th visit) and percentage of skilled birth attendance.

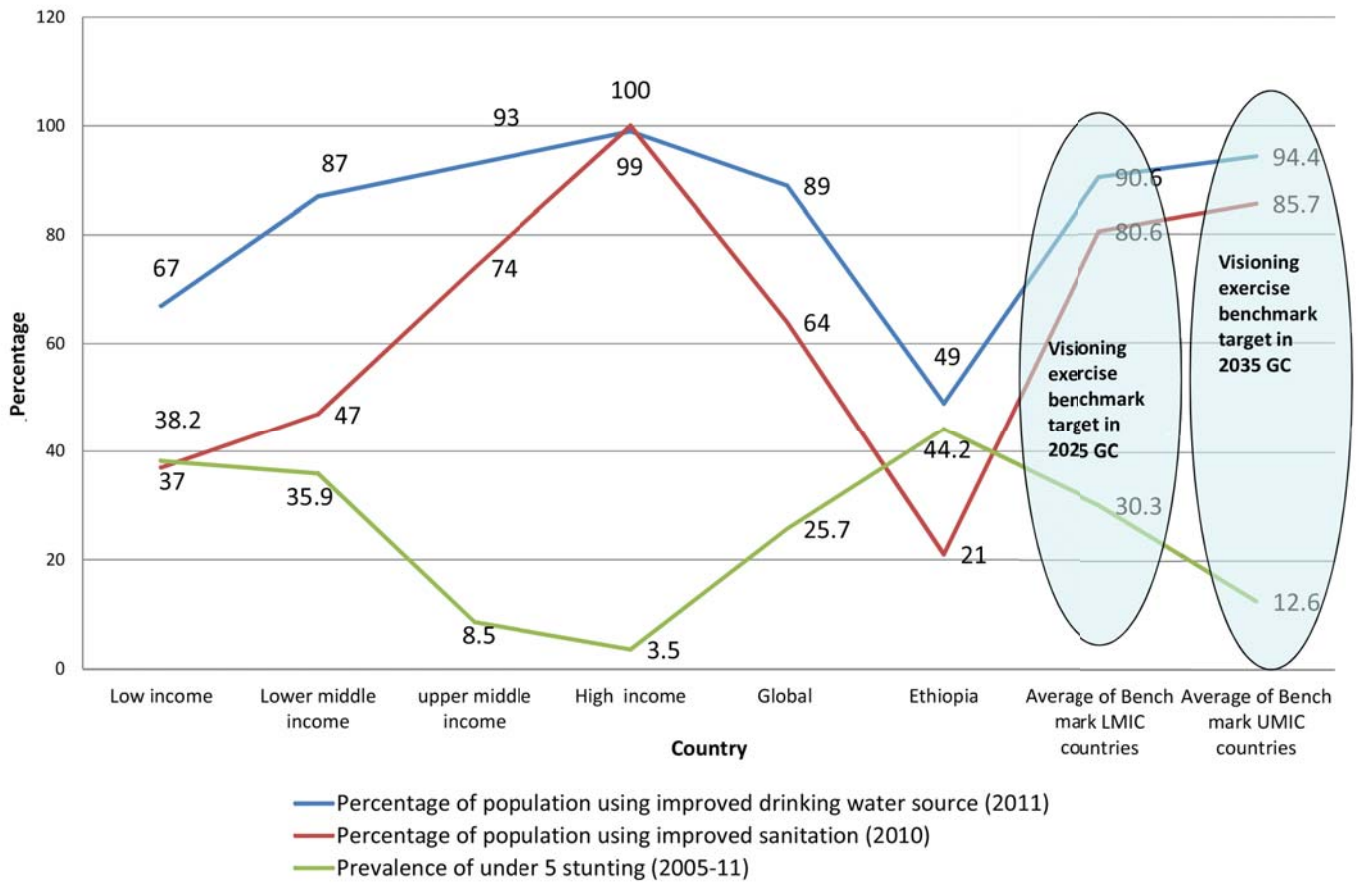


Figure 4. Risk Factors for communicable diseases.

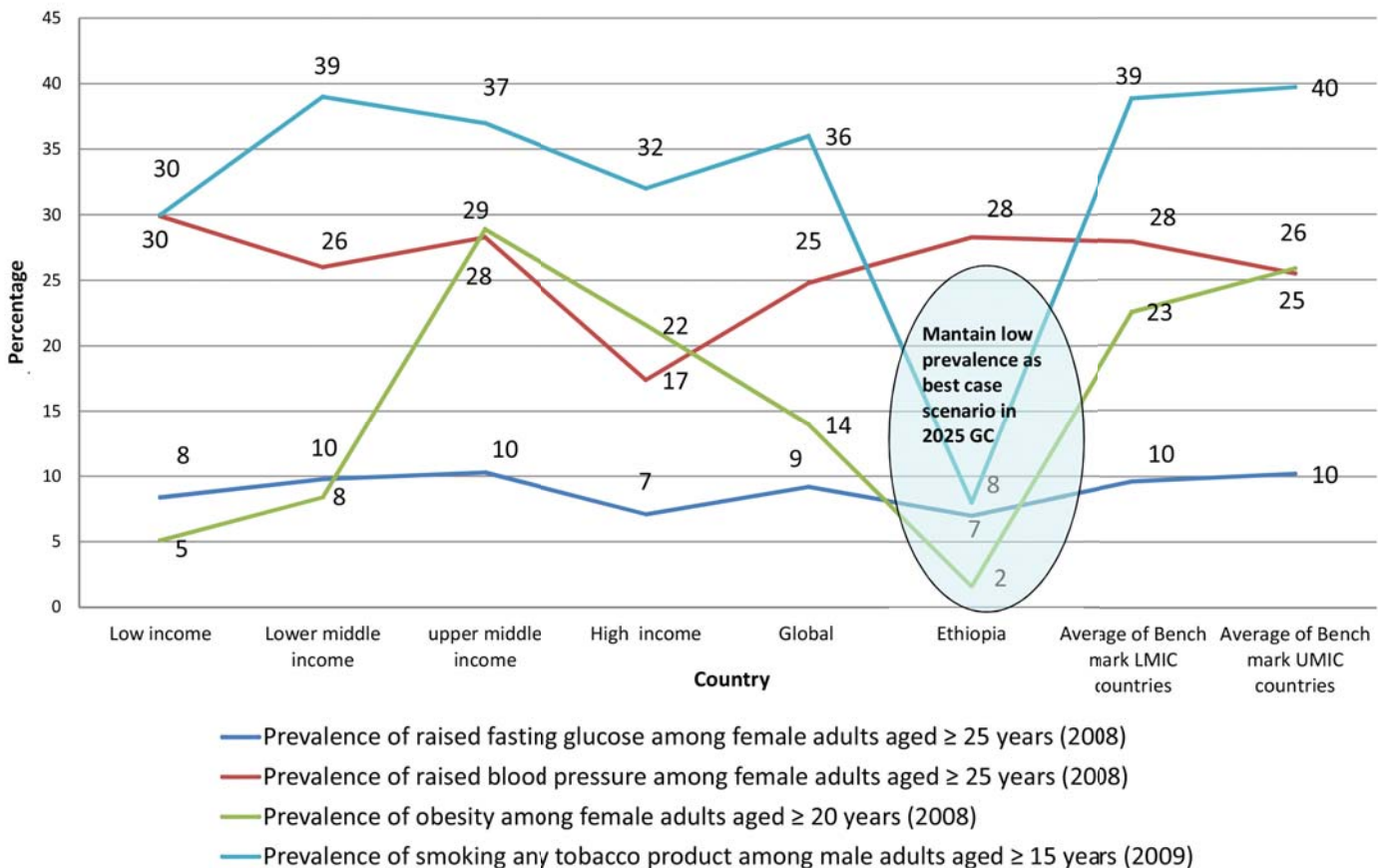


Figure 5. Risk factors for non-communicable diseases.

3.3) Benchmarking targets for health system resources

Health system resources are among the limiting factors in the health sector to avail quality health service and reach all segments of the population. Human Resource for Health (HRH) is a key factor among the health system resources. Any health system needs to have adequate number of health professionals with adequate degree of skill mix to render health care in an efficient and effective manner. The World Health Organization (WHO) recommends 1 physician to serve 10,000 people in low income countries. Ethiopia is accelerating its pace to meet this recommendation. A decade later, Ethiopia needs to have more human resources in keeping with health needs of a middle income country (Figure 6).

The other critical resource of the health system is finance. The health care financing mechanisms are expected to produce enough resources, mainly from domestic sources, to cover the expenditures related to health care. The average per capita expenditure of all the lower income countries and that of best countries in the benchmarking exercise are more than fourfold and nearly eight fold compared to that of Ethiopia, respectively (Figure 7).

4) Strategic recommendations for the health sector in the future

The proposed strategic recommendations for the health sector are focused on PHC development as a means to achieve UHC (expand service package, ensure their universal coverage and address barriers for accessing

the services). To complete that task, it is important to make explicit what the PHC system would be able to accomplish in terms of health and other results. The indicative targets stated above lays out a set of specific output and outcome objectives benchmarked against current average achievements of lower-middle, upper-middle income and high performing selected middle income countries. In some cases, HSDP IV targets exceed the current performance of LMICs or UMICs, and Ethiopia would then seek to sustain and further improve these achievements. In other cases, the distance between current achievements and targets in Ethiopia and middle-income country averages is still large, indicating substantial challenges for improvement.

Public health approach should be promoted with due emphasis for public provision and public financing of PHC as well as emphasizing on building a system on people-centered rather than disease-driven approach as clients appear with multiple morbidity. Emphasis is given to components of the health system that ensure better access to quality health services including:

- Health service delivery through PHC as a gate keeper of the tier system;
- Leadership and governance at all levels, strengthening the human resource development and capacity building strategic areas; and
- Use of health information and technology to plan, implement and monitor high impact interventions.

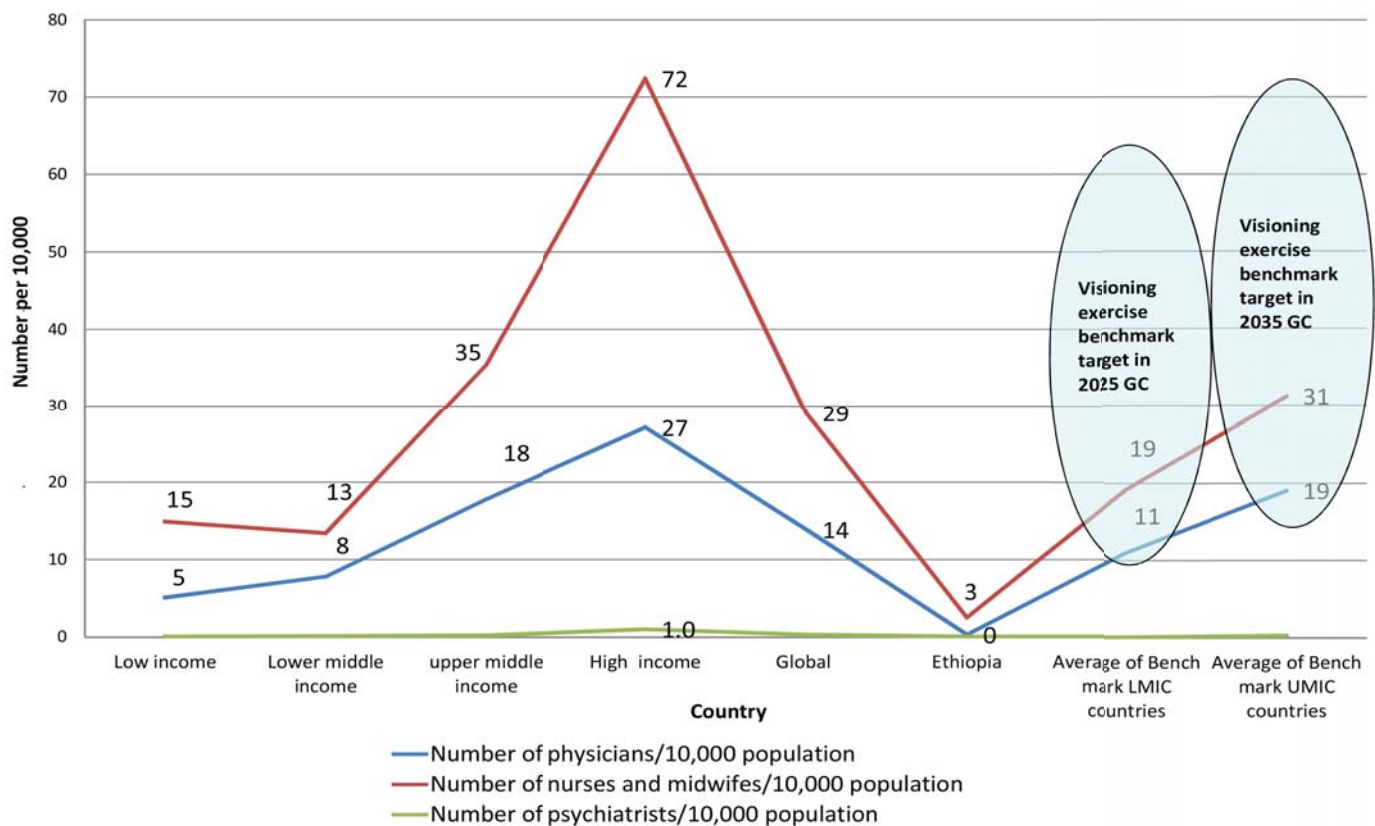


Figure 6. Human Resource for Health

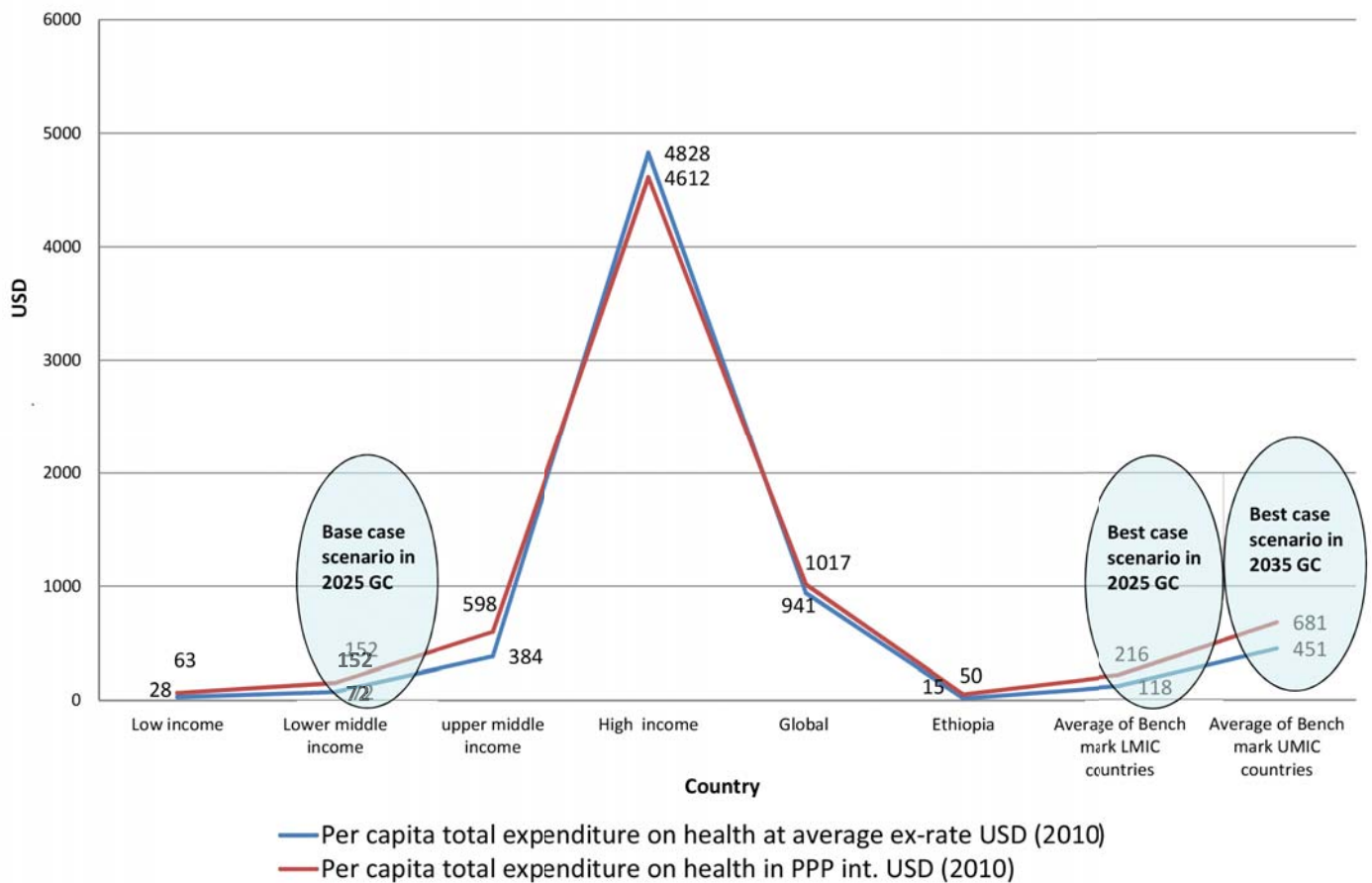


Figure 7. Per capita expenditure on health.

5) Conclusion

In conclusion, the coming health sector strategic programs are required to be tailored to the changing landscape in socioeconomic and epidemiological situations. Moreover, the strategies should address already existing and anticipated challenges of the sector such as inequalities and quality of care. Hence, looking for modalities of reaching all people with quality essential health services so that we can achieve UHC remains the key task in the future.

As with any dynamic process of planning for the future, both visioning and strategic planning should be flexible and adapt to future conditions with wider consultations. Hence, the envisioning document is expected to be further enriched with series of consultations with relevant stakeholders.

References

CNHD, 2011. Ethiopia Health Extension Program Evaluation Study, 2005-2010, Volume-I. Household Health Survey. Center for National Health Development in Ethiopia, Columbia University, Addis Ababa.

CSA and ORC Macro, 2001. Ethiopia Demographic and Health Survey 2000. Central Statistical Agency, Addis Ababa and ORC Macro, Calverton.

CSA and ORC Macro, 2006. Ethiopia Demographic and Health Survey 2005. Central Statistical Agency, Addis Ababa and ORC Macro, Calverton.

CSA and ICF, 2012. Ethiopia Demographic and Health Survey 2011. Central Statistical Agency, Addis Ababa and ICF International, Calverton.

Evans, D.B., Hsu, J., Boerma, T., 2013. Universal health coverage and universal access. Bulletin of the World Health Organization, 91 (8): 546.

FMOH, 2010. HSDP IV. Health Sector Strategic Plan 2010/11-2014/15. Federal Ministry of Health, Addis Ababa.

FMOH, 2013. Annual Performance Report of HSDP IV. EFY 2005 (2012/13). Federal Ministry of Health, Addis Ababa.

FMOH, 2014. Visioning Ethiopia's path towards universal health coverage through primary health care. Draft. Federal Ministry of Health, Addis Ababa.

UN, 2000. United Nations Millennium Declaration: resolution adopted by the General Assembly. 55/2. Sept 18, 2000. United Nations, New York. <http://www.un.org/millennium/declaration/ares552e.pdf> [accessed March 2014].

UN, 2013. Countdown to 2015. Socioeconomic inequities in coverage in Ethiopia. http://www.countdown2015mnch.org/documents/2013Report/Ethiopia_Accountability_profile_2013.pdf [accessed March 2014].

WB, 2013. Databank. World Bank, Washington. <http://data.worldbank.org/indicator/NY.GNP.PCAP.CD> [accessed March 2014].

WHO, 2013. World Health Statistics. World Health Organization, Geneva. http://www.who.int_gho_publications_world_health_statistics_EN_WHS2013_Full [accessed March 2014].

**THE LAST LAP TOWARDS MILLENNIUM DEVELOPMENT GOALS:
THE PERFORMANCE OF THE HEALTH SECTOR IN EFY 2005**Noah Elias¹ and Sandro Accorsi²¹ Acting Director of the Policy and Planning Directorate (PPD), Federal Ministry of Health (FMOH)² Italian Cooperation Technical Advisor at PPD/FMOH.**Summary**

Ethiopian Fiscal Year (EFY) 2005 marks the third year of the fourth phase of the Health Sector Development Programme (HSDP) and this article gives an overview of the planned activities, main achievements and key challenges encountered in the year in accordance with three Strategic Themes: (i) Health Service Delivery and Quality of Care; (ii) Leadership and Governance; and (iii) Health Infrastructure and Resources. It is derived from the EFY 2005 Performance Report presented at the Annual Review Meeting held in October 2013, whose theme was “the last lap towards Millennium Development Goals: promise renewed to end preventable maternal and child death in Ethiopia”.

Concerning the Health Extension Programme, the organization of the Health Development Army has been expanded to all agrarian regions as well as in urban areas in EFY 2005 to promote safe health practices at the community level; whereas social mobilization has been undertaken in pastoralist regions.

Concerning maternal and child health services, an increase was observed between EFY 2004 and EFY 2005 for antenatal and postnatal care coverage (from 89.1% to 97.4% and from 44.5% to 50.5%, respectively) as well as for the percentage of deliveries attended by skilled health personnel (from 20.4% to 23.1%), while the percentage of clean and safe deliveries (by health extension workers) declined from 13.2% to 11.6% in the same period. Pentavalent 3 vaccine coverage increased from 84.9% in EFY 2004 to 87.6% in EFY 2005, whereas measles vaccine coverage and full immunization coverage increased from 79.5% to 83.2% and from 71.4% to 77.7%, respectively, in the same period. According to the “Level and trends in child mortality – Report 2013”, Ethiopia is one of the seven high-mortality countries with the greatest declines (by two thirds or more) in child mortality between 1990 and 2012.

With respect to prevention and control of communicable diseases, encouraging results were achieved in HIV/AIDS control, with a combination of stable HIV prevalence, sustained prevention efforts and increased antiretroviral therapy coverage. The percentage of HIV-positive pregnant women who received antiretroviral therapy or prophylaxis to prevent mother to child transmission of HIV was estimated at 42.9% in EFY 2005. According to the 2013 UNAIDS Report, Ethiopia is one of the few “rapid decline” sub-Saharan African countries, with a reduction by 50% of new HIV infections among children between 2009 and 2012. Concerning malaria prevention and control, a three-pronged approach was implemented, consisting of early diagnosis and effective treatment, selective vector control and epidemic prevention and control. With the distribution of over 1.2 million long-lasting insecticide-treated nets, their cumulative number reached about 47.0 million in EFY 2005. A total of 3,862,735 malaria cases were reported in EFY 2005, out of which 2,851,897 (73.8%) were confirmed by laboratory. Concerning TB control, the case detection rate (all forms) was 58.9%, while the TB treatment success rate and the TB cure rate showed an increase from 90.6% in EFY 2004 to 91.4% in EFY 2005 and from 68.2% to 70.3% in the same period, respectively.

These mixed results highlight that, although interventions needed to control disease and to avert much of the burden of maternal and child disease are known, they require a functioning health system to have an effect at the population level. To this end, interventions are underway to address key issues, such as gaps in midwives, doctors and anaesthetists for provision of emergency obstetric and neonatal care services, absence of 24 hours a day and 7 days a week service in health facilities, rapid turnover of highly trained professionals, and inadequate transport facilities and spare parts for equipment. Despite huge challenges still to be addressed, Ethiopia is on track to meet many targets of the Millennium Development Goals.

1) Introduction

The fourth Health Sector Development Program (HSDP) for the period 2010/11-2014/15 (FMOH, 2010) has passed its third year of implementation, and this article examines the progress made and the efforts that are underway, as well as the challenges still faced by the health sector, in accordance with three Strategic Themes: (i) Health Service Delivery and Quality of Care; (ii) Leadership and Governance; and (iii) Health Infrastructure and Resources. It is derived from the Ethiopian Fiscal Year (EFY) 2005

Performance Report presented at the Annual Review Meeting (ARM) held in Mekelle in October 2013 (FMOH, 2013a), whose theme was “*the last lap towards Millennium Development Goals: promise renewed to end preventable maternal and child death in Ethiopia*”. Therefore, special attention has been given to the analysis of the level of achievement of health Millennium Development Goals (MDG). In particular, monitoring progress is based on a core set of sector-wide indicators that provide a

comprehensive picture of sectoral performance, with explicit statement on planned targets and measurement of actual achievements. The analysis is based on performance comparison across regions and trend analysis over time, as well as on measurement of the level of achievement of the targets set for the year in the Annual Core Plan.

2) Health service delivery and quality of care

This Strategic Theme comprises of the Health Extension Program (HEP), maternal and newborn health services, child health services, national nutrition program, prevention and control of communicable and non-communicable diseases, public health emergency preparedness and response, and quality of health services.

2.1) Health Extension Programme

HEP is an innovative community-based strategy to deliver preventive and promotive services and selected high impact curative interventions at community level. It brings community participation through creation of awareness, behavioural change, and community organization and mobilization. It also improves the utilization of health services by bridging the gap between community and health facilities through the deployment of health extension workers (HEW). In this context, with the aim to promote community mobilization and adoption of healthy lifestyles, a major initiative undertaken by the Ethiopian Government is the implementation of the Health Development Army (HDA). The organization and mobilization of the HDA started in Tigray and Southern Nations, Nationalities and People's (SNNP) Regions in EFY 2003, and was expanded to all agrarian regions to capacitate families who are lagging behind in terms of adopting safe health practices.

In particular, the strategy used in Tigray for HDA formation was the women-centered one-to-five network development, called Women Development Groups (WDG), while the other agrarian regions set up mixed (male and female) HDA groups. In Tigray Region, 27,320 WDGs were established, with more than 125,000 one-to-five network formations, while 76,557 HDA groups with 485,771 one-to-five networks were formed in SNNPR in EFY 2005. Besides, Amhara Region established 109,725 HDA groups and 539,693 one-to-five networks, while in Oromia Region a total of 147,428 HDA groups and 732,259 one-to-five networks were established in EFY 2005. In urban areas, HDA formation started in EFY 2004, with 128,815 one-to-five networks being established in Addis Ababa, 4,706 in Harari, and 10,230 in Dire Dawa. Furthermore, social mobilization activities were carried out in pastoralist regions in EFY 2005.

Concerning one of the major components of health extension packages, hygiene and environmental

sanitation, the number of households with latrine was 15,645,216 (out of the total 18,274,255) at the end of EFY 2005, with a coverage of 86%, short of the 92% target set for the year. There is large variation across regions between 9% in Afar and 94% in SNNPR.

2.2) Maternal and newborn health services

The Government of Ethiopia is committed to achieve the MDG5 to improve maternal health, with a target of reducing maternal mortality ratio by three-quarters over the period 1990 to 2015 (UN, 2000). Accordingly, the FMOH has implemented multiple high impact interventions at both facility and community levels to remove bottlenecks hampering access to safe motherhood services, such as harmful traditional beliefs and practices, poor infrastructure, shortage of transportation facilities, and inadequate care at health facilities, so that to address the 3 delays in seeking appropriate medical care for an obstetric emergency, reaching an appropriate emergency obstetric and neonatal care (EmONC) facility, and receiving adequate care when the facility is reached.

In order to address the first delay, the work of organizing and mobilizing the HDA at all levels is being performed intensively in order to promote behavioural change as well as to ensure the implementation of all health extension packages in the communities so that they can produce and sustain their own health, including maternal health. To solve the shortage of transportation facilities, out of the planned 840 ambulances, 812 have been already distributed to regions and started to provide the needed service at woreda level. Furthermore, in order to address the issue of financial barriers, in addition to the provision of free maternity services at health center (HC) level, the FMOH has initiated free maternity services at hospital level. To solve the bottleneck related to inadequate capacity for timely intervention, several activities are in progress, including training of human resources, provision of adequate drugs, medical supplies and equipment, as well as equitable placement of adequate number of health professionals in health facilities. As a result, the number of HCs providing basic emergency obstetric and neonatal care (BEmONC) increased from 752 in EFY 2004 to 1,813 in EFY 2005, and the number of hospitals providing comprehensive emergency obstetric and neonatal care (CEmONC) increased from 69 to 105 in the same period.

It is worth noting that another target of MDG 5 is to achieve, by 2015, universal access to reproductive health services, including access to safe, affordable and effective methods of contraception (UN, 2000). It has been documented that contraceptive use can have an impact in reducing maternal mortality by averting more than half of maternal deaths.

Table 1. Maternal health indicators (EFY 2005 baseline, performance and target and HSDP IV target).

Indicators	EFY 2005 Baseline	EFY 2005 Performance	EFY 2005 Target	HSDP IV Target (EFY 2007)
Antenatal care coverage	89.1%	97.4%	90.6%	90.0%
Percentage of deliveries attended by skilled health personnel	20.4%	23.1%	49.2%	62.0%
Clean and safe delivery coverage (percentage of deliveries attended by HEWs)	13.2%	11.6%	35.2%	38.0%
Postnatal care coverage	44.5%	50.5%	70.1%	78.0%
Contraceptive acceptance rate	60.4%	59.5%	76.2%	82.0%
Percentage of pregnant women counselled and tested for PMTCT	36.7%	54.9%	76.0%	83.0%

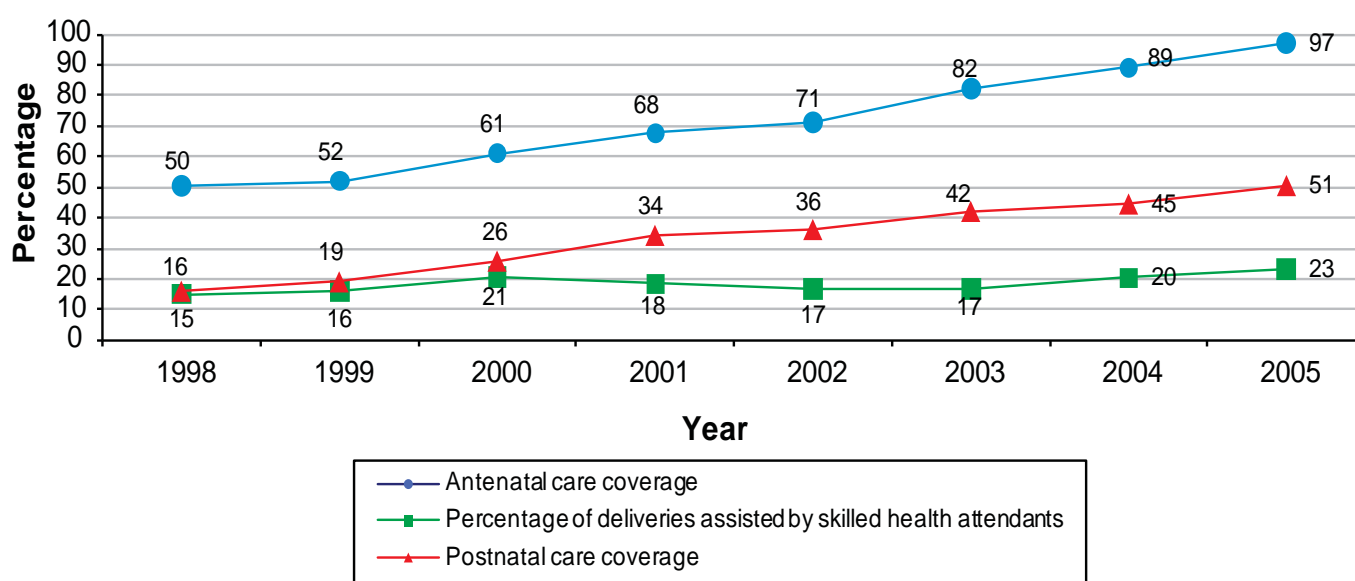


Figure 1. Trend in antenatal care coverage, percentage of deliveries assisted by skilled health personnel and postnatal care coverage (EFY 1998-2005).

Achieving good maternal health requires quality reproductive health services and a series of well timed interventions to ensure women’s safe passage to motherhood. For monitoring purposes, a set of key indicators were selected: each one represents a link of the continuum of care and is connected with other dimensions of health and health systems. A measure of contraception - contraceptive acceptance rate (CAR) - is presented as a tracer of reproductive health. Antenatal care (ANC) coverage provides a measure of access to the health system and is critical to identify maternal risks and improve health outcomes for the mother and the newborn. Measures of coverage of skilled care at birth and birth attendance by HEWs, as well as postnatal care (PNC) services, are critical elements of the continuum of care. Human Immunodeficiency Virus (HIV)-related indicators are included to emphasize the need towards a more holistic approach to health care, and to promote further integration of the prevention of mother to child transmission (PMTCT) of HIV and maternal health services. These

indicators are summarized in [Table 1](#) showing, for each indicator, EFY 2005 baseline, performance and target, as well as the overall HSDP IV targets set for EFY 2007. The trend over time is shown in [Figure 1](#).

Skilled attendance at birth is the most important intervention in reducing maternal mortality and one of the MDG indicators to track national effort towards safe motherhood. The percentage of deliveries assisted by skilled health personnel increased from 20.4% in EFY 2004 to 23.1% in EFY 2005, below the target of 49.2% set for the year. There was wide variation across regions, ranging from 14.4% in Benishangul Gumuz to 72.9% in Addis Ababa ([Figure 2A](#)).

Conversely, a decline was observed in the clean and safe delivery service coverage (by HEWs), from 13.2% in EFY 2004 to 11.6% in EFY 2005, below the target set for the year (35.2%). The coverage ranged from 0.4% in Gambella to 26.4% in SNNPR ([Figure 2B](#)).

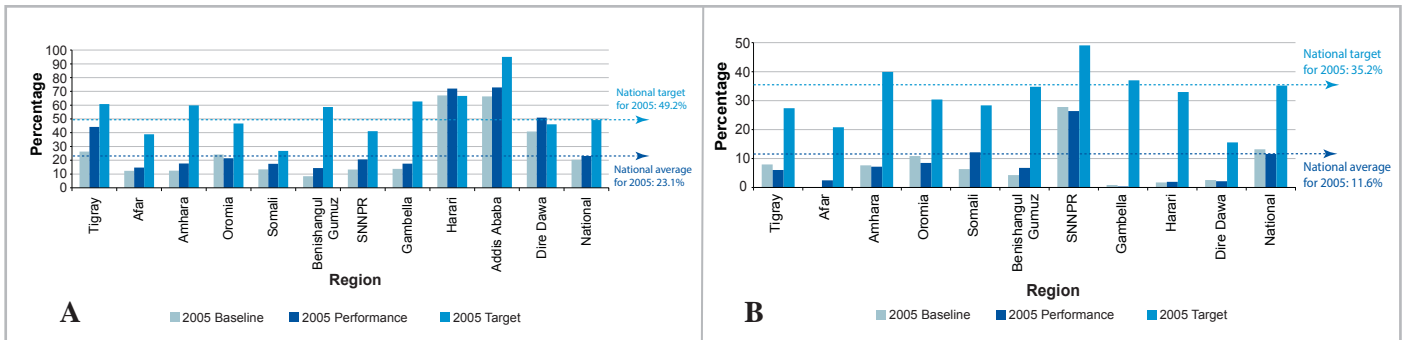


Figure 2. Comparison of EFY 2005 baseline, performance and target of the proportion of deliveries attended by skilled health personnel (2A) and by HEWs (clean and safe delivery service coverage) (2B) by region.

ANC coverage showed an increase from 89.1% in EFY 2004 to 97.4% in EFY 2005, above the target (90.6%) set for EFY 2005. Wide variation was observed across regions, ranging from 41.6% in Somali to 100% in Tigray, Oromia, SNNPR, Harari, and Dire Dawa (Figure 3A).

There was also an increase in PNC coverage from 44.5% in EFY 2004 to 50.5% in EFY 2005, below the target set for the year (70.1%). The highest coverage was observed in SNNPR (65.4%), whereas the lowest one was found in Afar (11.0%) (Figure 3B).

CAR is a tracer of reproductive health service performance, and is one of the service indicators used to measure progress towards the achievement of MDG5. CAR slightly decreased from 60.4% in EFY 2004 to 59.5% in EFY 2005, below the target of 76.2% set for

EFY 2005 (Figure 4A). Wide variations were observed across regions, with the lowest rate (8.3%) being reported from Somali Region, and the highest one (86.3%) from Amhara Region (Figure 4B).

The percentage of pregnant women counselled and tested for PMTCT of HIV increased from 36.7% in EFY 2004 to 54.9% in EFY 2005, while the percentage of HIV-positive pregnant women who received efficacious antiretroviral (ARV) therapy or prophylaxis to prevent mother to child transmission (MTCT) of HIV has been estimated at 42.9% in EFY 2005, ranging between 3.4% in Somali and 126.1% in Harari (Figure 5). According to the 2013 UNAIDS Report, Ethiopia is one of the few “rapid decline” sub-Saharan African countries, with a reduction by 50% of new HIV infections among children between 2009 and 2012 (UNAIDS, 2013).

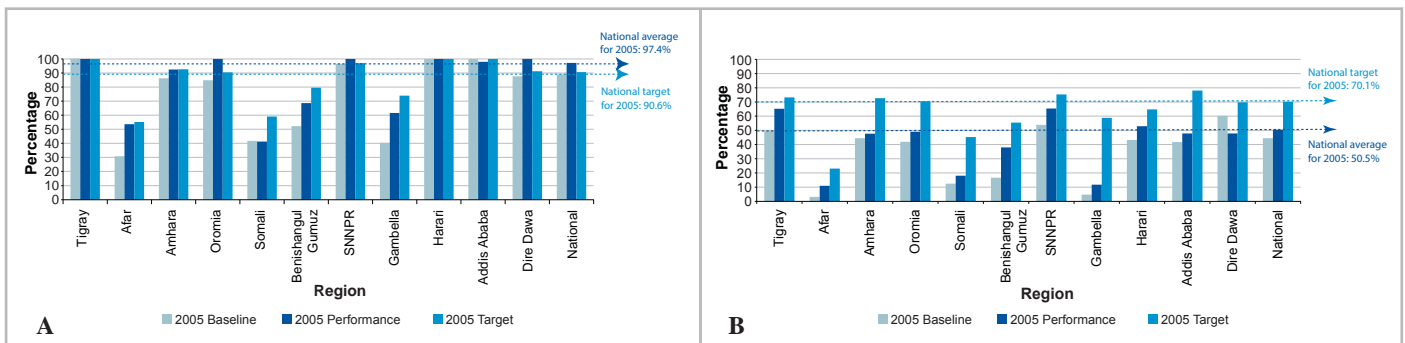


Figure 3. Comparison of EFY 2005 baseline, performance and target of the antenatal care coverage (3A) and postnatal care coverage (3B) by region.

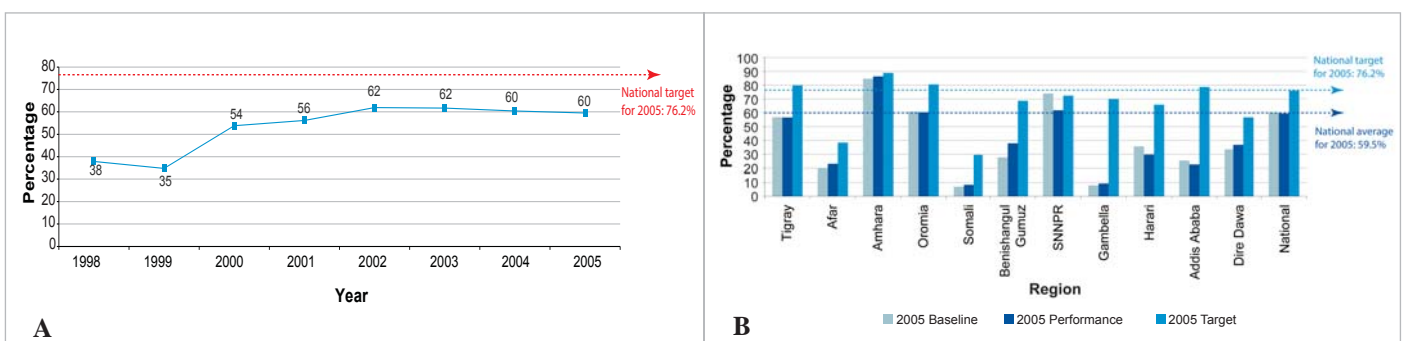


Figure 4. Trend in contraceptive acceptance rate (EFY 1998-2005) (4A) and comparison of EFY 2005 baseline, performance and target by region (4B).

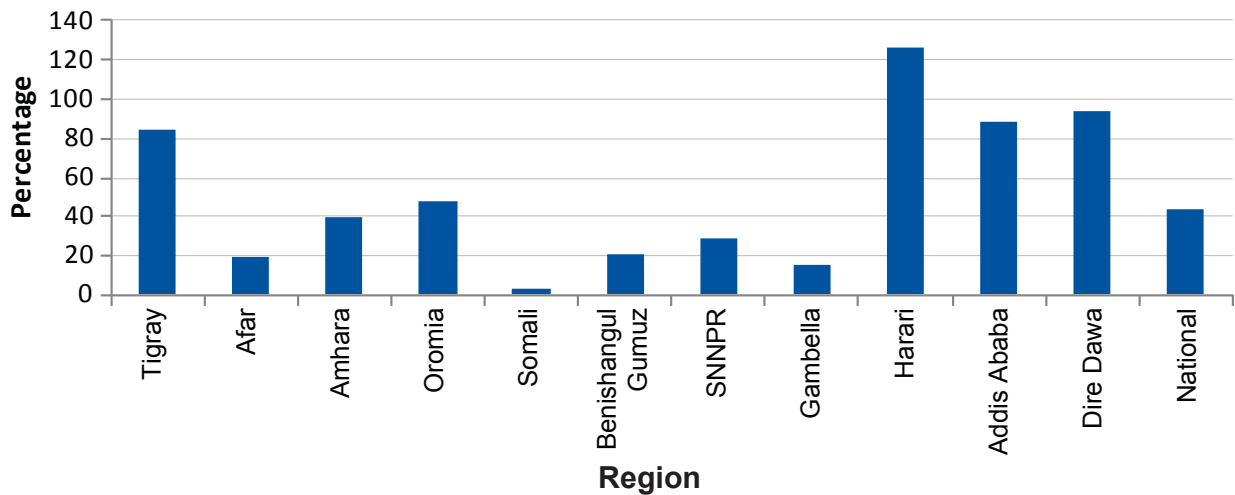


Figure 5. Comparison of the percentage of HIV-positive pregnant women who received ARV therapy or prophylaxis to prevent mother-to-child transmission of HIV by region (EFY 2005).

Of note is the fact that, in EFY 2005, the strategy shifted to “Option B+”: it is a “test and treat” strategy in which HIV-positive pregnant women start antiretroviral therapy (ART) regardless of their CD4 count and are maintained on treatment for life. Option B+ represents a cost-effective strategy not only for preventing new HIV infections among infants, but also for improving the survival of HIV-infected mothers and reducing orphanhood, with a vision of an HIV free new generation.

2.3) Child health services

In order to achieve MDG 4 (to reduce child mortality with a target of reducing under-5 mortality rate - U5MR - by two thirds over the period 1990-2015) (UN, 2000),

several activities were articulated in HSDP IV, including strengthening routine immunization, expanding community and facility-based Integrated Management of Neonatal and Childhood Illnesses (IMNCI), establishing newborn corners and neonatal intensive care units, capacity building on program management for child health services, strengthening HEP, and implementing locally relevant and effective child health interventions in pastoralist areas. According to the “Level and trends in child mortality – Report 2013” published by the UN Inter-Agency Group for Child Mortality Estimation (UN, 2013), Ethiopia is one of the seven high-mortality countries with the greatest declines (by two thirds or more) in child mortality between 1990 and 2012 (Figure 6).

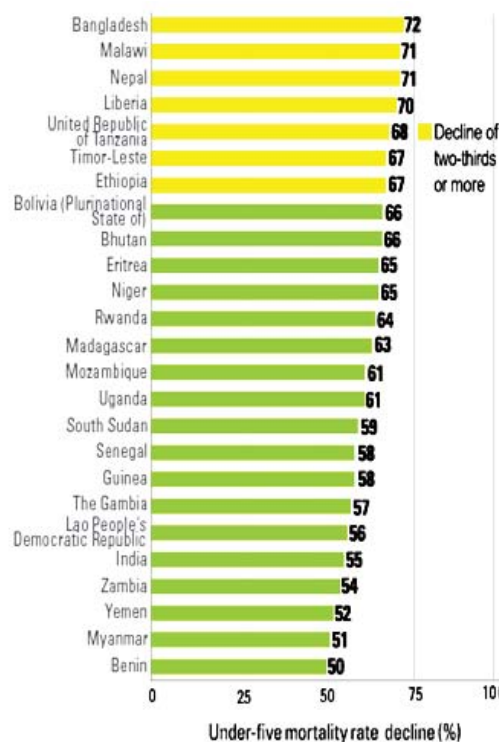


Figure 6. Decline in under 5 mortality rate in high-mortality countries from 1990 to 2012.

Table 2. Immunization indicators (EFY 2005 baseline, performance and target and HSDP IV target).

Indicators	EFY 2005 Baseline	EFY 2005 Performance	EFY 2005 Target	HSDP IV Target (EFY 2007)
Pentavalent 3 Vaccine Coverage	84.9%	87.6%	94.0%	96.0%
Pneumococcal Conjugated 3 Vaccine Coverage	44.4%	80.4%	83.0%	96.0%
Measles Vaccine Coverage	79.5%	83.2%	91.0%	90.0%
Full Immunization Coverage	71.4%	77.7%	87.0%	90.0%

2.3.1) Immunization

Immunization is one of the most cost-effective public health interventions for reducing child morbidity and mortality, and immunization coverage is one of the key indicators used to monitor progress towards the achievement of MDG4. In EFY 2005 pentavalent 3 immunization coverage was 87.6%, pneumococcal conjugate vaccine (PCV) 3 immunization coverage 80.4%, measles immunization coverage 83.2%, and the percentage of fully immunized children 77.7% (Table 2). There was an increase in pentavalent 3, PCV3, measles, and full immunization coverage in EFY 2005 when compared with the EFY 2004 coverage (Figure 7). However, at national level, none of the immunization coverage targets set for EFY 2005 has been met.

Pentavalent 3 coverage increased in EFY 2005 to 87.6%, short of the target (94.0%) set for the year. The highest coverage (100%) was found in SNNPR and the lowest one in Gambella (43.5%) (Figure 8A). An increase in performance was observed in all regions; however, except SNNP and Somali, all other regions performed below the target set for the year. Similarly, the regional distribution of measles immunization coverage showed that SNNP was the best performing region (99.3%) and Gambella performed the least (32.1%) (Figure 8B). SNNP and Afar were the only regions performing above the target set for the year, while the other nine regions showed a better performance in EFY 2005 than in EFY 2004, but below their regional target.

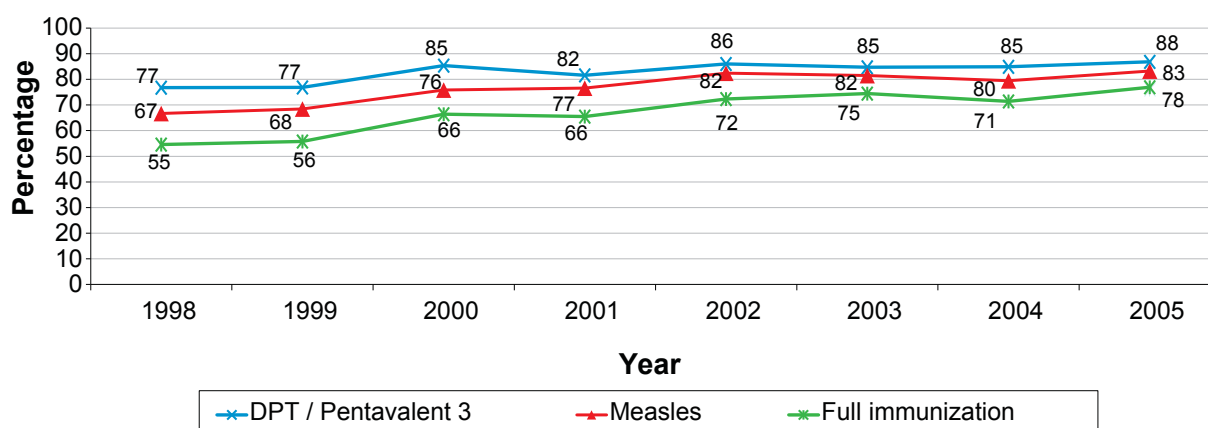


Figure 7. Trend in DPT/pentavalent 3 immunization coverage, measles immunization coverage and percentage of fully immunized children (EFY 1998-2005).

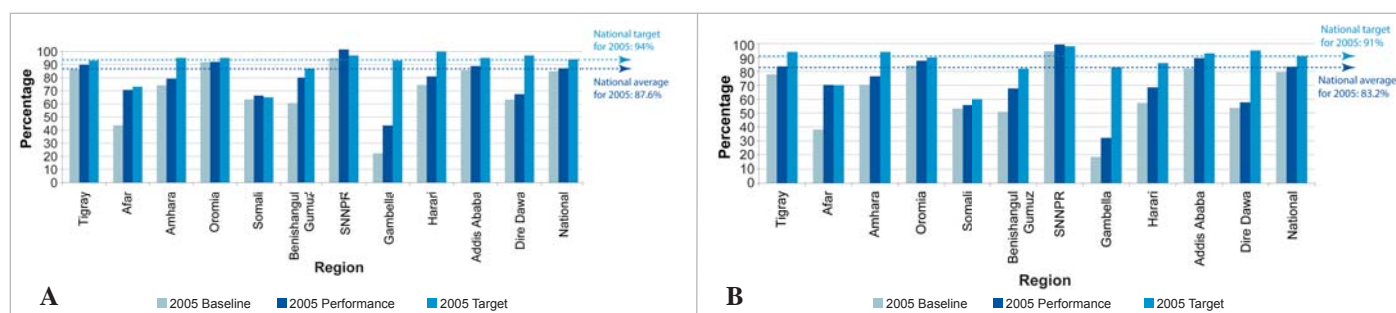


Figure 8. Comparison of EFY 2005 baseline, performance and target of pentavalent 3 immunization coverage (8A) and measles immunization coverage (8B) by region.

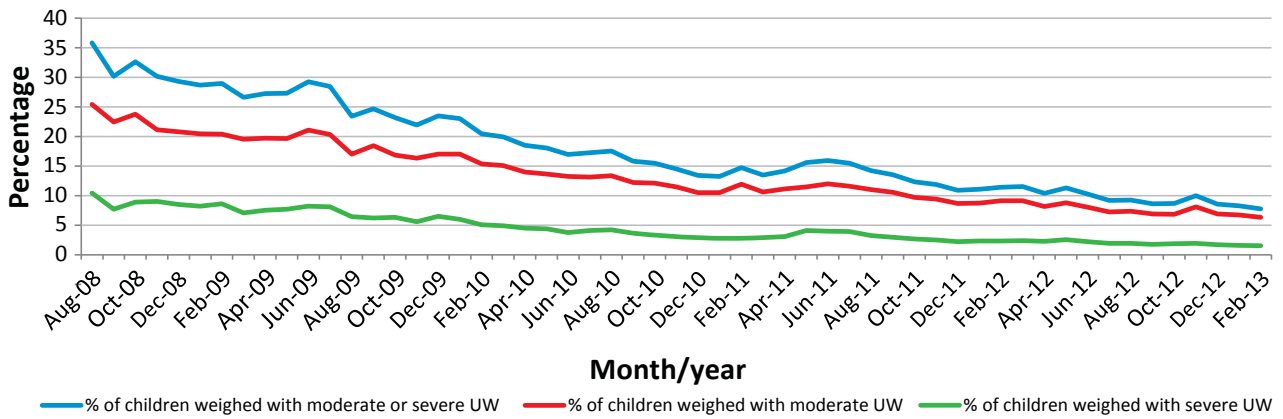


Figure 9. Trend in percentage of underweight children under two years of age in CBN woredas (2008-2013 GC).

2.3.2) Integrated Management of Neonatal and Childhood Illnesses

IMNCI is the strategy to improve the quality of management of childhood illnesses, linking preventive and curative services so that programs, such as immunization, nutrition, and control of malaria and other infectious diseases, are implemented in an integrated manner. IMNCI aims to reduce death, illness and disability, and to promote improved growth and development among children under five years of age. The cumulative number of HCs providing IMNCI increased from 2,030 in EFY 2004 to 2,373 in EFY 2005.

2.4) National nutrition programme

In HSDP IV and in 2008 National Nutrition Program (NNP), it was planned to shift the delivery mechanism of Vitamin A supplementation (VAS), de-worming and nutritional screening from Enhanced Outreach Strategy (EOS) to routine services as a way to ensure sustainability. Accordingly, the FMOH and its partners have started shifting the delivery mechanism from vertical EOS to routine HEP in EFY 2005.

The national VAS coverage among 6-59 months children was 93.1% in EFY 2005, below the target set for the year (99.0%), with a range between 39.0% in Addis Ababa to more than 100% in Afar and Somali Regions. The de-worming coverage of 2-5 years children (91.4%) was

much higher than in EFY 2004 (19.8%), but below the annual target (95.0%). The coverage ranged between 20.1% in Addis Ababa to more than 100% in Tigray, Afar, Somali and Gambella Regions.

The Community Based Nutrition (CBN) Program is one of the key components of the NNP, and is currently implemented in 365 woredas. An improvement in nutritional status has been observed, with consistent downward trend being found in underweight prevalence over time (Figure 9).

2.5) Prevention and control of communicable diseases

MDG 6 is to combat HIV/AIDS, malaria and other diseases. Target 7 is to have halted by 2015, and begun to reverse, the spread of HIV/AIDS, while target 8 is to have halted by 2015, and begun to reverse, the incidence of malaria and other major diseases (UN, 2000).

2.5.1) HIV/AIDS prevention and control

HIV/AIDS is one of the top priorities of HSDP IV. There was a steep increase in the number of facilities providing HIV Counselling and Testing (HCT), PMTCT and ART services: the increase was from 2,881 in EFY 2004 to 3,040 in EFY 2005 for HCT, from 1,901 to 2,150 for PMTCT, and from 838 to 880 for ART in the same period (Figure 10).

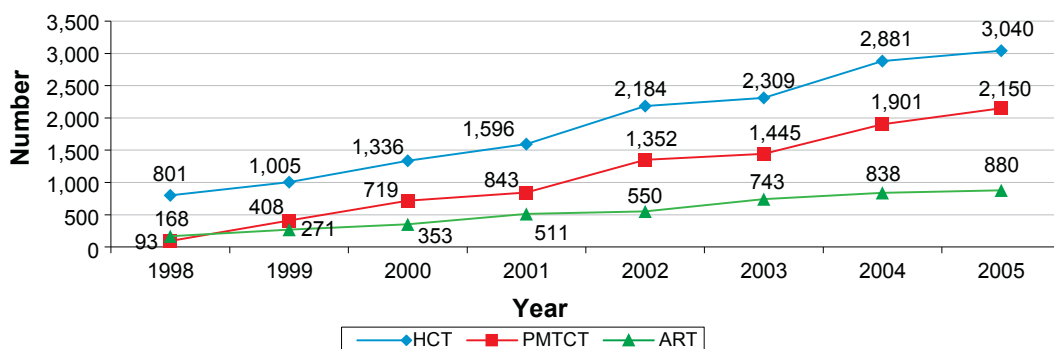


Figure 10. Trend in the number of facilities providing HCT, PMTCT and ART services (EFY 1998-2005).

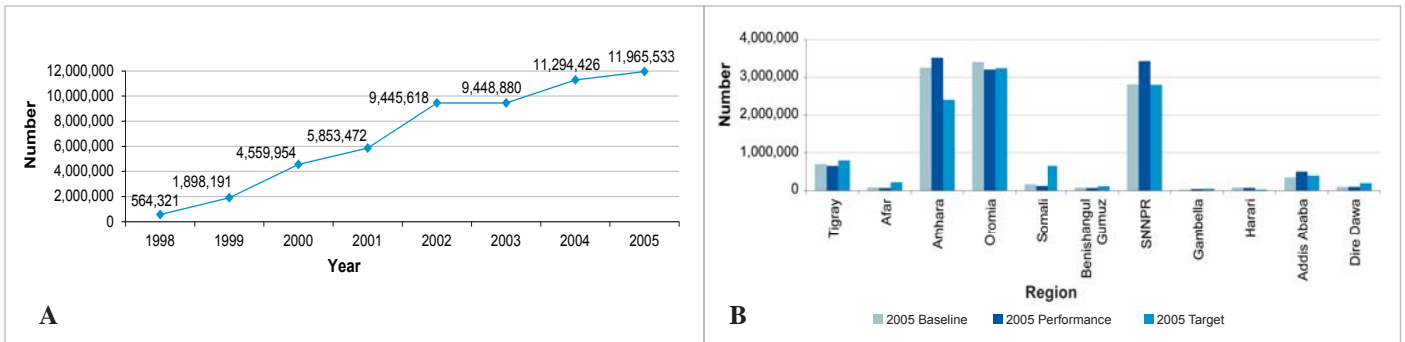


Figure 11. Trend in the number of clients using HCT (EFY 1998- 2005) (11A) and comparison of EFY 2005 baseline, performance and target by region (11B).

The number of HCT services increased from 11,294,426 in EFY 2004 to 11,965,533 in EFY 2005, above the target (10,902,756) set for the year at the national level (Figure 11A). There were variations across regions, with four regions (Amhara, SNNP, Gambella, and Addis Ababa) increasing the number of clients using HCT in EFY 2004 (Figure 11B).

A linear increase has been observed in the number of People Living With HIV/AIDS (PLWHA) ever enrolled, ever started and currently on ART over the past years; in particular, there was an increase between EFY 2004 and EFY 2005 from 666,147 to 744,339 for PLWHA ever enrolled in HIV/AIDS care (+78,192), from 379,190 to 439,301 for those ever started (+60,111), and from 274,708 to 308,860 for those currently on ART (+34,152) (Figure 12A). Concerning the latter ones, wide differences were observed across regions, and, out of the target of 409,426 set for the year, 308,860 PLWHA were currently on ART at the end of EFY 2005, with a target achievement of 75.4% (Figure 12B).

2.5.2) Malaria prevention and control

In EFY 2005, a total of 12,562,286 long-lasting insecticide-treated nets (LLIN) were planned to be distributed for provision to new households as well as for replacement purposes in malaria endemic areas; however, only 1.2 million LLINs were actually distributed which increase the cumulative number of LLINs distributed so far to 46,976,866 (Figure 13). With regards to vector control, the plan was to implement Indoor Residual Spray (IRS)

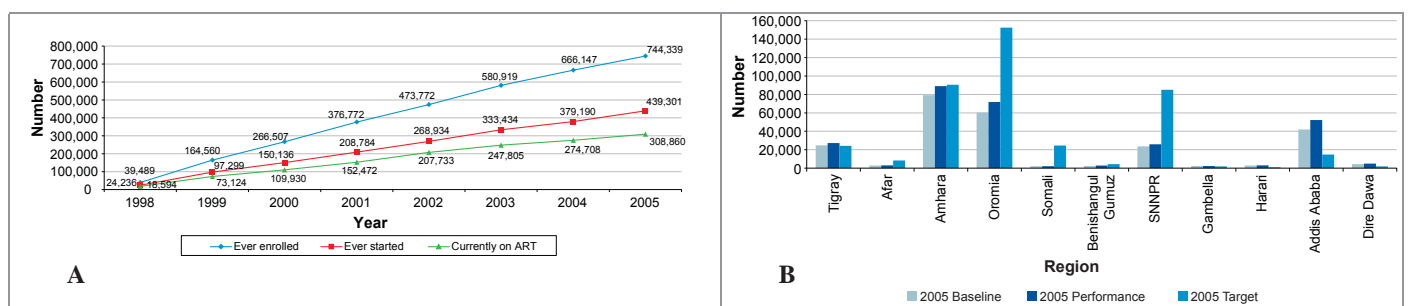


Figure 12. Trend in the number of PLWHA who accessed HIV chronic care (EFY 1998- 2005) (12A) and comparison of EFY 2005 baseline, performance and target of the number of PLWHA who are currently on ART by region (12B).

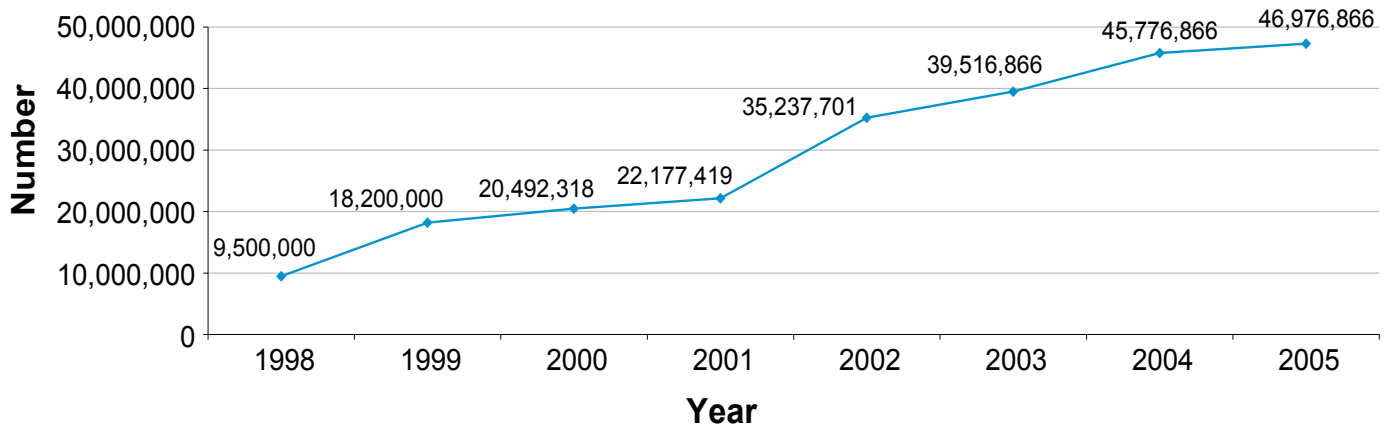


Figure 13. Trend in the cumulative number of long-lasting insecticide-treated nets distributed (EFY 1998-2005).

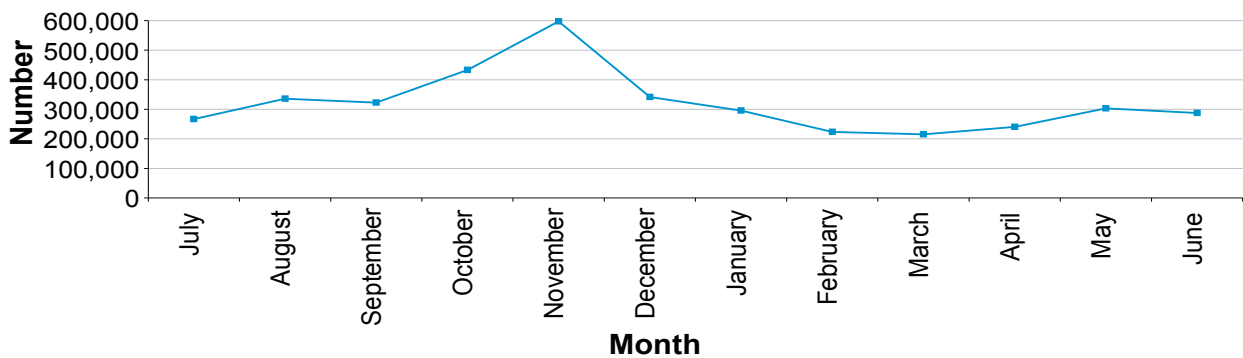


Figure 14. Trend in laboratory confirmed plus clinical malaria cases by month (EFY 2005).

for the year), while TB cure rate increased from 68.2% in EFY 2004 to 70.3% in EFY 2005 (below the target of 79% set for EFY 2005) (Figure 15).

Large variations in TB treatment success rate were seen across regions, with the highest performance being observed in Gambella and Dire Dawa Regions (Figure 16A). Five regions (Amhara, Oromia, Gambella, Harari, and Dire Dawa) improved their performance in

EFY 2005. Concerning TB cure rate, the best performance was found in SNNPR (80.6%), while five regions (Tigray, Afar, Benishangul Gumuz, Gambella, and Addis Ababa) decreased their performance in EFY 2005 (Figure 16B).

Concerning MDR-TB, there was an increase in number of facilities providing services in EFY 2005, with 600 new MDR-TB patients having started the treatment in the year.

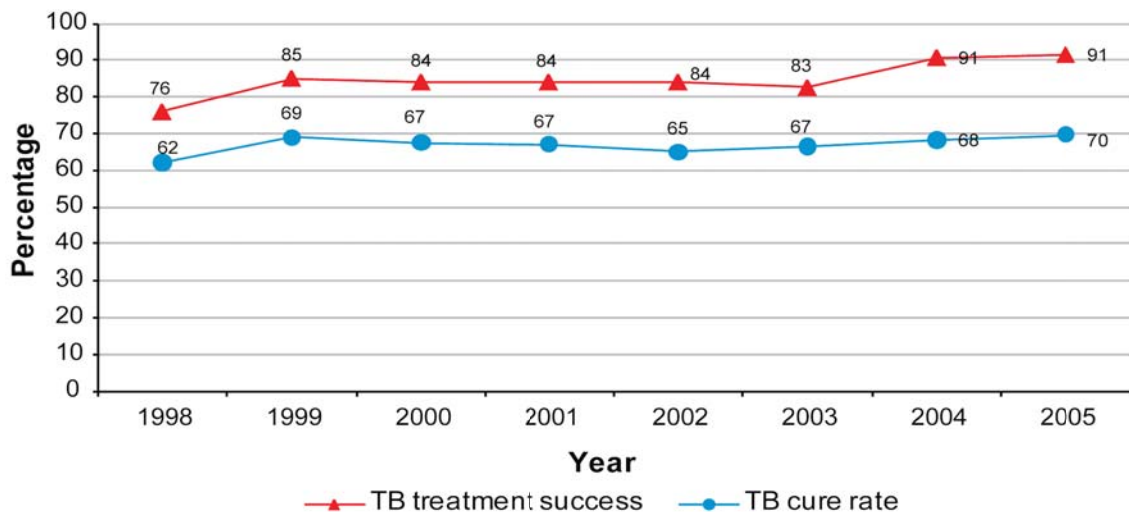


Figure 15. Trend in TB treatment success rate and TB cure rate (EFY 1998- 2005).

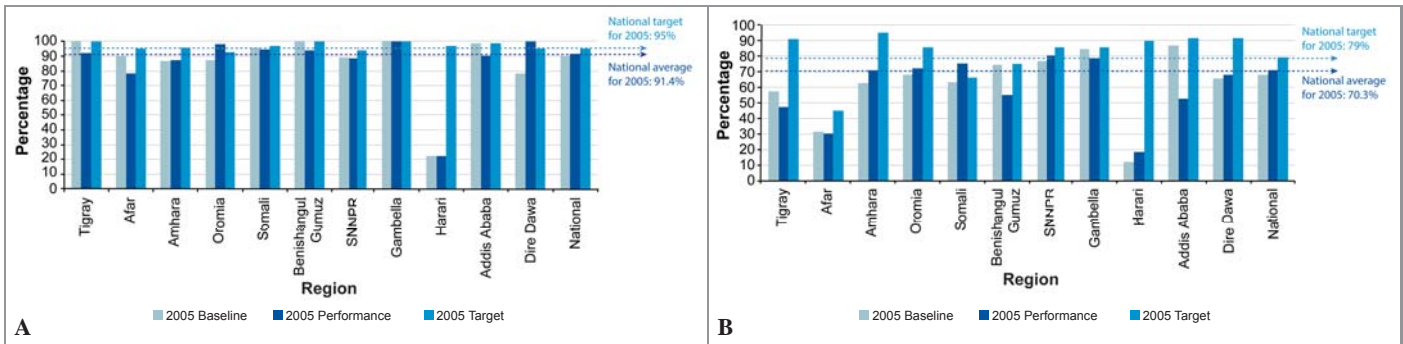


Figure 16. Comparison of EFY 2005 baseline, performance and target of the TB treatment success rate (16A) and TB cure rate (16B) by region.

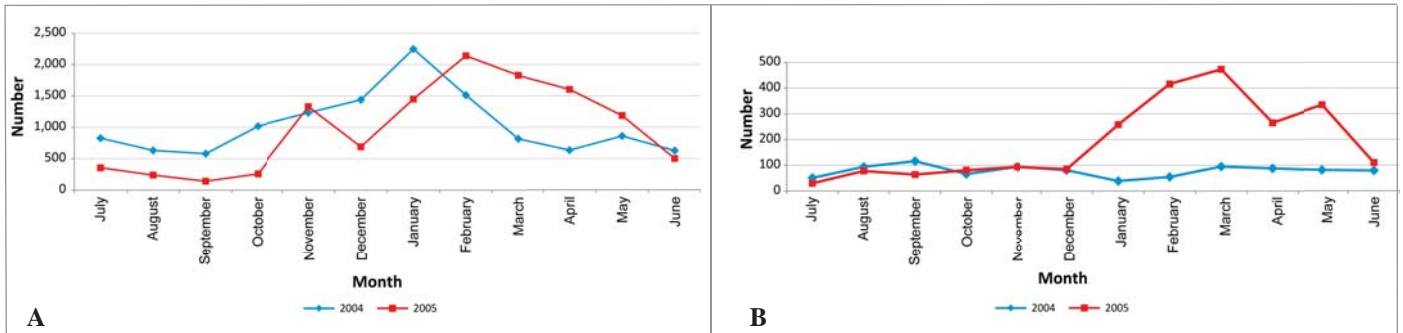


Figure 17. Trend of measles cases (17A) and meningococcal meningitis cases (17B) by month in EFY 2005.

2.5.4) Prevention and control of neglected tropical diseases

The multi-year National Master Plan for Control, Elimination or Eradication of Eight Neglected Tropical Diseases, including dracunculiasis, onchocerciasis, lymphatic filariasis, leishmaniasis, schistosomiasis, soil transmitted helminthes, trachoma, and podoconiosis, has been launched in June 2013. Most of these diseases are either preventable through mass drug administration and proper sanitation, or treatable through systematic case finding and management. Mapping exercises as well as health education and advocacy activities have been carried out in EFY 2005. Concerning the Guinea Worm (GW) eradication program, there was a decline in GW cases reported in EFY 2005, with six cases being reported from Gambella Region.

2.6) Public health emergency preparedness and response

For the epidemic prone diseases under surveillance, the number of cases reported in EFY 2005 was as follows: 11,721 suspected measles cases with a peak in February (CFR=0.4%) (Figure 17A); 2,289 suspected meningococcal meningitis cases with an outbreak being observed in the period January-March, followed by a decrease in number of cases at the end of the year (CFR= 2.5%) (Figure 17B); 263,457 suspected dysentery cases (CFR=0.01%); 1,233 suspected anthrax cases (CFR=1.2%); 2,065 suspected rabies cases and exposures

(CFR=3.1%); and 8,571 suspected relapsing fever cases (CFR=1.2%). An outbreak of yellow fever, with a total of 139 suspected cases, was reported from South Omo Zone of SNNPR and was well controlled. In addition, among the 282 influenza samples from Addis Ababa, 93 (33.0%) were positive for Influenza B, and the remaining 189 (67.0%) for Influenza A. In EFY 2005, there was zero report of cases of Viral Hemorrhagic Fever. Furthermore, no polio cases were reported in EFY 2005, with non-polio Acute Flaccid Paralysis rate being estimated at 2.6 per 100,000 children under 15 years, above the World Health Organization (WHO) standard.

2.7) Prevention and control of non-communicable diseases

Non-Communicable Diseases (NCD) are becoming an increasingly important public health problem as epidemiological transition is progressing in Ethiopia. Several activities were carried out in EFY 2005, with a major focus on mental health. A draft Implementation Program for the 5-year Strategic Framework for the Prevention and Control of Major NCDs has been prepared.

2.8) Quality of health services

In relation to quality of health services, all hospitals are implementing the new Hospital Reform Implementation Guideline. To speed up the implementation of hospital

reform measures and disseminate best practices, “change packages” have been prepared and distributed to hospitals. A Guideline on Establishment of Health Development Army for Hospitals has been prepared to assist in the setting up and monitoring of the implementation of hospital reforms. In EFY 2005, a total of 28,932,439 Outpatient Department (OPD) visits were provided, with an average of 0.34 OPD visit per person per year, above the performance of EFY 2004 (0.29 OPD visit per person per year).

3) Leadership and governance

Leadership and Governance comprises of evidence-based planning, monitoring, evaluation, policy formulation and implementation. It also includes the development and implementation of a regulatory framework.

Concerning evidence-based planning, the Woreda-based Core Plan for EFY 2005 was finalized (FMOH, 2013b), while, concerning HMIS, the implementation reached 98% of the hospitals and 87% of the HCs. The implementation of the Community Health Information System (CHIS) reached 40% of the health posts (HP) nation-wide, ranging from 0% in two regions (Afar and Gambella) to 100% in SNNPR and Dire Dawa and 98% in Tigray Region. To scale-up CHIS in mobile pastoralist communities, an Operational Guideline has been developed.

In EFY 2005 a Mid-Term Review of HSDP IV was carried out in the period 21 April-18 May 2013 by an independent review team comprising of 14 core team members (6 international and 8 national consultants) and 28 external team members. Operational researches were performed by the Ethiopian Health and Nutrition Research Institute (EHNRI) in relation to HIV/AIDS, TB, malaria, other communicable diseases, nutrition and traditional medicine.

The regulatory system has been strengthened, and a number of activities related to Inspection and Quality Control of “Products”, “Premises”, “Professional Practice” and “Food Products” had been accomplished. In EFY 2005, 897 new and 275 existing health professionals were registered and licensed at federal level. The Guideline on Continuing Professional Development has been completed, whereas the Guideline on Scope of Practice of Health Workers has been drafted. Import permits were given for pharmaceuticals, laboratory chemicals and reagents, medical equipment and instruments, and cosmetics, while export permits were given for drugs and cosmetics. Inspection and surveillance were carried out on a number of facilities, which included health facilities, water supply facilities, as well as food, pharmaceuticals, tobacco products and cosmetics import and distribution enterprises.

With respect to gender mainstreaming, the Gender Directorate of FMOH has drafted three major documents (i.e. the National Gender Mainstreaming Guideline, the National Gender Training Manual for the Health Sector and the Strategic Plan for the Gender Directorate), and trainings as well as follow-up activities were carried out in EFY 2005.

4) Health infrastructure and resources

This Strategic Theme includes construction and equipping of HPs and HCs, human capital and leadership, pharmaceutical supply and services, and resource mobilization and utilization.

4.1) Health infrastructure development, rehabilitation and maintenance

4.1.1) Construction and equipping of health posts

In EFY 2005, a total of 380 new HPs were constructed, making a cumulative number of 16,048 HPs. During the year, a total of 209 HPs were equipped with medical kits.

4.1.2) Construction and equipping of health centers and hospitals

In order to achieve universal health coverage, the target was to build a cumulative total of 3,525 HCs at the end of EFY 2005. The number of newly constructed and completed HCs in EFY 2005 was 246, increasing the cumulative total of available HCs from 2,999 in EFY 2004 to 3,245 in EFY 2005 (Figure 18A). Oromia was the region with the highest number of completed HCs (1,215) (Figure 18B). A total of 522 newly constructed HCs were equipped with necessary materials.

In EFY 2005, a total of 4 new hospitals were completed in three regions, whereas on-going construction of 175 hospitals was reported by six regions. Six hospitals have been upgraded in four regions and the total number of hospitals available in EFY 2005 has reached 127 at the national level.

4.2) Human capital and leadership

With regard to Human Resource Development, FMOH has increased the intake and number of medical schools, and curtailed the brain drain by holding successive consultations with new graduates. In particular, a total of 11,291 medical students were being trained in 24 medical schools in EFY 2005.

With respect to the three-year Integrated Emergency Surgery Officer (IESO) training program, a total of 400

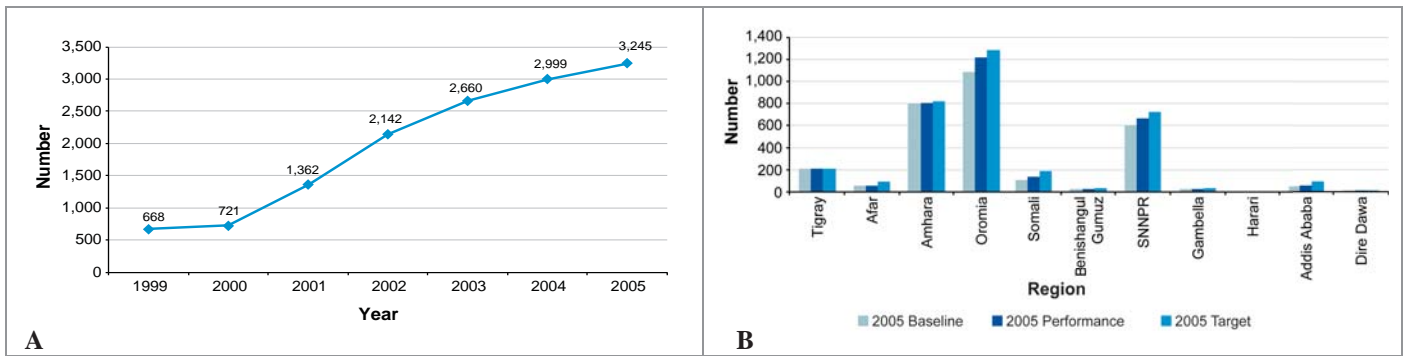


Figure 18. Trend in the cumulative number of health centers available (EFY 1999-2005) (18A) and comparison of EFY 2005 baseline, performance and target of the cumulative number of available health centers by Region (18B).

IESO students were under training in EFY 2005. Besides, a total of 1,558 midwifery students graduated during the first round of the three year program, while 1,632 graduated during the second round, and 1,190 are currently under training in ten health science colleges (HSC) during the third round. In addition, the FMOH trained and deployed 96 Level V nurse anaesthetists and 50 degree graduates in EFY 2005, and a total of 115 nurse anaesthetists are currently under training in seven HSCs, while 471 trainees are attending BSC program in six universities. As a result, a mix of health professionals were trained and deployed in order to address the problem of inadequate personnel able to perform emergency obstetric care and surgical services, in particular at primary hospital level where a gynaecologist or surgeon are not available.

With respect to the upgrading program to Level IV for HEWs, 1,367 Level III HEWs were enrolled for the regular program in EFY 2004 and, out of these, 1,289 completed their training and then qualified for Level IV in EFY 2005; whereas a total of 2,240 second batch HEWs were enrolled in EFY 2005 for upgrading to Level IV. A total of 160 paramedics graduated in Oromia and Amhara Regions and are ready for qualification examination, while 226 are enrolled in EFY 2005 at five training centers located in Amhara, Oromia and Harari Regions.

4.3) Pharmaceutical supply and services

Out of the planned procurement of pharmaceuticals and medical equipment worth ETB 6.00 billion, the Pharmaceutical Fund and Supply Agency (PFSA) has procured pharmaceuticals worth ETB 6.77 billion. Out of the planned distribution of drugs and medical equipment worth ETB 8.37 billion in EFY 2005, PFSA has distributed pharmaceuticals and medical equipment worth ETB 8.19 billion. Furthermore, 98% of the construction of ten large modern stores with prefabricated steel and around 95% of the construction of the seven medium size stores and offices have been completed. In addition, there are ongoing renovation of five existing stores and construction of 17 cold chain stores. Training on the integrated pharmaceutical and medical equipment logistics system has been provided to 3,587 professionals drawn from selected health facilities.

4.4) Resource mobilization and utilization

One of the main challenges which hinder health care access and quality is the lack of resources. To address this challenge and hence to mobilize adequate resources for the health sector, different resource mobilization activities have been implemented, including: (i) revenue retention by health facilities for quality improvement; (ii) implementation of fee waiver system for enhanced equity; (iii) establishment of private wings and outsourcing for better efficiency; and (iv) pilot and implementation of community based and social insurance schemes for improved financial access to health services, avoiding payment at the point of care delivery.

Revenue retention is additional to the block grant budget allocated from treasury, and it is used strictly for quality improvement activities. Currently 2,558 health facilities (101 hospitals and 2,457 HCs) are retaining and utilizing internally generated revenues to improve the quality of health services. According to the latest information (as of August 2012), 2,510,067 fee waiver beneficiaries were screened for the service in the country (except in Somali and Afar Regions), and the government allocated a budget of ETB 25,527,418 for fee waiver beneficiaries. Among the 3,162 health facilities which are under the HCF reform (115 hospitals and 3,047 HCs), 2,558 health facilities (101 hospitals and 2,457 HCs) have functional governing bodies. In EFY 2005, 45 public hospitals have opened private wing services nationwide (increasing from 31 public hospitals in EFY 2004).

4.4.1) Health insurance

To tackle financial barriers to health care access, the government has initiated and is implementing two types of health insurance systems, namely, the Community Based Health Insurance (CBHI) for the rural population and urban informal sector, and the Social Health Insurance (SHI) for the formal sector employees. CBHI is being piloted in 13 woredas of four regions (Tigray, Amhara, Oromia and SNNP), and a total of 143,852 households

have been registered at the end of EFY 2005. The CBHI scheme has generated ETB 21,065,787 in EFY 2005, showing an increment by 44.3% when compared with the amount of 14,600,714 ETB generated up to end of EFY 2004. The SHI Implementation Regulation was endorsed by the Council of Ministers. Deployment of employees for the Ethiopian Health Insurance Agency and its regional branch offices is underway.

4.4.2) Per capita allocation on health

In EFY 2005, the percentage of total budget allocated to the health sector at regional level was 9.75%, which was higher than in EFY 2004 (9.13%), while the per capita health allocation was ETB 100.16, increasing from ETB 74.27 in EFY 2004. The regional block grant budget allocated to the health sector ranged from 6.8% in Addis Ababa to 14.7% in Dire Dawa in EFY 2005. Although per capita allocation is increasing over time, the allocated budget for health in EFY 2005 was below the need of the sector for delivering quality care. This calls for further enhancing implementation of HCF reform and expansion of pre-payment schemes, such as community and social health insurance, as well as additional funds from different sources.

One of the main sources of funding for the health sector is the contribution from developing partners (DPs). In EFY 2005, a total of USD 550.99 million was committed by DPs and a total of USD 531.13 million (96.4%) was disbursed. A total of USD 133.23 million was disbursed to MDG Performance Fund (PF) with a 26.5% increment from EFY 2004 (USD 105.35 million) and the MDG PF accounted for 25.1% of the total disbursement by DPs in EFY 2005. Among areas of support funded by the MDG PF, maternal health services received the higher proportion (47.8%), followed by medical equipment supply (21.3%) and prevention and control of communicable diseases (13.5%).

5) Conclusion

This article gives an overview of the planned activities, main achievements and key challenges encountered in the year in accordance with three Strategic Themes: (i) Health Service Delivery and Quality of Care; (ii) Leadership and Governance; and (iii) Health Infrastructure and Resources. In EFY 2005, particular emphasis has been put on implementing cost-effective and high-impact interventions to meet MDGs, as shown by the ARM theme: *“the last lap towards MDGs: promise renewed to end preventable maternal and child death in Ethiopia”*.

Central to Ethiopia's health performance is the country's strategy to deliver more and better health care to women and children-especially in the most rural and remote communities. To this end, the HSDP has been successful

in putting in place the HEP which has contributed in a major way to improved availability and accessibility of primary health care services, and paved the way for the achievement of the MDGs.

Concerning MDG4, a rapid decline in U5MR has been achieved, with an annual rate of reduction of 5.0% over the past 20 years. In this regard, it is worth noting that Ethiopia has been identified as one of the seven high-mortality countries with the greatest declines (by two thirds or more) in lowering child mortality (UN, 2013). Ethiopia has implemented pro-poor policies and has performed better than other SSA countries, providing an example that it is possible to sharply reduce preventable child deaths, when concerted action, sound strategies, adequate partnership and political will are consistently applied in support of maternal, newborn and child health (MNCH) services. However, challenges still remain; for example, according to the 2011 Ethiopia Demographic and Health Survey (EDHS) results (CSA and ICF, 2012), neonatal mortality rate, that accounts for 42% of U5MR, has been stagnant over the past ten years. With the aim of saving newborn lives and achieving MDG4 by 2015, interventions have been carried out across the different levels of the health referral system. These interventions include the development of community-based newborn care, implementation of integrated community case management of common childhood illnesses, and establishment of newborn corners in HCs, neonatal units in regional hospitals, and neonatal intensive care units in tertiary hospitals.

In conjunction with the above activities, interventions are underway to remove the bottlenecks hampering access to safe motherhood services. In particular, a steep increase has been observed in number of HCs providing BEMoNC and hospitals providing CEMoNC, together with an increase in coverage for antenatal and postnatal care and for skilled care at birth. However, although increasing, the percentage of deliveries assisted by skilled birth attendants (which is considered as the single most important intervention for reducing maternal mortality) was still very low in EFY 2005.

Concerning MDG6, a general increase in coverage of key MDG-related interventions for disease control has been observed over time. Encouraging results have been achieved in HIV/AIDS control, with combination of relatively low HIV prevalence, sustained prevention efforts and increased ART coverage. Of note is the fact that good progress has been made also in programs that were considered as critical areas of underachievement in the past years, such as those for the reduction of mother to child transmission of HIV. In fact, improved access to HIV prevention and treatment services in the last years

has led to steady increase in percentage of HIV-positive pregnant women who receive efficacious ARV therapy or prophylaxis. As a result, Ethiopia is one of the few “rapid decline” SSA countries, with a reduction by 50% of new HIV infections among children between 2009 and 2012 (UNAIDS, 2013). However, despite the estimated decrease in newly HIV infected children from 19,000 in 2009 to 9,500 in 2012 (UNAIDS, 2013), this number is still too high and further efforts are needed to reduce mother to child transmission of HIV. It is for this reason that FMOH is shifting its strategy from a time-limited intervention around pregnancy and breastfeeding (PMTCT) to the lifelong therapy for pregnant women living with HIV (“Option B+”). This shift has wide implications in terms of integrating MNCH programmes and ART programmes to support alternative service delivery models, build integrated skills for health professionals, and address infrastructural constraints.

Concerning TB control, TB case detection rate was estimated at 59% and TB cure rate at 70% in EFY 2005, below the international standard of 70% and 85%, respectively, while TB treatment success rate was 91% (above the international standard of 85%). To address these challenges, efforts should be made to strengthen the capacity of detecting and reporting TB cases as well as to ensure adequate availability of trained staff and laboratory equipment to perform sputum-smear examination during treatment.

Concerning malaria control, while the three-pronged approach consisting of early diagnosis and effective treatment, selective vector control and epidemic prevention and control have been successfully implemented, with subsequent increase in IRS coverage and use of malaria case-management services (as documented in the 2011 Malaria Indicator Survey) (EHNRI, 2012), challenges are still to be addressed in ensuring availability and use of LLINs. In this regard, procurement and distribution of LLINs should be speeded-up as well as HDA should be mobilized to promote appropriate use of LLINs.

These mixed results highlight that, although interventions needed to control disease and to avert much of the burden of maternal and child disease are known, they require a functioning health system to have an effect at the population level. To this end, interventions are underway to address key issues, such as gaps in midwives, doctors and anaesthetists for provision of EmONC services, absence of 24 hours a day and 7 days a week service in health facilities, rapid turnover of highly trained professionals, and inadequate transport facilities and spare parts for equipment.

This article tries to address the critical question of how

to speed the pace of change observed in the past into dramatically faster progress during HSDP IV period, whose end in 2014/15 corresponds to the deadline of the quantitative, time-bound framework of accountability of MDGs. The past experience of achievements and challenges provides important hints to guide policies, strategies and programmes to be implemented in the next years with the support of all partners in order to achieve MDGs by 2015.

References

CSA and ICF, 2012. Ethiopia Demographic and Health Survey 2011. Central Statistic Authority, Addis Ababa and ICF International, Calverton.

EHNRI, 2012. Ethiopia national malaria indicator survey 2011. Ethiopian Health and Nutrition Research Institute, Addis Ababa.

FMOH, 2010. HSDP IV. Health Sector Strategic Plan 2010/11-2014/15. Federal Ministry of Health, Addis Ababa.

FMOH, 2013a. Annual Performance Report of HSDP IV. EFY 2005 (2012/13). Federal Ministry of Health, Addis Ababa.

FMOH, 2013b. HSDP IV Woreda-Based Annual Core Plan. EFY 2006 (2013/14). Federal Ministry of Health, Addis Ababa.

UN, 2000. United Nations Millennium Declaration: resolution adopted by the General Assembly. 55/2. Sept 18, 2000. United Nations, New York. www.un.org/millennium/declaration/ares552e.pdf [accessed January 2014].

UN, 2013. Level and trends in child mortality – Report 2013. UN Inter-Agency Group for Child Mortality Estimation. United Nations, New York.

UNAIDS, 2013. 2013 progress report on the Global Plan towards the elimination of new HIV infections among children by 2015 and keeping their mothers alive. Joint United Nations Programme on HIV/AIDS, Geneva.

CHILD NUTRITION IN ETHIOPIA: A REVIEW

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Summary

The gains made in Ethiopia in reducing under-nutrition since 2000 have been remarkable. The overall strengthening of the health system, particularly, the Health Extension Program, has enabled the Federal Ministry of Health (FMOH) to expand essential nutrition services (vitamin A supplementation to 11 million 6-59 months children; community management of acute malnutrition provided at over 11,000 facilities, community-based nutrition program implemented in over 370 woredas, amongst others). However, the danger posed by under-nutrition is still a concern. Ethiopia launched an ambitious, revised National Nutrition Plan (NNP) in June 2013. At the core of the revised NNP is the target to reduce stunting prevalence from 44% to 30% by 2015. The renewed focus on stunting in Ethiopia is based on a thorough review of the evidence showing the consequences of stunting across the lifecycle starting with the first 1,000 days of life as well as its social and economic impact. The FMOH therefore urges all stakeholders to align their work with the revised NNP so as to efficiently contribute towards accelerating the reduction of adolescent, women and childhood under-nutrition in Ethiopia.

1) Introduction

Ethiopia has recorded remarkable improvements in health status and human centered development over the past two decades. Child deaths were reduced by 67% from 204 per 1000 live births in 1990 to 68 per 1000 live births in 2012 (UNICEF, 2013), achieving Millennium Development Goal (MDG) 4 on child survival three years ahead of 2015; the number of children in school tripled from as low as 32% in 1990s to 96.4% in 2011 (FMOE, 2011); and people with access to clean water more than doubled, reaching 54% of the population in 2011 (CSA and ICF, 2012). In addition, the proportion of people living below the poverty line declined from 44% in 1995 to 30% in 2011 (MOFED, 2012).

With respect to nutrition indicators, between 2000 and 2011, the national stunting prevalence rate declined by 24% from 58% to 44%, whilst underweight declined by 31% from 41% to 29%, and wasting from 12% to 10%. (Figure 1). Anaemia prevalence amongst under-five children remains high at 44% (even though it declined by 19% in the last 6 years), and, whilst there are recent improvements in the production of iodised salt, still only 15% of households are consuming quality iodised salt in accordance to the levels specified in the regulations. Regarding infant feeding practices, just over half (52%) of children under 6 months were exclusively breastfed, and, of even greater concern, only 4.3% of children aged older than 6 months consumed the recommended 4 food groups, and only 13% of children under 2 consumed iron rich foods.

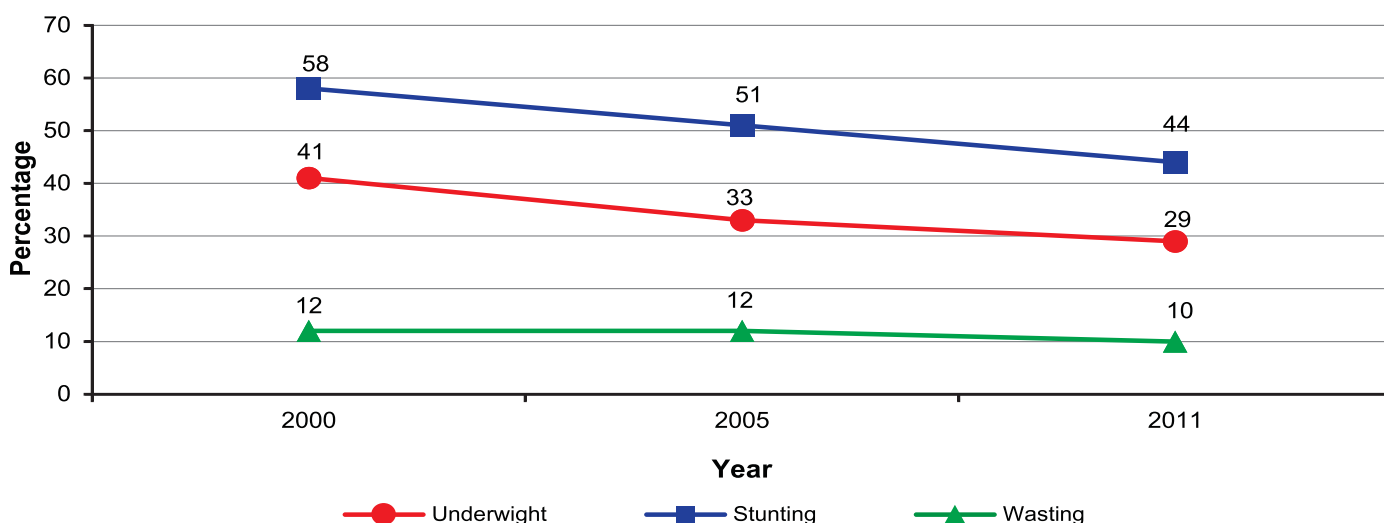


Figure 1. Trend in prevalence of underweight, stunting and wasting among children under 5 between 2000 and 2011 (EDHS 2000, 2005 and 2011 EDHS).

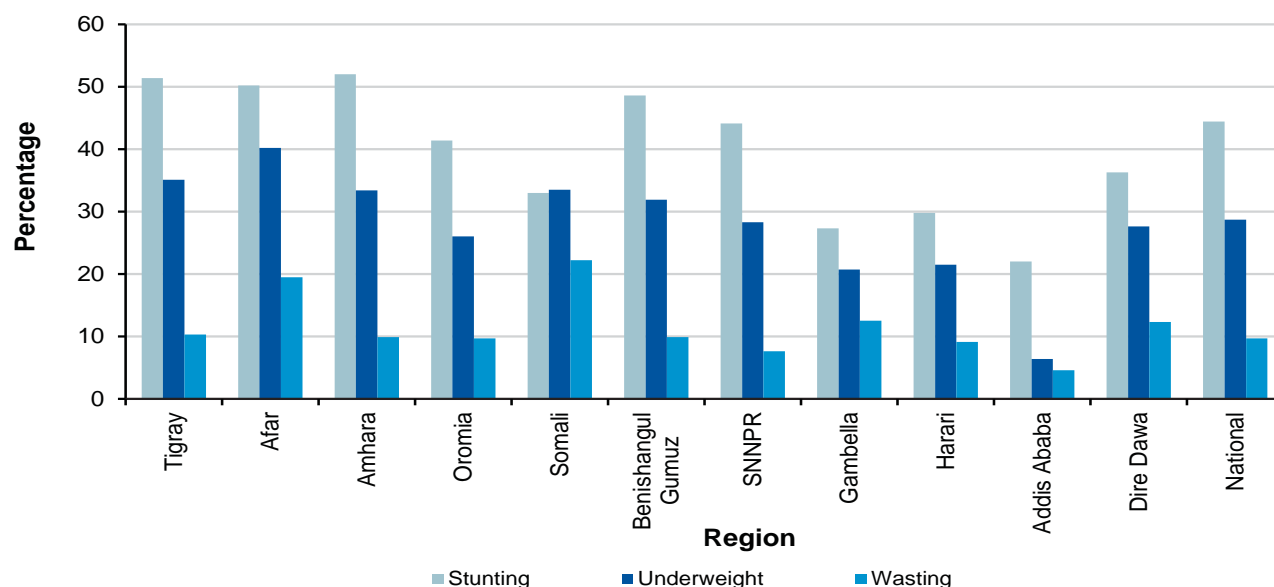


Figure 2. Regional distribution of prevalence of underweight, stunting and wasting among children under 5 in 2011 (EDHS 2011).

There are wide regional differences in nutrition indicators, with regions, such as Amhara and Tigray, having the highest percentages of under-nutrition despite the fact that they have good agriculture yields (Figure 2).

It is in full recognition of the remaining challenges regarding nutritional status of infants and young children that the Federal Ministry of Health (FMOH), in close partnership with nine other social sector ministries, decided to review and update the 2008 National Nutrition Program (NNP).

2) The National Nutrition Program

In June 2013, Ethiopia launched an ambitious and revised NNP for Ethiopia, that seeks to transform the economic and development trajectory of millions of children and their mothers, by addressing food and nutrition insecurity in the country.

2.1) Revision of the National Nutrition Program

The revision process of the NNP was based on a solid foundation of the current evidence to support large scale nutrition programming efforts. Indeed, as part of the launch activities, the new Lancet Maternal and Child Nutrition Series (LNS 2013) were also launched in Ethiopia.

The LNS 2013 acknowledges that nutrition is crucial to both individual and national development and highlights that globally there are 165 million children under five who are stunted, with the current annual rate of reduction (2.1%) being insufficient to reach the World Health Assembly target of a 40% reduction in the number of children under five who are stunted by 2025. The LNS 2013 also demonstrated that under-nutrition is responsible for 45% of all under five child deaths, representing more than 3 million deaths per year. Foetal growth restriction and sub-optimal breastfeeding together account for more than 1.3 million deaths, and micronutrient deficiencies, in particular vitamin A and zinc deficiencies, are responsible for nearly 300,000 child deaths. Overall, the LNS 2013 strengthened the case for the continued focus on the window of opportunity, namely the 1,000 days during pregnancy and the first two years of life. The revised NNP for Ethiopia includes most of the ten priority evidence-based interventions in the LNS 2013 to prevent and treat under-nutrition across the whole life course (GOE, 2013). The targets set for 2012/13 and 2014/15 are presented in Table 1.

Table 1. National Nutrition Program impact indicators.

Impact indicators	2010/11 (Baseline)	2012/13 (Target)	2014/15 (Target)
Proportion of under 5 children with height-for-age Z-score below -2 SD (prevalence of stunting)	44.4%	38%	30%
Proportion of under 5 children with weight-for-age Z-score below -2 SD (prevalence of under-weight)	28.7%	25%	21%
Proportion of under 5 children with weight-for-height Z-score below -2 SD (prevalence of wasting)	9.7%	7%	5%
Proportion of women of reproductive age (15-49 years) with body mass index < 18.5 kg/m ²	27%	24%	19%
Proportion of newborns who weighed less than 2.5 kg at birth	11%	11%	9%

Box A: The centrality of stunting reduction in Ethiopia

At the core of the revised NNP 2013 to 2015 is the target to reduce stunting prevalence from 44% to 30% by 2015. The renewed focus on stunting in Ethiopia is based on a thorough review of the evidence showing the consequences of stunting across the lifecycle starting with the first 1,000 days of life as well as its social and economic impact.

The revised NNP aims to strategically address nutrition problems in the country by:

- Taking into account the multi-sectoral and multi-dimensional nature of under-nutrition to identify the roles and responsibilities of other sectors to contribute to nutrition through a concrete plan of action for linkages among the sectors;
- Focusing on the lifecycle approach to map key actions needed to improve the nutritional status of women and children starting with the first thousand days, including nutrition actions for in and out of school adolescents, and building on the accelerated stunting reduction strategy developed by the FMOH and development partners (DP);
- Strengthening initiatives that were not adequately addressed in the previous NNP, such as food fortification and nutrition sensitive actions;
- Aligning the reporting period to the Growth and Transformation Plan and the MDGs, namely 2015; and
- Articulating ambitious targets, with accountability/results matrix depicting how each of the results can be realized and how each NNP implementing partner can contribute to better nutrition outcomes.

2.2) Emphasis on the first 1,000 days of life

With the growing impetus to end malnutrition, an emphasis on the first 1,000 days of life — a window of opportunity for health and development — has also become central for Ethiopia. The process often starts in the womb and continues through at least the first two years of life. The period of pregnancy through to lactation

and the first two years of life poses special nutritional challenges because it is when nutrition requirements are greatest and population subgroups are most vulnerable to inadequate caring behaviors, inadequate access to health services, and unsuitable feeding practices (WB, 2006).

Young children need adequate dietary intake (through exclusive breastfeeding followed by quality complementary feeding) to support the rapid rate of growth that occurs in the first two years of life. Inadequate feeding and care practices often lead to a rapid decline in nutritional status after birth, and more prominently after 3 to 4 months of age (when typically other foods beyond breast milk are introduced). Growth in children drops dramatically during this early time period in all regions of the world, with Africa being the second most affected region after Asia (Shrimpton et al., 2001).

Poor infant and young child feeding practices are also likely determinants of stunting in Ethiopia. The LNS 2013 package of interventions includes the promotion of exclusive breastfeeding until 6 months and the promotion of adequate complementary feeding from 6 to 24 months as proven high impact interventions. In addition, zinc supplementation and zinc in the management of diarrhea, as well as hand washing and hygiene interventions, are recommended. Although exclusive breastfeeding rates are relatively better than in previous years, they need to be protected and further improved in Ethiopia, whereas the complementary feeding pattern is extremely poor both in terms of timing of introduction and of quality of the foods used (REACH, 2013) (Figure 3), with zinc deficiency being probably a dominant feature (Shrimpton et al., 2012).

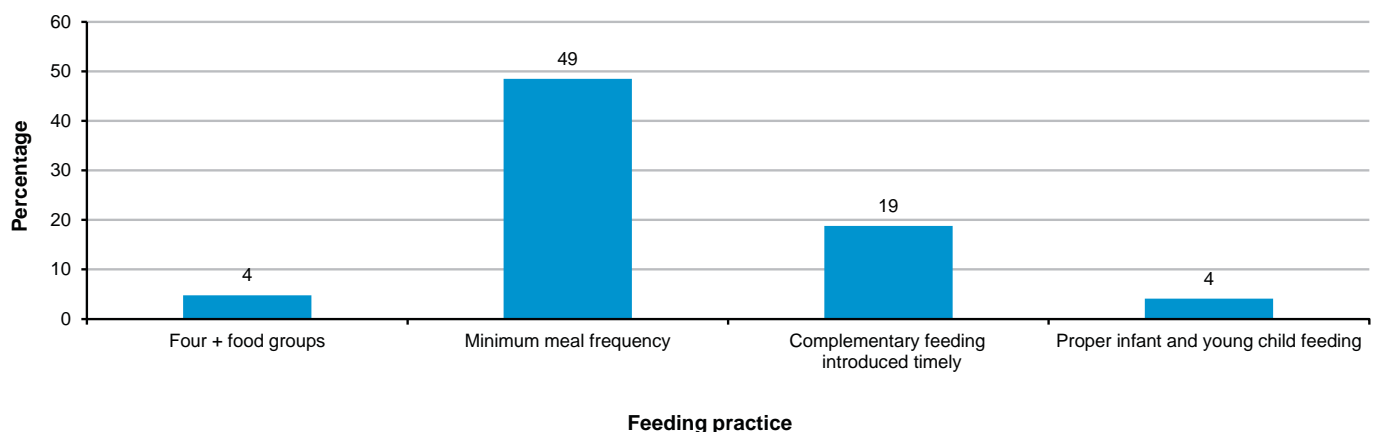


Figure 3. Complementary feeding practices among children aged 6-23 months (EDHS 2011).

Data also show that the damage done by under-nutrition at very early age in life to both physical growth and brain development is largely irreversible after 24 months of age (Martorell et al., 1994; Black et al., 2013). Growth during this time is episodic rather than continuous, and may alter the path of later growth and disease risk. Height has been shown to be related to adult productivity (Behrman and Rosenzweig, 2001) and final height is determined in large part by nutrition from conception to two years of age. A one percent loss in adult height as a result of childhood stunting is associated with a 1.4% loss in productivity (Hunt, 2005). Growth failure before the age of two, anemia during the first two years of life, and iodine deficiency in the womb can also have profound and irreversible effects on a child's ability to learn (Behrman et al., 2004). Vitamin and mineral deficiencies in the womb and in early childhood can cause blindness, dwarfism, mental retardation, and neural tube defects—all severe handicaps for human and country development (WB, 2006). For example, anemia has a significant impact on productivity in adults. Eliminating anemia leads to a 5 to 17% increase in adult productivity, which adds up to 2% of Gross Domestic Product (GDP) in the worst affected countries (Horton et al., 2009; Horton and Ross, 2003; Strauss and Thomas, 1998).

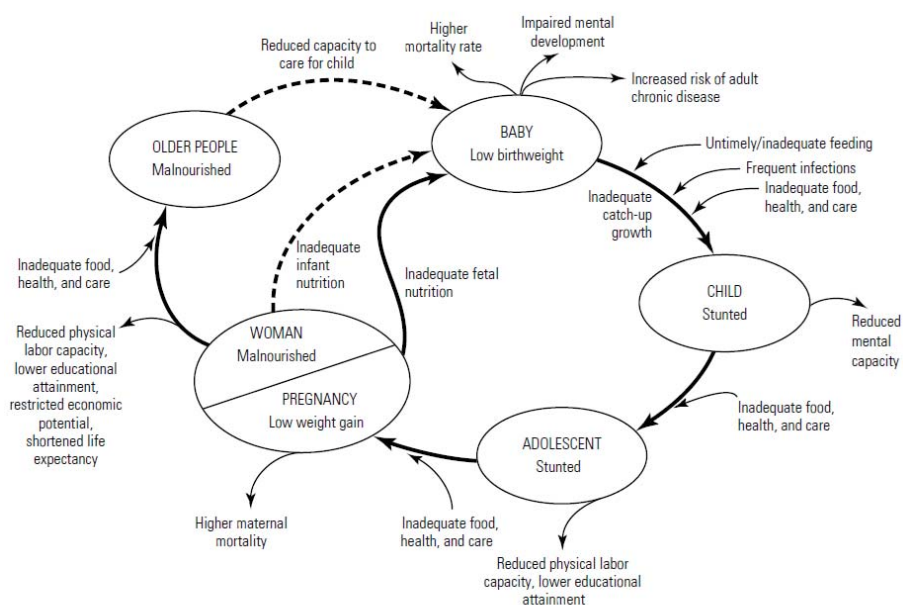
2.3 Interpretation of the lifecycle approach in the Ethiopian context

Malnutrition can continue from generation to generation in a cycle driven by poverty (Figure 4). A child born to a mother who is undernourished will likely have low birth weight and has increased risks of high morbidity and mortality. If the infant survives, and the mother is not able to care for the child or adequate, quality food is not available or accessed, its growth will be impaired resulting in stunting, poor cognitive abilities

and increased susceptibility to infectious diseases, and, later in life, to non-communicable diseases. As the child grows, the chances of escaping this nutrition-poverty trap diminish. Stunting can be irreversible, and the chances for better education attainment and delaying marriage decrease. If the child is a girl, she will, in turn, give birth to a baby of low birth weight, and the cycle will continue again. This cycle must be broken and it all begins with the mothers or, more importantly, adolescent girls to get them on the right track for when they themselves become mothers (Benson and Shekar, 2006).

The LNS 2013 also examined the emerging public health challenges around overweight and obesity for women and children and the consequences of the double burden of malnutrition in low-income and middle-income countries. The global population has been experiencing a dynamic nutrition transition, as people move away from traditional plant-based high-fiber diets to those high in sugars and fat. The nutrition transition is preceded by a demographic transition - falling fertility rates and rising ageing population - and an epidemiological transition, when non-communicable diseases instead of infectious diseases become the main cause of mortality. A “double burden of malnutrition” is thus appearing in both developed and developing countries with the coexistence of under-nutrition and over-nutrition in the same population.

Young women, maternal and child under-nutrition remains one of Ethiopia's most fundamental challenges for improved human development and sustained economic growth. Because under-nutrition is intricately linked to morbidity and mortality, the under-nutrition that begins with mothers leads to unrealized human potential (Benson and Shekar, 2006).



Source: Adapted from SCN 2000.

Figure 4. Cycle of impact from mother to fetus (Benson 2004).

3) Causes and consequences of high rates of under-nutrition in Ethiopia

3.1) Fetal growth

Inadequate fetal growth most probably plays an important part in the process of the young child stunting in Ethiopia. Although no good birth weight data is available, the 2011 Ethiopia Demographic and Health Survey (EDHS) revealed that, among children born in the five years before the survey with a reported birth weight, 11% weighed less than 2.5 kilograms. Low birth weight is more common among children of the youngest mothers aged less than 20 (13%) and older mothers aged 35-49 (17%). Seventeen percent of births in rural areas, compared with 9% in urban areas, have a reported birth weight less than 2.5 kilograms. On the other hand, based on mother’s subjective assessment of the size of the baby at birth, in the absence of birth weight, mothers reported that 21% of all live births in the five years preceding the survey to be very small, and 9% as smaller than average (CSA and ICF, 2012).

3.2) Infant and young child growth

Infant and young child growth is poor, and certainly contributes to the process of stunting in Ethiopia. The 2011 EDHS indicated that 44% of children under age five are stunted, and 21% of children are severely stunted. In general, the prevalence of stunting increases as the age of a child increases, with the highest prevalence of chronic malnutrition being found in children aged 24-35 months (57%) and lowest in children under six months (10%). Children in rural areas are more likely to be stunted (46%) than those in urban areas (32%). There is considerable variation in child stunting prevalence rates across the regions (Figure 5A), being above the national average in Amhara (52%), Tigray (51%), Afar (50%), and Benishangul-Gumuz (48.6%) Regions, while they are lowest in Addis Ababa and Gambella Region (22% and 27%, respectively). The largest numbers of stunted children were found in Oromiya (2,078,000), Amhara (1,370,000), and SNNP (1,164,000), with a total of over 4.6 million children being affected in the three regions (Figure 5B).

There are no significant differences in stunting rates across the wealth quintiles, except for that in the highest quintile (Figure 6).

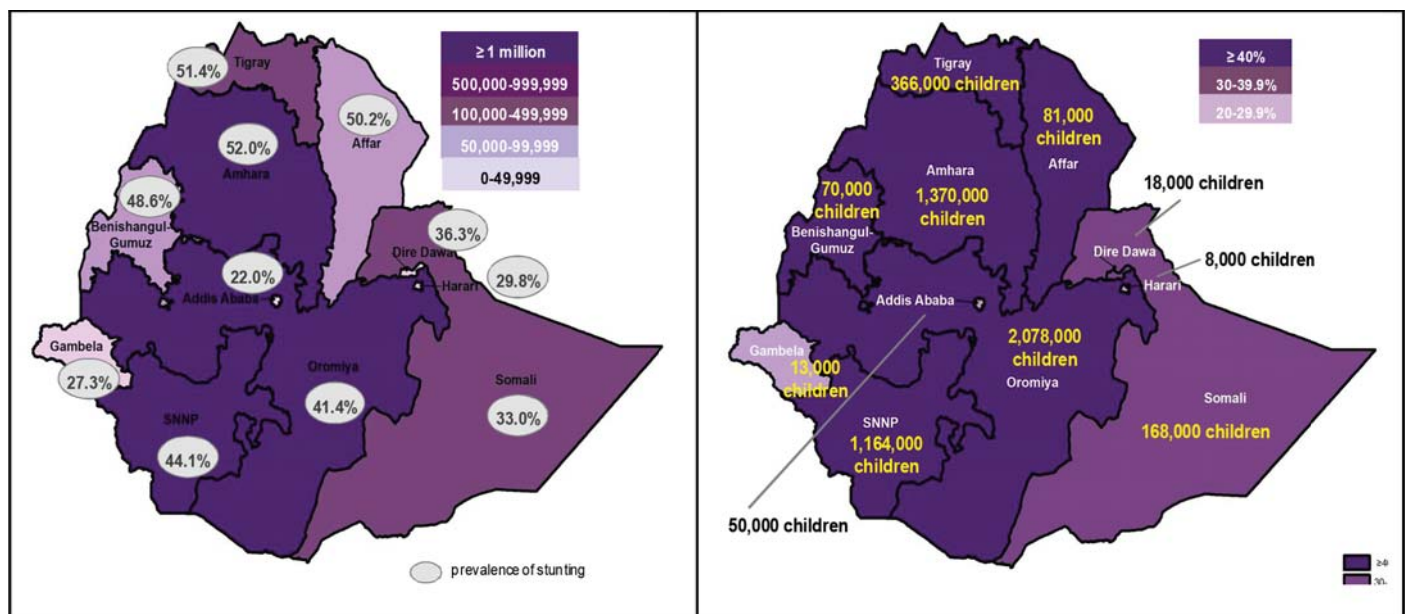


Figure 5. Map with stunting prevalence rate by region (5A) and number of stunted children (5B) by region (EDHS 2011).

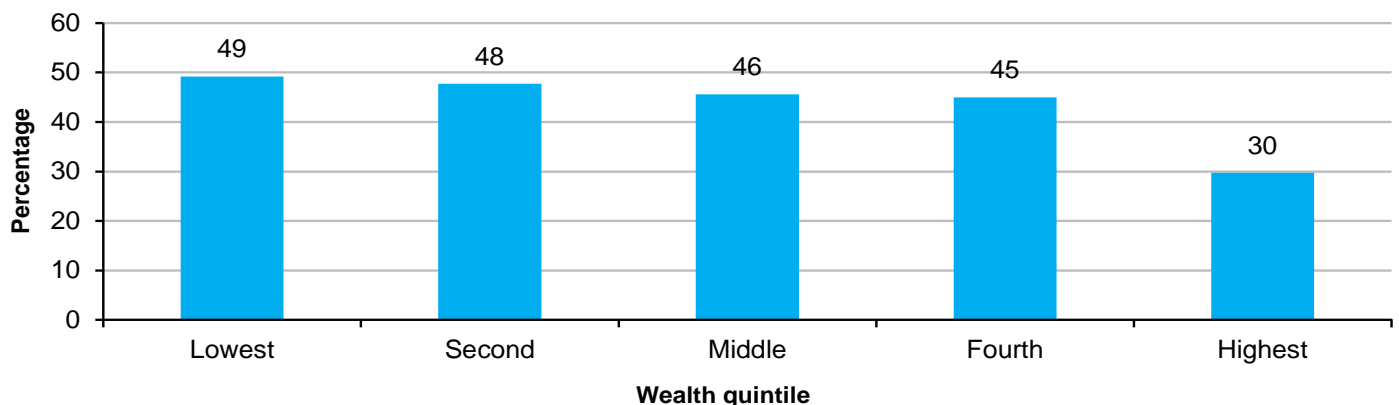


Figure 6. Stunting prevalence rate by wealth quintiles (EDHS 2011).

A small proportion of children in Ethiopia are classified as overweight or obese. Overall, 2% of children below five years are overweight or obese (+2 SD). Overweight or obesity among children increase with increasing Body Mass Index (BMI) of the mother, from 1% among children of mothers who are thin to 4% among children of mothers who are overweight/obese (BMI >25 kg/m²). There are no substantial differences between male and female children. Variation by region is minimal, except for Addis Ababa, where 6% of children under five, the highest percentage in all regions, are overweight or obese.

3.3) Maternal nutritional status

Maternal nutritional status (that is, among women aged between 15 and 49 years) is poor in many respects in Ethiopia. Physical size is one measure of the adequacy of maternal nutrient status, determining the size of nutrient reserves that can be called upon in times of need, such as during pregnancy and lactation. Although about a quarter of women of reproductive age are thin (BMI <18.5 kg/m²), only a few (3%) were very short (<145cm). Women of short stature are most likely to reside in Amhara Region, and to have no education or primary education. Overweight and obesity (BMI 25 kg/m² or above) are not common among women in Ethiopia. Five percent are overweight (BMI 25-29 kg/m²), and just 1% are obese (BMI 30 kg/m² or above).

The age of the mother has a strong influence on the adequacy of their physical nutritional status. In the 2011 EDHS the median age of first marriage was around 16.5 years and the median age of first pregnancy was 19.2 years. Despite this three year delay from marriage to first birth, 34% of mothers have had at least one child during their adolescence, while, amongst those who were adolescent (15-19 years) during the survey period, 12%

were already mothers or pregnant with their first child. These adolescent mothers were still growing, as mean height of the 15-19 year old group of mothers in the 2011 EDHS survey was 2.8 cms shorter than the 20-29 age groups. Similarly, adolescents (age 15-19) are more likely to be thin (36%) than older women (average 24.6%).

The prevalence of iron deficiency and iron deficiency anemia in Ethiopia among women of reproductive age has been relatively well documented (Umeta et al., 2008; Haidar and Pobocik, 2009). The 2011 EDHS revealed that 17% of Ethiopian women aged 15-49 are anemic, with 13% having mild anemia, 3% having moderate anemia, and 1% having severe anemia (Figure 7). A higher proportion of pregnant women are anemic (22%) than women who are breastfeeding (19%) and women who are neither pregnant nor breastfeeding (15%). The prevalence of any anemia has declined by 37% from 27% in 2005 to 17% in 2011.

Anemia among pregnant women (Getachew et al., 2012; Gibson et al., 2008) and non-pregnant women of reproductive age (15-49 years) (CSA and ORC Macro, 2001; CSA and ORC Macro, 2006; CSA and ICF, 2012; Umeta et al., 2008) in Ethiopia denotes a moderate to severe public health problem (WHO and FAO, 2006), warranting further investigation and consideration of its impacts on stunting (Black et al., 2013; Koura et al., 2012; De Pee et al., 2002).

Besides anemia, the literature on other micronutrient deficiencies (iodine, vitamin A, zinc, etc) amongst Ethiopian women is limited and outdated given that the last national micronutrient survey was undertaken in 2005. On the other hand, for quite some years, the FMOH has been implementing micronutrient interventions, such as

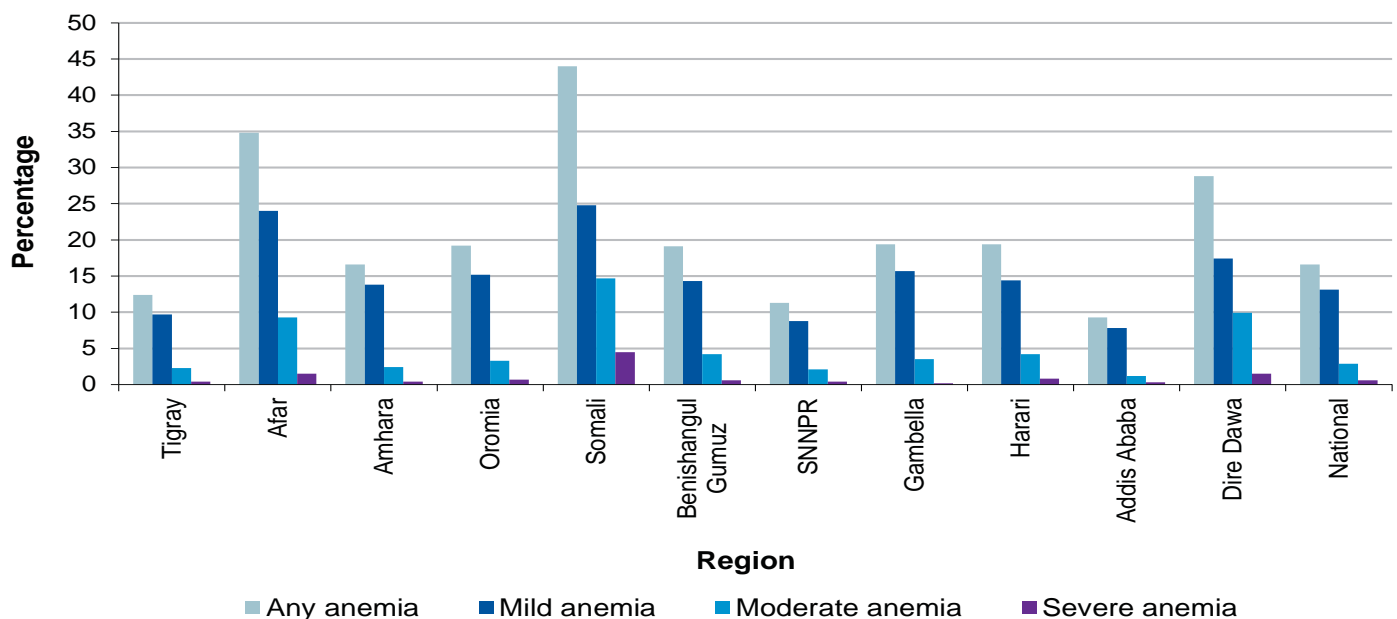


Figure 7. Regional distribution of anemia amongst women 15-49 years old (EDHS 2011).

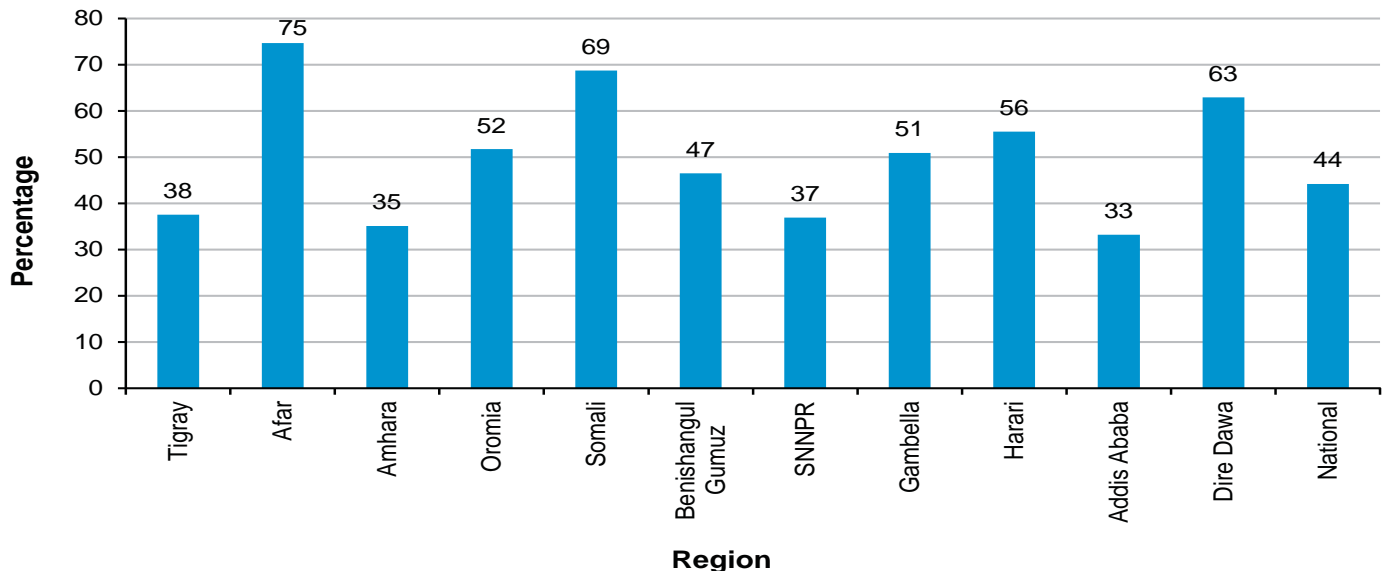


Figure 8. Regional distribution of percentage of children aged 6-59 months with anemia (EDHS 2011).

mandatory iodization of table salt (through legislation and enforcement), iron and folic acid supplementation and de-worming to pregnant and lactating women (PLW). Currently, the Ethiopian Public Health Institute (formerly Ethiopian Health and Nutrition Research Institute) is undertaking a comprehensive micronutrient survey that will provide the true picture of micronutrients status of different population groups (PLW, under 5 children, school children and women 15-49 year old).

In conclusion, in the majority of regions, mothers are affected by moderate to severe, and/or severe deficiencies of iodine, vitamin A and iron, with at least a half of mothers deficient in at least one micronutrient, and many likely to have multiple micronutrient deficiencies. Of these, iron is not the worst deficiency, and iodine and zinc deficiency are likely to be of greater concern. It should be noted that, because of the aforementioned limitations, the micronutrient status provided here should be used with caution.

3.4) Nutritional (micronutrient) status of infant and young children

More than four in ten Ethiopian children (44%) are anemic. Anemia prevalence is highest among children aged 9-11 months (73%) and decreases steadily with age from 12 to 59 months. Forty-five percent of children in rural areas have anemia, compared with 35% of children in urban areas. The percentage of children aged 6-59 months with anemia ranged between 75% in Afar and 33% in Addis Ababa (Figure 8). The national anemia prevalence has dropped by 19% in the past six years, from 54% in 2005 to 44% in 2011.

The literature on micronutrient deficiencies (iodine, vitamin A, zinc, etc) is scarce and outdated for Ethiopian children too, with the exception of iron. All in all, data from 2005 indicate that severe deficiencies of vitamin

A and iron are affecting young children in nearly all regions, with iodine deficiency more of a moderate risk. The majority of the young child population is affected by at least one micronutrient deficiency, and many are likely to have multiple micronutrient deficiencies, and of these, while iron and vitamin A deficiency are the most prevalent, iodine deficiency is also of great concern. However, since 2005 Vitamin A supplementation and de-worming have started, with tablets being distributed to 11 million 6-59 months children and 7.5 million 2-5 years children, respectively, bi-annually in 2012/13. Although there is no representative data on zinc deficiency it is also likely to be a severe problem affecting young children in most regions. With the current obesity level increasing globally, levels of overweight or obesity in children need to be monitored closely in Ethiopia too.

4) The social and economic impact of child under-nutrition in Ethiopia

The Cost of Hunger Africa (COHA) model is used to estimate the additional cases of morbidity, mortality, school repetitions, school dropouts, and reduced physical capacity that can be directly associated to a childhood under-nutrition (under-nutrition before the age of five), and the associated economic costs (Table 2). The COHA – Ethiopia study revealed the following main results pertaining to children (WFP et al., 2013):

- For 2009, there were an estimated 4.4 million additional clinical episodes associated with under-nutrition in children under five, which incurred a cost of an estimated ETB 1.8 billion (USD 154 million).
- Under-nutrition was associated with 24% of all child mortalities, with estimated 379,000 deaths in the period 2004 - 2009.

Table 2. Summary of costs of child under-nutrition in Ethiopia.

	Episodes	Cost in ETB	Percentage of GDP
Health Costs			
LBW and Underweight	3,139,682	1,256	
Increased Morbidity	1,270,996	566	
Total for Health	4,410,678	1,822	0.54%
Education Cost			
Increased Repetition - Primary	152,488	93	
Increased Repetition - Secondary	-----	-----	
Total for Education	152,488	93	0.03%
Productivity Costs			
Lower Productivity - Non-Manual Activities	1,938,632	625	
Lower Productivity - Manual Activities	24,273,274	12,857	
Lower Productivity - Mortality	3,230,218	40,070	
Total for Productivity	29,442,124	53,552	15.97%
TOTAL COSTS FOR ETHIOPIA in 2009		55,468	16.54%

- During primary education, stunted children have a higher grade repetition rate (15.1%) than non-stunted children (11.2%), based on statistics for 2009. This incremental rate generated 152,000 additional cases of grade repetition in 2009, and a cost of ETB 93 million (USD 7.8 million).
- Stunted children in Ethiopia are also more likely to drop out of school. The model estimated that for 2009 the average schooling achievement for a person who was stunted as a child is 1.07 year lower than for a person who was never undernourished. The related disadvantage in the labor market generated estimated costs of ETB 625 million (USD 52 million) in potential productivity loss for that year.
- Overall results in Ethiopia show that an estimated ETB 55.5 billion (USD 4.7 billion) was lost in the year 2009 as a result of child under-nutrition. This is equivalent to 16.5% of GDP. On the other hand, the study estimates that Ethiopia could reduce losses by ETB 148 billion (USD 12.5 billion) by 2025 if it reduces underweight rates to 5% and stunting to 10% in children under five years; alternatively, a reduction of the child under-nutrition rates to half of the current levels by the year 2025 could reduce losses by ETB 70.9 billion (USD 6 billion).

5) Conclusion

The above literature and programme review indicates that the the social and economic impact of under-nutrition in

Ethiopia is alarming – and demands an immediate “Call to Action”. To this end, all stakeholders (government sectors, development partners, civil society organizations, professional associations, communities and households) are expected to contribute and lead actions towards alleviating the problem of women and child under-nutrition. Aligning actions with the NNP would ensure efficiency and wise use of resources, while Ethiopia strives to bring about sustainable and irreversible change.

References

- Behrman, J.R., Alderman, H., Hoddinott, J., 2004. Nutrition and hunger, in global crises, global solutions, B. Lomborg, Editor. Cambridge University Press: Cambridge.
- Behrman, J.R., Rosenzweig, M., 2001. The returns to increasing body weight. Working Paper N. 01-057. Penn Institute for Economic Research, University of Pennsylvania, Philadelphia.
- Benson, T., 2004. Africa's food and nutrition security situation: where are we and how did we get here? International Food Policy Research Institute, Washington.
- Benson, T., Shekar, M., 2006. Trends and issues in child undernutrition. Disease and mortality in sub-Saharan Africa. World Bank, Washington.
- Black, R.E., Victora, C.G., Walker, S.P., Bhutta, Z.A., et al., 2013. Maternal and child under-nutrition and overweight in low-income and middle-income countries. Lancet Maternal and Child Nutrition Series. The Lancet, 382: 427–51.

- CSA and ORC Macro, 2001. Ethiopia Demographic and Health Survey 2000. Central Statistical Agency, Addis Ababa and ORC Macro, Calverton.
- CSA and ORC Macro, 2006. Ethiopia Demographic and Health Survey 2005. Central Statistical Agency, Addis Ababa and ORC Macro, Calverton.
- CSA and ICF, 2012. Ethiopia Demographic and Health Survey 2011. Central Statistical Agency, Addis Ababa and ICF International, Calverton.
- De Pee, S., Bloem, M.W., Sari, M. et al., 2002. The high prevalence of low hemoglobin concentration among Indonesian infants aged 3-5 months is related to maternal anemia. *The Journal of Nutrition*, 132: 2215-21.
- FMOE, 2011. Education Statistics Annual Abstract 2010/11. EMIS, Planning and Resource Mobilization Directorate (2010/11), Federal Ministry of Education, Addis Ababa.
- Getachew, M., Yewhalaw, D., Tafess, K., et al., 2012. Anaemia and associated risk factors among pregnant women in Gilgel Gibe dam area, Southwest Ethiopia. *Parasites and Vectors*, 5: 296.
- Gibson, R.S., Abebe, Y., Stabler, S. et al., 2008. Zinc, gravida, infection, and iron, but not vitamin B-12 or folate status, predict hemoglobin during pregnancy in Southern Ethiopia. *The Journal of Nutrition*, 138: 581-6.
- GOE, 2013. National Nutrition Program (NNP). Government of Ethiopia, Addis Ababa.
- Haidar J.A., Pobocik, R.S., 2009. Iron deficiency anemia is not a rare problem among women of reproductive ages in Ethiopia: a community based cross sectional study. *BMC Blood Disorders*, 9: 7.
- Horton, S., et al., 2009. Scaling up nutrition: what will it cost? World Bank, Washington.
- Horton, S., Ross, J., 2003. The economics of iron deficiency. *Food Policy*, 28(1): 51-75.
- Hunt, J.M., 2005. The potential impact of reducing global malnutrition on poverty reduction and economic development. *Asia Pac J Clin Nut*, 14(S): 10-38.
- Koura, G.K., Ouedraogo, S., Le Port, A., et al., 2012. Anaemia during pregnancy: impact on birth outcome and infant haemoglobin level during the first 18 months of life. *Tropical Medicine and International Health*, 17: 283-91.
- Martorell, R., Kettel Khan, L., and Schroeder, D. G., 1994. Reversibility of stunting: epidemiological findings in children from developing countries. *Eur. J. Clin. Nutr.*, 48: S45-S57.
- MOFED, 2012. Ethiopia's progress towards eradicating poverty: an interim report on Poverty Analysis Study (2010/11). Development Planning and Research Directorate, Ministry of Finance and Economic Development, Addis Ababa.
- REACH, 2013. Ethiopia nutrition analysis. Renewed Efforts Against Child Hunger (unpublished data)
- Shrimpton R., Victora, G.C., de Onis, M., Lima, R.C., Blossner, M., Clugston, G., 2001. Worldwide timing of growth faltering: implications for nutritional interventions. *Pediatrics*, 107: E75.
- Shrimpton R. et al., 2012. Report on accelerating stunting reduction in Ethiopia. Federal Ministry of Health, Addis Ababa.
- Strauss, J., Thomas, D. 1998. Health, nutrition and economic development. *Journal of Economic Literature*, 36(2): 766-817.
- Umeta, M., Haidar, J., Demissie, T., et al., 2008. Iron deficiency anaemia among women of reproductive age in nine administrative regions of Ethiopia. *Ethiopian Journal of Health of Development*, 22: 252-8.
- UNICEF, 2013. Levels and trends in child mortality. Estimates developed by the UN Inter-agency Group for Child Mortality Estimation. United Nations Children's Fund, New York. www.childinfo.org/files/Child_Mortality_Report_2013.pdf [accessed April 2014].
- WB, 2006. Repositioning nutrition as central for development. World Bank, Washington.
- WFP, UNECA and AUC, 2013. Cost of hunger in Africa: the social and economic impact of child under-nutrition in Ethiopia. World Food Program, United Nations Economic Commission for Africa and African Union Commission, Addis Ababa.
- WHO and FAO, 2006. Guidelines on food fortification with micronutrients. World Health Organization, Geneva, and Food and Agriculture Organization, Rome.

DESCRIBING DIFFERENCES IN DISEASE PATTERNS BETWEEN FEMALES AND MALES ACROSS AGE GROUPS: ANALYSIS OF 54,519 MEDICAL RECORDS OF IN-PATIENTS ADMITTED TO WOLISSO HOSPITAL (2005-2011)

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Summary

This study is based on data routinely collected in 54,519 medical records of in-patients admitted to a non-profit hospital in Ethiopia (St. Luke Hospital in Wolisso) in the period 2005-2011. It aims to describe differences between females and males in use of in-patient services and in disease patterns, explaining these differences with reference to sex (biological) and gender (socially constructed) factors. The leading cause of admissions was delivery (26.0% of total admissions), followed by injuries (8.5%), and malaria (6.8%). The number of admissions was higher for females (60.5% of the total) due to the high frequency of admissions for childbirth and gynaecological-obstetric conditions. Men had more admissions for the other leading causes, with the highest male-to-female ratio being found for injuries (M:F ratio=2.7): this pattern reflects the higher risk of road traffic accidents, occupational injuries, interpersonal violence and risk-taking behaviours among adult males. Malaria (11.0%) was the leading cause of in-hospital deaths, followed by pneumonia (10.6%), and injuries (9.7%). The analysis of medical records at Wolisso Hospital offers interesting insights into the ways in which delivery of health care interacts with the patient's demand and meets gender-specific health needs, the most obvious differences being related to reproductive health needs. It helps also to disentangle biological differences between females and males from those which are created by the social construct of gender. A greater understanding of these mechanisms helps to develop strategies for addressing gender inequalities in order to achieve the dual goal of improving health status and ensuring equity.

1) Introduction

It is well known that women and men differ with respect to morbidity and mortality, and that biological and socio-environmental factors may mediate these differences (Payne, 2006). In this context, the term “sex” is used in reference to biological factors: it is more than reproduction and includes hormonal, immune, and genetic differences which impact on vulnerability to different diseases as well as on chances of survival (WHO, 2002). The term “gender” refers to socially constructed differences between women and men; that is, the conventions, roles, and expectations of women and men that are culturally ascribed (WHO, 2002).

Sex and gender can act alone in determining differentials in the burden of disease. However, while some health conditions seem to be more closely linked to either sex or gender, most are shaped by both (Payne and Doyal, 2009). The distinct roles and behaviours of women and

men in a given culture, dictated by that culture's gender norms and values, give rise to gender differences (WHO, 2002). Gender norms and values, however, also give rise to gender inequalities; that is, unfair differences between men and women that systematically empower one group to the detriment of the other. Both gender differences and gender inequalities can give rise to inequities between women and men in health status and access to health care. This means that gender issues are not just of concern to women. Men's health, too, is affected by gender divisions in both positive and negative ways (Connell and Messerschmidt, 2005).

As a result, sex and gender can lead to differences in vulnerability to illness, in access to health care and in the impact of illness at both the individual and household levels (Diderichsen et al., 2001). However, the intense concern for gender inequalities frequently expressed in national and international fora failed to produce comparable significant efforts to collect the information

needed to act upon this concern (Wizeman and Pardue, 2001), especially in resource-poor contexts. There are various reasons for this, including the fact that most health information systems and disease control programmes fail to produce sex-disaggregated data (Payne and Doyal, 2009), and few studies in Africa have focused on differences in health between females and males. In Ethiopia, it is crucial to develop sex- and gender-related analysis of data derived from the Health Management Information System (HMIS) to guide informed decision and evidence-based practice (FMOH, 2013a).

This paper is based on data routinely collected in 54,519 medical records of in-patients admitted to a private, non-profit hospital (St. Luke Hospital in Wolisso, Oromia Region) in the period 2005-2011. It aims to describe differences between males and females in use of in-patient services and in disease patterns, explaining these differences with reference to sex (biological) and gender (socially constructed) factors, and documenting mechanisms that link gender, sex, disease profile, service use, and health outcomes as well as actions undertaken to address gender inequalities.

2) Material and methods

Wolisso Hospital is a private, non-profit facility located in Wolisso town, capital of the Southwest Shoa Zone (Oromia Region), with a catchment area of about 1,200,000 population (CSA, 2007), and it is the referral hospital in the zone. It is owned by the Catholic Church, and is supported by an Italian Non-Governmental Organization (Doctors with Africa-CUAMM), hosting also a college of nursing. It began services in January 2001, with a number of beds increasing over time from 83 in 2001 to 198 in 2011, and a bed occupancy rate of about 90% in the study period.

Concerning obstetrical services, out of 14,172 deliveries assisted at Wolisso Hospital in the period 2005-2011, 5,236 (36.9%) were abnormal, with 3,257 caesarean sections being performed in the study period. Preventive services performed by the hospital included antenatal visits for pregnant women (57,020 in the period 2005-2011), immunizations for infants (94,730) and voluntary counselling and testing for HIV/AIDS (23,241). The hospital has a policy of giving priority to economically and socially disadvantaged individuals in terms of access to services, which are provided at subsidized prices. Vulnerable groups (infants, children and women) accounted for 84.5% of admissions, a percentage which is higher than their share in the general population (56.9%) (CSA, 2007).

This study is based on retrospective analysis of the discharge records of 54,519 patients admitted to the

hospital in the period 2005—2011, including 2,611 patients who died in the hospital. The analysis was limited to the principal cause of hospital admission, that was coded according to the International Classification of Diseases (10th revision; ICD-10) (WHO, 1994). For mortality analysis, the principal cause was considered as the cause of death. The diagnostic procedures in the hospital were standardized and consistent over time. The data from the discharge records were routinely entered into a computerized database by trained and authorized personnel; during the study period, the procedures for collecting and storing data did not change.

3) Results

The leading cause of admissions was childbirth, with over a quarter (26.0%) of the total, followed by injuries (8.5%), malaria (6.8%), pneumonia (6.4%), and complications of pregnancy (5.6%) (Table 1).

The total number of admissions was higher for females (60.5% of the total) due to high frequency of admissions for childbirth and gynaecological-obstetric conditions. Men had more admissions for the other leading causes, with the highest male-to-female ratio being found for injuries (M:F ratio=2.7) and musculoskeletal diseases (M:F ratio=1.8). As a result, there were more admissions among men in all of the age groups except in reproductive age (15-44 years).

The number and percentage of hospital bed days by disease, related to both frequency of admissions and duration of hospital stay, can be considered a good indicator of the relative burden of different diseases on hospital services. Injuries and deliveries were the most important conditions in terms of service utilization, accounting for a similar number of bed days (45,644 and 45,197, respectively).

The age- and sex-related patterns of admission were different across diseases: for example, malaria showed a peak in childhood (higher in males), followed by a diverging pattern in young adult ages (a decrease in males and an increase in females), with a subsequent decrease in both sexes in the older age groups. In particular, there were 179 male malaria admissions in 15-24 years and 173 in 25-34 years, while there were 348 and 335 admissions among females for the same cause in the same age groups (Figure 1A). Similar age- and sex-related patterns were observed for anaemia, with a marked increase in reproductive age only among females (Figure 1B).

Conversely, an increase in injuries was observed among males, especially in young adult age groups (Figure 2).

Table 1. Number of admissions by sex with bed days and average length of stay (ALOS) for the ten leading causes of admission.

	Male admissions		Female admissions		Total admissions		M:F Ratio	Male bed days		Female bed days		Total bed days		ALOS (days)
	n	(%)	n	(%)	n	(%)		n	(%)	n	(%)	n	(%)	
Delivery	-	-	14,172	43.0%	14,172	26.0%	-	-	0.0%	45,197	34.0%	45,197	14.8%	3.2
Injuries	3,376	15.7%	1,253	3.8%	4,629	8.5%	2.7	32,442	18.9%	13,202	9.9%	45,644	15.0%	9.9
Malaria	1,861	8.6%	1,822	5.5%	3,683	6.8%	1.0	10,326	6.0%	9,778	7.4%	20,104	6.6%	5.5
Pneumonia	2,061	9.6%	1,415	4.3%	3,476	6.4%	1.5	13,766	8.0%	9,273	7.0%	23,039	7.6%	6.6
Complications of pregnancy	-	-	3,063	9.3%	3,063	5.6%	-	-	0.0%	9,952	7.5%	9,952	3.3%	3.2
Malnutrition	1,223	5.7%	1,032	3.1%	2,255	4.1%	1.2	16,462	9.6%	14,922	11.2%	31,384	10.3%	13.9
Musculoskeletal diseases	1,332	6.2%	750	2.3%	2,082	3.8%	1.8	16,972	9.9%	10,099	7.6%	27,071	8.9%	13.0
Diarrhoea	1,093	5.1%	680	2.1%	1,773	3.3%	1.6	6,906	4.0%	3,862	2.9%	10,768	3.5%	6.1
Cardiovascular diseases	858	4.0%	792	2.4%	1,650	3.0%	1.1	5,924	3.5%	5,603	4.2%	11,527	3.8%	7.0
Tuberculosis	843	3.9%	729	2.2%	1,572	2.9%	1.2	9,266	5.4%	8,445	6.3%	17,711	5.8%	11.3
Other diseases	8,879	41.2%	7,285	22.1%	16,164	29.6%	1.2	59,437	34.7%	47,884	36.0%	107,321	35.2%	6.6
Total	21,526	100.0%	32,993	100.0%	54,519	100.0%	0.7	171,501	100.0%	178,217	100.0%	349,718	100.0%	6.4

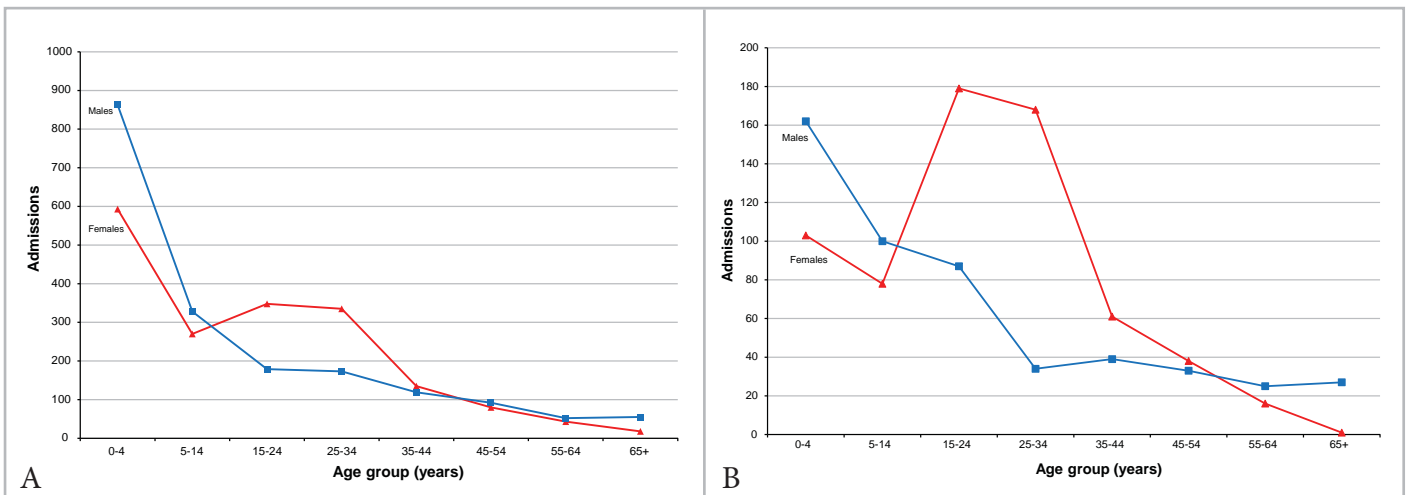


Figure 1. Number of admissions by sex and age group for malaria (1A) and anaemia (1B).

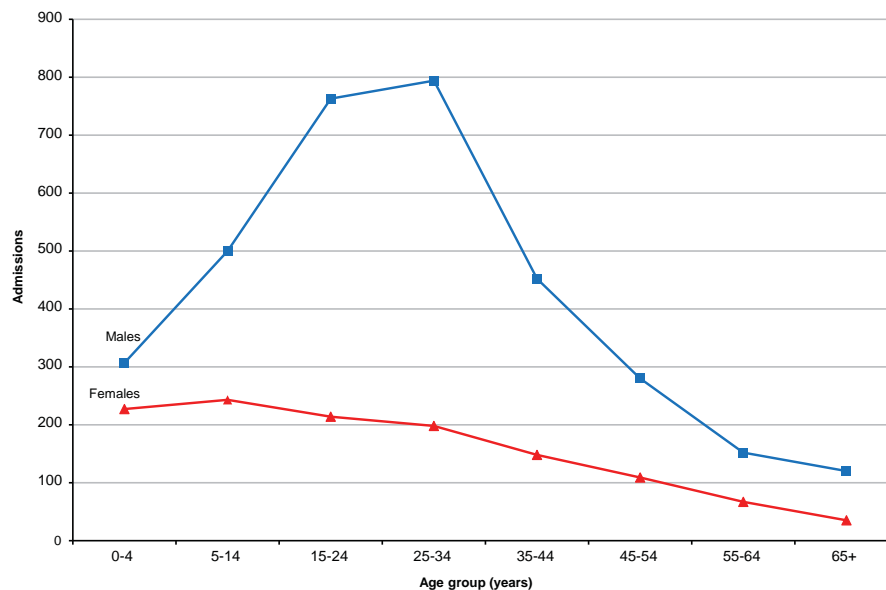


Figure 2. Number of admissions by sex and age group for injuries.

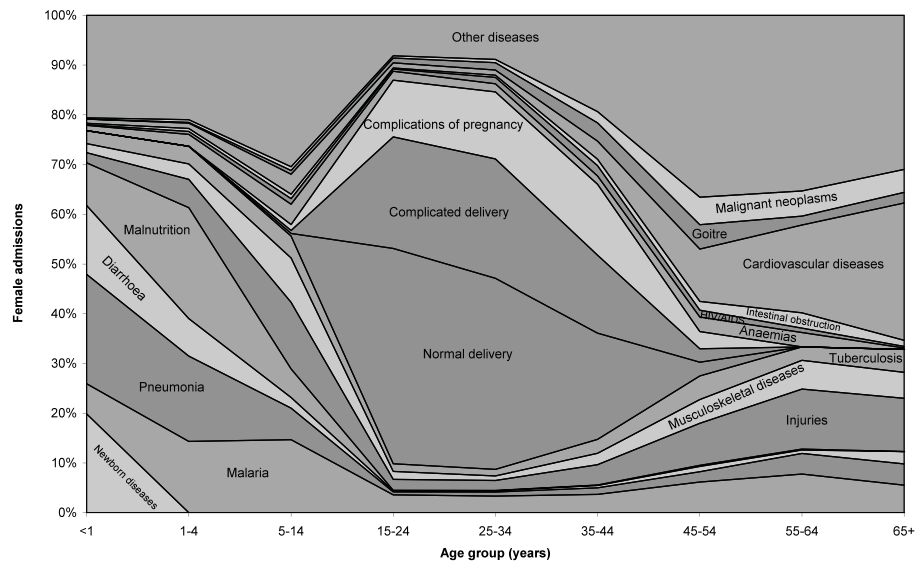


Figure 3. Proportion of admissions to Wolisso Hospital 2005-11 for the leading causes of admission by age group among female inpatients.

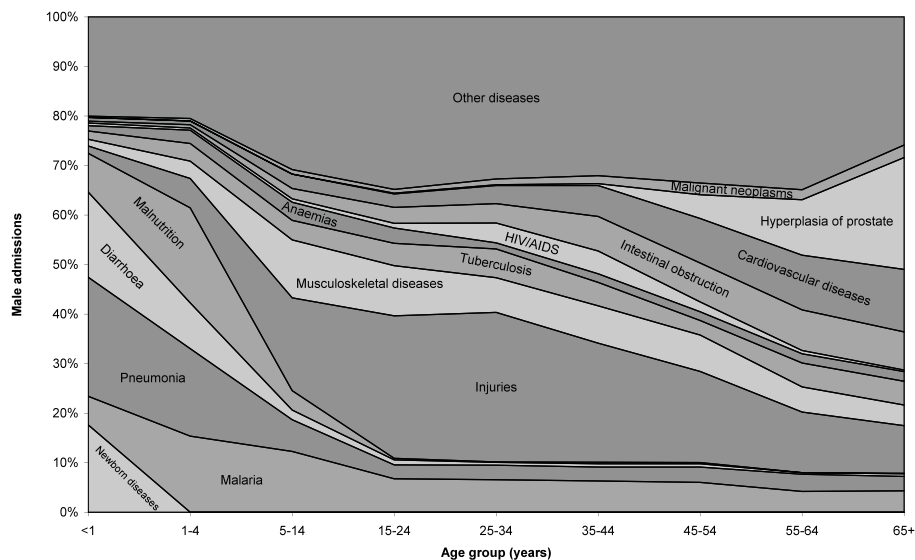


Figure 4. Proportion of admissions to Wolisso Hospital 2005-11 for the leading causes of admission by age group among male inpatients.

The relative contribution of different conditions to the overall admission patterns is illustrated in [Figures 3](#) and [4](#), showing age-specific distribution of the percentage of admissions for the leading causes of admission in females and males, respectively.

Since it is a relative measure, the percentage for a specific cause depends on patterns of other diseases. Childhood communicable diseases did not show any marked difference by sex, with malaria, pneumonia and diarrhoea, together with malnutrition, accounting for the majority of the under 5 admissions in both sexes (56.8% among girls and 58.6% among boys). Conversely, wide differences were observed in the following ages, with delivery and complications of pregnancy accounting for a high percentage of admissions among young adult females (77.1% in 15-24 age group and 75.9%

in 25-34 age group), while injuries were the leading cause of admissions among young adult males (28.8% and 30.2% of all male admissions in 15-24 and 25-34 age groups, respectively). Cardiovascular diseases, neoplasms (i.e. prostatic hyperplasia in males) and other non-communicable conditions accounted for an increasing percentage of admissions in older ages in both sexes. The top ten leading causes of admission in the different age groups (under 15 years, 15-44 years, 45 years and more) are shown in [Table 2](#).

The distribution of in-hospital deaths, the proportional mortality rate (PMR) and the case fatality rate (CFR) for the ten leading causes of death are shown in [Table 3](#). Malaria was the leading cause of in-hospital deaths (11.0% of the total), followed by pneumonia (10.6%), injuries (9.7%), and cardiovascular disease (9.4%); whereas

AIDS, newborn diseases and meningitis were the most severe conditions, as shown by the high CFRs (21.8%, 20.5%, and 17.5%, respectively). The total number of deaths was slightly higher for males (54.2% of the total), with women having more deaths from malnutrition and AIDS and fewer from intestinal obstruction, injuries,

meningitis, newborn diseases, pneumonia and TB; the number of deaths was balanced between women and men for malaria and cardiovascular diseases. A total of 75 maternal deaths were recorded during delivery and postpartum and for complications of pregnancies in the study period (data not shown in table).

Table 2. Number of admissions to Wolisso Hospital 2005-11 by sex for the ten leading causes of admission by age group (<15, 15-44, ≥45 years).

Cause	Males		Females		Total		M:F ratio
	No. Admissions	%	No. Admissions	%	No. Admissions	%	
< 15 years							
Pneumonia	1,730	16.8%	1,158	15.9%	2,888	16.4%	1.5
Malnutrition	1,202	11.6%	1,008	13.9%	2,210	12.6%	1.2
Malaria	1,191	11.5%	863	11.9%	2,054	11.7%	1.4
Diarrhoea	1,018	9.9%	591	8.1%	1,609	9.1%	1.7
Injuries	810	7.8%	473	6.5%	1,283	7.3%	1.7
Newborn diseases	574	5.6%	447	6.1%	1,021	5.8%	1.3
Musculoskeletal diseases	510	4.9%	304	4.2%	814	4.6%	1.7
Tuberculosis	315	3.1%	253	3.5%	568	3.2%	1.2
Other respiratory diseases	255	2.5%	182	2.5%	437	2.5%	1.4
Anaemia	251	2.4%	175	2.4%	426	2.4%	1.4
Other diseases	2,464	23.9%	1,820	25.0%	4,284	24.3%	1.4
Total	10,320	100.0%	7,274	100.0%	17,594	100.0%	1.4
15 - 44 years							
Delivery	-	-	14,080	59.8%	14,080	45.9%	-
Complications of pregnancy	-	-	2,996	12.7%	2,996	9.8%	-
Injuries	2,011	28.1%	568	2.4%	2,579	8.4%	3.5
Malaria	471	6.6%	818	3.5%	1,289	4.2%	0.6
Musculoskeletal diseases	594	8.3%	335	1.4%	929	3.0%	1.8
Tuberculosis	362	5.1%	384	1.6%	746	2.4%	0.9
Cardiovascular diseases	286	4.0%	340	1.4%	626	2.0%	0.8
Anaemia	147	2.1%	403	1.7%	550	1.8%	0.4
HIV/AIDS	218	3.0%	249	1.1%	467	1.5%	0.9
Goitre	68	0.9%	381	1.6%	449	1.5%	0.2
Other diseases	3,009	42.0%	2,982	12.7%	5,991	19.5%	1.0
Total	7,166	100.0%	23,536	100.0%	30,702	100.0%	0.3
≥ 45 years							
Injuries	555	13.7%	212	9.7%	767	12.3%	2.6
Cardiovascular diseases	435	10.8%	325	14.9%	760	12.2%	1.3
Hyperplasia of prostate	500	12.4%	-	-	500	8.0%	-
Intestinal obstruction	320	7.9%	44	2.0%	364	5.8%	7.3
Malaria	199	4.9%	141	6.5%	340	5.5%	1.4
Musculoskeletal diseases	228	5.6%	111	5.1%	339	5.4%	2.1
Tuberculosis	166	4.1%	92	4.2%	258	4.1%	1.8
Malignant neoplasms	93	2.3%	115	5.3%	208	3.3%	0.8
Pneumonia	127	3.1%	64	2.9%	191	3.1%	2.0
Hernia	127	3.1%	28	1.3%	155	2.5%	4.5
Other diseases	1,290	31.9%	1,051	48.1%	2,341	37.6%	1.2
Total	4,040	100.0%	2,183	100.0%	6,223	100.0%	1.9

Table 3. *In-hospital deaths, proportional mortality rate (PMR) and case fatality rate (CFR) by sex for the ten leading causes of in-hospital death.*

Cause	Male deaths		Female deaths		Total deaths		M:F ratio	Case fatality rate ^a (%)		
	n	PMR ^b (%)	n	PMR ^b (%)	n	PMR ^b (%)		Males	Females	Total
Malaria	142	10.0%	146	12.2%	288	11.0%	1.0	7.6%	8.0%	7.8%
Pneumonia	149	10.5%	128	10.7%	277	10.6%	1.2	7.2%	9.0%	8.0%
Injuries	184	13.0%	68	5.7%	252	9.7%	2.7	5.5%	5.4%	5.4%
Cardiovascular diseases	121	8.5%	125	10.5%	246	9.4%	1.0	14.1%	15.8%	14.9%
Newborn diseases	117	8.3%	92	7.7%	209	8.0%	1.3	20.4%	20.6%	20.5%
Malnutrition	71	5.0%	78	6.5%	149	5.7%	0.9	5.8%	7.6%	6.6%
AIDS	64	4.5%	74	6.2%	138	5.3%	0.9	20.3%	23.4%	21.8%
Tuberculosis	67	4.7%	54	4.5%	121	4.6%	1.2	7.9%	7.4%	7.7%
Intestinal obstruction	47	3.3%	16	1.3%	63	2.4%	2.9	6.4%	8.1%	6.8%
Meningitis	39	2.8%	22	1.8%	61	2.3%	1.8	18.8%	15.6%	17.5%
Other diseases	415	29.3%	392	32.8%	807	30.9%	1.1	4.4%	1.6%	2.4%
Total	1,416	100.0%	1,195	100.0%	2,611	100.0%	1.2	6.6%	3.6%	4.8%

^a The proportion of deaths out of the number of cases for a specific disease.

^b The proportion of deaths from a given cause out of the total number of deaths.

4) Discussion

The analysis of medical records at Wolisso Hospital offers interesting insights into the ways in which delivery of health care interacts with the patient's demand and meets gender-specific health needs, the most obvious differences being related to reproductive health needs. It helps also to disentangle biological differences between females and males from those which are created by the social construct of gender. In particular, sex-related biological differences may affect both susceptibility and immunity, while gender differences in patterns of behaviour and access to resources may influence the degree of exposure to risk and use of health services.

At Wolisso Hospital, over half (60.5%) of the inpatient services were targeted to women, mainly as a result of the priority given to the protection of maternal health. However, except for reproductive age (15-44 years), male admissions were more frequent in all of the other age groups. In particular, although there were similar disease patterns in childhood, more admissions were found among boys than among girls in this age group. This differential pattern of care has been reported in other developing countries (Lawn et al., 2005), where girls are less likely to receive treatment than boys, reflecting unequal access to health care due to cultural norms and different roles in the society (Payne and Doyal, 2009; Victora et al., 2003).

Furthermore, striking differences emerge in adults. Firstly, and most obviously, women suffer disproportionately from their reproductive role. In addition, there are

differences reflecting gendered distribution of power, resources, and role expectations with an increase in conditions (such as injuries) related to risky behaviours (i.e., alcohol and substance use) among men. Masculine practices also increase some health risks for women, notably the risks associated with male violence and sexually transmitted infections. Therefore, biological factors interact with social and environmental factors, and the health of women and men is also shaped in a number of ways by socially constructed gender inequalities.

A greater understanding of these mechanisms and the development of strategies for addressing these inequalities may help to achieve the dual goal of improving health status and ensuring equity (Theobald et al., 2006). For this purpose, gender-related analysis should be extended to the overall disease profile, with a special focus on the leading causes of morbidity and mortality.

Malaria provides a good example of this analysis, showing a peak in childhood age in both sexes (higher in males), and an increase in young-adult ages (starting in the 15-24 age group) among females due to malaria in pregnancy. This peculiar distribution reflects differential patterns of vulnerability in young children and pregnant women (Morrow and Moss, 2009). Young children experience their first malaria infections at early age, when they have not yet acquired adequate immunity, which makes these malaria cases particularly severe. In addition, repeated malaria infections make young children more susceptible to other common childhood illnesses, such as diarrhoea and respiratory infections, thus contributing indirectly to mortality.

Adult women in malaria-endemic areas have a high level of immunity, but this is impaired especially in the first pregnancy, with subsequent increased risk of infection (Allotey and Gyapong, 2005); furthermore, pregnant women are more “attractive” to mosquitoes and are therefore more likely to be bitten, increasing their exposure to malaria (Dobson, 2000). As a result, malaria in pregnancy increases the risk of maternal anaemia, stillbirth, spontaneous abortion, low birth weight, as well as maternal and neonatal death (Nosten et al., 2004; Steketee et al., 2001). Worldwide, it is estimated that about 10,000 pregnant women and 200,000 of their infants die each year as a result of malaria infection during pregnancy, and severe malarial anaemia contributes to more than half of these deaths (WHO, 2012).

Of note is the fact that the analysis of age- and sex-related patterns of diseases may be useful to explore possible associations between different conditions: for example, malaria and anaemia shared similar patterns in females and males across age groups, therefore supporting the hypothesis that most anaemia cases may be related to malaria. This has implications for the design of health interventions: in fact, health programs primarily designed to control the spread of a single disease entity in vulnerable groups (such as malaria in children and pregnant women) can exert a disproportionate impact on mother and child health by simultaneously reducing morbidity and mortality from associated conditions (such as anaemia). For this purpose, interventions have been designed for control of malaria and anaemia, including use of insecticide treated nets to prevent infection, iron supplementation to prevent anaemia, and intermittent preventive treatment to prevent asymptomatic infection among pregnant women, as well as effective case management for malaria illness and anaemia (WHO, 2012). In this context, Wolisso acted not only as referral hospital for severe malaria cases, but it was also in charge of training and supportive supervision of peripheral health units.

The patterns of other infectious diseases can be also interpreted in the framework of sex- and gender-related differences. For example, patterns and trends of AIDS-related admissions seem to be consistent with the so-called “HIV/AIDS pandemic’s feminization” observed over the last decade (DeLay, 2004), with more admissions being recorded in young females and an increasing number of admissions in older age among males. These patterns seem also consistent with the results of the Ethiopia Demographic and Health Survey in 2011, showing a higher HIV prevalence among young adult females and an increasing HIV prevalence among males in older age groups (CSA and ICF 2012). Women are vulnerable to HIV/AIDS due to a mixture of biological factors, such as

greater female biological susceptibility, and gender-linked factors, such as social status and lower power in sexual decision-making (Stillwaggon, 2006). In particular, earlier sexual activity by young females, and the fact that they often have older partners, may contribute to explain earlier infection and disease among females. At Wolisso Hospital, a gender-sensitive approach has been adopted, including education activities at community level and in the antenatal clinic, implementation of mother-to-child transmission prevention programmes with antiretroviral drugs for HIV-infected pregnant women, and provision of continuum of care from the community to the referral hospital for women living with AIDS.

Another striking example of gender-based differential pattern of care in males and females is provided by injuries, showing a high increase among young adult males, that reflects not only higher risk of trauma from road traffic accidents, but also from other causes, including occupational accidents, interpersonal violence and individual risk-taking behaviours (Ayana et al., 2012). It is estimated that the health care costs for injuries are among the highest of all diseases, as is the loss of productivity, due to the age-group primarily affected (Norton et al., 2006).

These patterns of morbidity and mortality highlight that most of the disease burden is attributable to a limited number of conditions for which either preventive or curative interventions exist. In general, a higher burden among males is related to gender norms and the association of “masculinity” with risk-taking behaviours, including excessive consumption of alcohol, drug use and risky driving (Payne and Doyal, 2009; Connell and Messerschmidt, 2005). Ensuring an increase in service coverage (such as for maternal care) may be more feasible than changing health-related behaviours deeply embedded in male gender norms; as a result, cost-effective public health interventions currently available offer the potential for greater gains in reducing morbidity among women than men (Wang et al., 2002). For example, it is estimated that routine maternal care for all pregnancies, including skilled attendance at birth, emergency obstetrical care and basic neonatal care, is among the best cost-effective interventions in low-income countries (Laxminarayan et al., 2006). These interventions should include preventive services, such as prevention and control of malaria and anaemia during pregnancy (Geelhoed et al., 2006). Despite this evidence, maternal mortality ratio, although decreasing from 1990 levels (990 per 100,000 live births), is still unacceptably high in Ethiopia (673 and 676 per 100,000 live births in 2005 and 2011, respectively) (CSA and ORC Macro, 2006; CSA and ICF, 2012).

To address this challenge, Wolisso Hospital gives priority to the provision of cost-effective safe motherhood services with a strategy of combining prenatal care (focusing on maternal risks and the prevention and treatment of complications) and improved access to emergency obstetrical care, ensuring a continuum of care during pregnancy and delivery and after birth. Recently, the hospital has started providing maternal and child services free of charge and the referral system from the community to the hospital (including transportation and communication systems) has been strengthened, together with supporting the peripheral health units and training of Health Extension Workers in the community. Health Development Army is playing a crucial role in ensuring behavioural change and in promoting use of maternal health services, so that the communities can produce and sustain their own health, including maternal health. These activities have been implemented in accordance with the national strategies to remove the bottlenecks hampering access to safe motherhood services, such as harmful traditional beliefs and practices, poor infrastructure, shortage of transportation facilities, and inadequate care at health facilities, so that to address the 3 delays in seeking appropriate medical care for an obstetric emergency, reaching an appropriate emergency obstetrical care facility, and receiving adequate care when the facility is reached (FMOH, 2013b).

Other initiatives were put in place to address gender-related health issues. For example, based on the evidence of the heavy burden related to injuries and the high demand for these services, the hospital management opened an orthopaedic ward in 2007 to provide specialist services for trauma cases.

5) Conclusion

Despite its limitations (i.e. hospital statistics are prone to selection bias, and no community-wide inferences should be made), this study shows that the analysis of gender differentials are useful for clinical and management purposes, highlighting that inequalities in health are dynamic and driven by the interplay of biology, social organization, and health systems (Krieger, 2003). Using age- and sex-disaggregated data from readily available sources may help to explore pathways and mechanisms that link gender, sex, disease profile, service use, and health outcomes in a cost-effective and sustainable way, providing a framework of the thinking process leading from information to decision and action in order to support evidence-based practice.

References

- Allotey, P., Gyapong, M., 2005. The gender agenda in the control of tropical diseases: a review of current evidence. *Social, Economic and Behavioural Research, Special Topics N. 4, Special Programme for Research and Training in Tropical Diseases (TDR)*. UNICEF/UNDP/WB/WHO, Geneva.
- Ayana, B., Mekonen, B., Lollino, N., 2012. The “hit by a stick” disease: an epidemiologic study of the causes of trauma in a non-profit hospital in rural Ethiopia”. *Tropical Doctor*, 42 (1): 1-4.
- Connell, R., Messerschmidt, J.W., 2005. Hegemonic masculinity: rethinking the concept. *Gender and Society*, 19: 829-59.
- CSA, 2007. Population and Housing Census of Ethiopia. Central Statistic Agency, Addis Ababa.
- CSA and ORC Macro, 2006. Ethiopia Demographic and Health Survey 2005. Central Statistical Agency, Addis Ababa and ORC Macro, Calverton.
- CSA and ICF, 2012. Ethiopia Demographic and Health Survey 2011. Central Statistical Agency, Addis Ababa and ICF International, Calverton.
- DeLay, P., 2004. Gender and monitoring the response to HIV/AIDS pandemic. *Emerging Infectious Diseases*, 10 (11): 1979-83.
- Diderichsen, F., Evans, T., Whitehead, M., 2001. The social basis of disparities in health. In: Evans, T., Whitehead, M., Diderichsen, F., Bhiya, A., Wirth, M. *Challenging inequities in health. From ethics to action*. Oxford University Press, New York. pp. 12-23.
- Dobson, R., 2000. Mosquitoes prefer pregnant women. *BMJ*, 320: 1558.
- FMOH, 2013a. The National Gender Mainstreaming Guideline. Federal Ministry of Health, Addis Ababa.
- FMOH, 2013b. Annual Performance Report of HSDP IV. EFY 2005 (2012/13). Federal Ministry of Health, Addis Ababa.
- Geelhoed, D., Agadzi, F., Visser, L., et al., 2006. Maternal and fetal outcome after severe anaemia in pregnancy in rural Ghana. *Acta Obstet Gynecol Scand.*, 85 (1): 49-55.
- Krieger, N., 2003. Genders, sexes, and health: what are the connections-and why does it matter? *International Journal of Epidemiology*, 32: 652-7.

Laxminarayan, R., Mills, A.J., Breman, J.G., et al., 2006. Advancement of global health: key messages from the Disease Control Priorities Project. *Lancet*, 367: 1193-208.

Lawn, J.E., Cousens, S., Zupan, J., 2005. Lancet Neonatal Surviving Steering Team. 4 million neonatal deaths: When? Where? Why? *Lancet*, 365: 891-900.

Morrow, R.H., Moss, W.J., 2009. Malaria. In: Detels, R., Beaglehole, R., Lansang, M.A., Gulliford, M. Oxford textbook of public health. 5th ed. Oxford University Press, Oxford. pp. 1231-1248.

Norton, R., Hyder, A.A., Bishai, D., Peden, M., 2006. Unintentional injuries. In: Jamison, D.T., Breman, J.G., Measham, A.R., Alleyne, G., Claeson, M., Evans, D.B., et al. Disease control priorities in developing countries, 2nd ed. Oxford University Press and World Bank, New York. pp. 737-753.

Nosten, F., Rogerson, S.J., Beeson, J.G., McGready, R., Mutabingwa, T.K., Brabin, B., 2004. Malaria in pregnancy and the endemicity spectrum: what can we learn? *Trends in Parasitology*, 20: 425-32.

Payne, S., 2006. The health of men and women. Polity Press, Cambridge.

Payne, S., Doyal, L., 2009. Women, men and health. In: Detels, R., Beaglehole, R., Lansang, M.A., Gulliford, M. Oxford textbook of public health. 5th ed. Oxford University Press, Oxford. pp. 1419-1433.

Steketee, R.W., Nahlen, B.L., Parise, M.E., Menendez, C., 2001. The burden of malaria in pregnancy in malaria-endemic areas. *American Journal of Tropical Medicine and Hygiene*, 64: 28-35.

Stillwaggon, E., 2006. AIDS and the ecology of poverty. Oxford University Press, Oxford.

Theobald, S., Tolhurst, R., Squire, S.B., 2006. Gender, equity: new approaches for effective management of communicable diseases. *Trans R Soc Trop Med Hyg.*, 100 (4): 299-304.

Victora, C.G., Wagstaff, A., Schellenberg, J.A., Gwatkin, D., Claeson, M., Habicht, J.P., 2003. Applying an equity lens to child health and mortality: more of the same is not enough. *Lancet*, 362: 233-241.

Wang, S., An, L., Cochran, S.D., 2002. Women. In: Detels, R., McEwen, J., Beaglehole, R., Tanaka, H. Oxford textbook of public health. 4th ed. Oxford University Press, Oxford. pp. 1587—1601.

WHO, 1994. 1992-1994 International statistical classification of diseases and related health problems, Tenth revision. World Health Organization, Geneva.

WHO, 2002. WHO gender policy: Integrating gender perspectives in the work of WHO. World Health Organization, Geneva.

WHO, 2012. Malaria in pregnancy. World Health Organization, Geneva. http://www.who.int/malaria/high_risk_groups/pregnancy/en/index.html [accessed January 2014].

Wizeman, T., Pardue, M., 2001. Exploring the biological contributions to health: does sex matter? National Academy Press, Washington (DC).

IMPLEMENTING THE FAMILY FOLDER AS A FAMILY-CENTERED TOOL OF THE COMMUNITY HEALTH INFORMATION SYSTEM IN ETHIOPIA: WHAT'S NEW? WHAT'S DIFFERENT?

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Summary

In the context of health sector reform and decentralization, health systems are managed close to the level of service delivery. The shift in functions from central to peripheral levels, with decentralization of management responsibilities and resource allocations to the woredas, generates new needs for availability and use of information for evidence-based health practice. In this perspective, while facility-based information system has been fairly established, it is still difficult to get the information at the community level, where it matters most. It is for this reason that Community Health Information System has been developed and implemented in the framework of the Health Extension Programme, using a unified data collection tool called Family Folder.

The Family Folder system implemented in Ethiopia has many innovative features, including: (i) shift of focus from individual health to family health; (ii) shift of design from multiple registers to unified data collection tool; (iii) shift of strategy from "transversal" registration of individual services to "longitudinal" follow-up of family; (iv) shift of approach from data collection for reporting purposes to information use for local decision making; (v) expansion of focus from sectoral to multisectoral approach; (vi) inclusion of collection of vital events (births and deaths); and (vii) involvement of the communities.

The transition to family-centered unified and standardized data collection tool for Health Extension Workers is a unique opportunity to promote health practice based on evidence at the community level. Such "bottom-up" approach focused on local priorities, integrated into the current health activities, and based on sustainable data collection systems, may ensure immediate and practical benefits in terms of "better information, better decision, better health".

1) Introduction

In the context of health sector reform and decentralization, health systems are managed close to the level of service delivery. The shift in functions from central to peripheral levels, with decentralization of management responsibilities and resource allocations to the woredas, generates new needs for availability and use of information for evidence-based health practice. In this perspective, while facility-based information system has been fairly established, it is still difficult to get the information at the community level, where it matters most (Majra and Acharya, 2013). It is for this reason that the Community Health Information System (CHIS) has been developed and implemented in the framework of the Health Extension Programme (HEP), using a unified data collection tool called Family Folder (Lemma et al., 2010).

This article aims at describing the achievements and challenges in CHIS implementation, showing what is new and what is different in this family-centered approach applied in Ethiopia.

2) Health Extension Programme and Health Development Army: improving access to primary health care services and promoting community mobilization

Although it has many challenges still to be addressed, Ethiopia is fast registering impressive successes in

extending affordable primary health-care services across the country. These achievements are largely attributable to the HEP which has been implemented since 2003, and through which the country aims at achieving universal access to primary health care (Wakabi, 2008).

HEP is one of the major pillars of the health service delivery system in Ethiopia and is the flagship programme of the Health Sector Development Programme (HSDP). HEP is an innovative community-based strategy to deliver preventive and promotive services and selected high impact curative interventions at community level (FMOH, 2007). It brings community participation through creation of awareness, behavioural change, and community organization and mobilization. It also improves the utilization of health services by bridging the gap between community and health facilities through the deployment of Health Extension Workers (HEW) (Temiess, 2008). The main objective is to improve access to essential health services provided at village and household levels (FMOH, 2005), contributing to the improvement of the health status of the families, with their full participation, using local technologies and the skill and wisdom of the communities.

Over 35,000 rural HEWs were trained and deployed up to the end of EFY 2004, with about 1,300 level III HEWs being already qualified for level IV, while additional 2,240 HEWs are currently under

training for upgrading to level IV (FMOH, 2013). In this context, in order to promote participatory community engagement and adoption of healthy lifestyles, with particular emphasis on improving uptake of critical maternal and newborn health services, a major initiative undertaken by the Ethiopian Government is the implementation of the Health Development Army (HDA). HDA refers to an organized movement of the community through participatory learning and action meetings (Admasu, 2013). The mobilization of the HDA started in 2010/11, with the aim to consolidate the gains that were made as a result of the roll out of HEP and promote community ownership of the programs. The HDA provides an unprecedented platform to engage the community in the planning, implementation, monitoring and evaluation of health interventions at the community level and beyond.

3) Family-centered approach in the framework of the implementation of the Health Extension Programme: introducing the Family Folder

In the context of HEP, the Federal Ministry of Health (FMOH) designed the Family Folder as a comprehensive data collection tool for documenting family-centered HEP services provided by HEWs (FMOH, 2011). The Family Folder is the central piece of the CHIS. The CHIS is a component of the reformed Health Management Information System (HMIS) designed by the FMOH according to the principles of standardization, integration and simplification to provide information for decision making (FMOH, 2008).



Figure 1. Family Folder for rural Health Extension Program (1A) and Health Extension Worker registering data on Family Folder with other Family Folders filed in the shelves and Health Cards arranged in the Tickler Box (1B).

The Family Folder is a family-centered tool designed for the HEW to manage and monitor the work in educating households and delivering integrated package of promotive, preventive and basic curative health services to families (Figure 1A). It is a pouch provided to each family and kept in the Health Post (HP). Information on household identification, data on family members and household characteristics in terms of environmental sanitation (latrine, hand washing facility, waste disposal, and drinking water source) and malaria prevention (long-lasting insecticide-treated nets) is recorded on the cover side of the folder. Status of HEP packages training and implementation is recorded on the back side of the folder. Health Cards and the Integrated Maternal and Child Care Card are kept inside the Family Folder. Every member of the family above five years of age is issued a Health Card, while the records for under five children are kept in their mother’s Health Card. The Integrated Maternal and Child Care Card is issued to every woman when she becomes pregnant; it is a longitudinal record to document the pre-pregnancy status, pregnancy follow-up, delivery, and post-delivery care with immunization and growth monitoring of the child. All these data recorded during the encounter between HEW and the family creates the basic information at grass roots level (FMOH, 2011).

The Master Family Index, which is a village-wise list of names of household heads arranged in alphabetic order, is used to retrieve the Family Folders from the shelves where they are filed serially by household number and by village number. The Tickler File System helps to identify defaulters and ensure proper follow-up: the Tickler Box has twelve slots for twelve months of the year, with Health Cards of the clients in need of follow-up being put in the month’s slot when the follow-up service is due (Figure 1B). With this system, the HEWs are able to review the cards of the clients who should be followed up during the current month and accordingly communicate with them either through community volunteers or house visits. If at the end of the month the Health Cards are still remaining in that month’s slot, the HEWs know the clients who have defaulted, and therefore can take appropriate measures to get to those clients.

HEWs use a field book during home visiting, hence they transfer the data from field book to family folder at the end of the day. Tally sheets are used for recording HMIS data, with household numbers being also recorded on the tally sheets for easy retrieval of the Family Folder, which can help to assess data quality by cross-checking data recorded in tally sheets and corresponding data recorded in the Family Folder.

The implementation of CHIS reached 51.5% nation-wide at mid-EFY 2006, ranging from 2.8% in Somali Region to 99.0% and 99.8% in SNNPR and Tigray, respectively (Table 1).

Table 1. *Progress in the scale-up of Community Health Information System by Region (mid-EFY 2006)*

Region	Number of available Health Posts	Number of Health Posts implementing Family Folders	Percentage
Tigray	650	649	99.8%
Afar	294	45	15.3%
Amhara	3,126	1,722	55.1%
Oromia	6,214	1,692	27.2%
Somali	952	27	2.8%
Benishangul-Gumuz	361	28	7.8%
SNNPR	3,917	3,878	99.0%
Gambella	174	29	16.7%
Harari	26	12	46.2%
Dire Dawa	31	30	96.8%
National	15,745	8,112	51.5%

4) Innovative features of the Family Folders: the shift to family-centered, unified and longitudinal data collection tool for decision making

The Family-Folder system has many innovative features that are summarized in the following sections:

- Shift of focus from individual health to family health;
- Shift of design from multiple registers to unified data collection tool;
- Shift of strategy from “transversal” registration of individual services to “longitudinal” follow-up of family;
- Shift of approach from data collection for reporting purposes to information use for local decision making;
- Expansion of focus from sectoral to multisectoral approach;
- Inclusion of collection of vital events (births and deaths); and
- Involvement of the communities.

4.1) Shift of focus from individual health to family health

Health has evolved over time from an issue of individual concern to a basic human right and wide social goal. It is being increasingly recognised that since the family is the unit of living, it should also be the unit of health/illness. The family has been considered as a predisposing and contributing factor in the aetiology, care and outcome of both physical and mental illnesses, and as a basic unit of interaction and transaction of health care (Majra and Acharya, 2013). Therefore, being the family the unit for

provision of health services, it should be so also for data collection and maintenance of records. Family Folder system is an effort towards the development of a family-oriented approach to solve health problems and to organize health care services. As a result, each family has a Family Folder that holds all the required health information of the whole household.

4.2) Shift of design from multiple registers to unified data collection tool

The information system design has moved from multiple registers to unified data collection tool: the Family Folder. The use of the unified tool avoids maintaining separate registers relating to families, births, deaths, family planning, antenatal care, postnatal care, immunization, etc., with similar entries being often needed to be made in several registers. Furthermore, the use of multiple registers may be cumbersome and time consuming, and, hence, data quality tends to be inadequate, with workers perceiving data collection as an end in itself rather than an activity necessary for informed decision making at local level.

The Family Folder system is designed as a comprehensive data collection and documentation tool to be used by HEWs, providing useful summary data on the demographic profile of the family, socio-economic status, immunization status, growth monitoring of the under five children, antenatal and postnatal care, family planning practices, water supply, environmental sanitation, occurrence of communicable diseases, chronic ailments, vital events etc. Frequent contact of the population with the health care system provides ample opportunities for updating the records.

4.3) Shift of strategy from “transversal” registration of individual services to “longitudinal” follow-up of family

Family Folder is designed to follow the history of the whole family simultaneously. Introduction of Family Folder system addresses the issue related to the inability to maintain continuity of the services provided, ensuring “longitudinal” follow-up of family services and health status of the members of the family (Damtew and Moges, 2013). This is particularly important for ensuring continuum of care for the mothers before, during, and after delivery and for the infants at early age of their life, and, when appropriate, referral of complicated cases to the Health Center (HC). Comprehensive care is therefore provided within the Primary Health Care Unit (PHCU), which includes one HC and five satellite HPs, forming the bottom-level tier of the country’s health care system. The PHCU plays a critical role in the delivery of primary health care to the rural population of Ethiopia, with strong referral linkage being established between HP and HC and supportive supervision being provided from HC to HP.

4.4) Shift of approach from data collection for reporting purposes to information use for local decision making

Introduction of Family Folder is consistent with the principles of HMIS reform (standardization, integration and simplification), shifting the focus from data collection for reporting purposes to information use for decision making at the level where data are generated: the community (Lemecha et al., 2008). Information is useful also for assessing community health needs, prioritizing clients for services, preparing work schedule for facility-based and community-based activities, and tracking the clients for continuity of services. It is also useful to document hygiene and environmental-related activities, health services provided, and morbidity in the community.

4.5) Expansion of focus from sectoral to multisectoral approach

Household information can benefit other sectors, like education, women’s empowerment and agricultural sectors, to target their services to households with specific needs. Information from the Family Folder can help to expand care and support to orphan and vulnerable children and other population groups in need of services. Thus, household information captured on Family Folder can be very helpful in designing a holistic multisectoral approach for improving the social sector services at community level.

4.6) Inclusion of collection of vital events

Information on vital events (births and deaths) occurring in the catchment area can be recorded in the Family

Folder, contributing to the estimation of population-based indicators (such as birth and death rates).

4.7) Involvement of the communities

Data collected in the Family Folder are shared with the families, therefore promoting the engagement of the community in the planning, implementation, monitoring and evaluation of health services, with a vision of taking the community as a potential producer of health, instead of as a mere consumer of medicines and curative services (Figures 2A and 2B).



Figure 2. Health education session made by Health Extension Worker (2A) and meeting of the Health Development Army in a village (2B).

5) Implementation of the Community Health Information System: the examples of Tigray and SNNPR

In Tigray, the implementation of CHIS started in March 2013 and, in less than one year, its scale-up has been completed in the region. The scale-up of CHIS in Southern Nations, Nationalities and People’s Region (SNNPR) took place in about 2 years (between October 2010 and November 2012), with the vast majority of the HPs in the region implementing CHIS, using the Family Folders for targeting health services, and regularly submitting monthly reports (Chewicha and Azim, 2013). Important programmatic data is becoming available to the managers for monitoring and management decision making.

Better information available through Family Folders may have led to better decision and better action, which, together with the work of HDA in creating health awareness in the community and promoting service use, may have contributed to the increase in service coverage observed recently.

6) Challenges and way forward

Challenges have been found in implementing unified Family Folders. In the early stage of roll out of CHIS, various registers and reporting formats are still in place in many HPs to fulfill the information demand of different program managers and partners, even though CHIS is able to provide the necessary data or be adapted to accommodate additional information needs (Chewicha and Azim, 2013). This challenge needs to be dealt through discussion, negotiation, convergence of conflicting interests among stakeholders, and policy decision to align managers and partners to the use of Family Folder.

Roll out of CHIS has faced many other challenges, including: (i) logistic preparation (i.e. massive printing of Family Folders and other tools, production and distribution of shelves and other equipment, etc.); (ii) planning (i.e. synchronization of training with provision of materials and equipment, etc.); and (iii) implementation (mobilization of communities for households numbering and other preliminary activities, realization of training sessions and supervisory visits etc.). Limited capacity to use information for decision making is another major challenge to be addressed through training, supervision and continuous support.

Furthermore, at the early stage of the epidemiological transition, a double burden of disease is already emerging, with a mix of persistent, emerging and re-emerging infectious diseases and increasing prevalence of chronic conditions and injuries: in this context, it is important to address issues of nutrition, smoking and alcohol use, drug use, mental health, environmental pollution, as well as chronic care management for people with prevalent chronic diseases. In this perspective, Family Folder should be adapted to the changing epidemiological profile of the population by capturing data on major individual, social and environmental risk factors and non-communicable diseases.

7) Conclusion

The organization of the family based services in Ethiopia has called for the reorganization of information systems to collect and use information for action at local level using Family Folder. The transition to unified and standardized data collection tool for HEWs is a unique

opportunity to promote health practice based on evidence at the community level. Such “bottom-up” approach focused on local priorities, integrated into the current health activities, and based on sustainable data collection systems, may ensure immediate and practical benefits in terms of “better information, better decision, and better health”.

References

- Admasu, K., 2013. The implementation of the Health Development Army: challenges, perspectives and lessons learned with a focus on Tigray’s experience. *Policy and Practice*, 5(1): 3-7. Federal Ministry of Health, Addis Ababa.
- Chewicha K., Azim, T., 2013. Community Health Information System for family-centered health care: scale-up in Southern Nations, Nationalities and People’s Region. *Policy and Practice*, 5(1): 49-53. Federal Ministry of Health, Addis Ababa.
- Damtew, Z.A., Moges, A.S., 2013. From multiple register to family folder: the transition of data collection and reporting tools for health extension workers in Ethiopia. *Journal of Health Informatics in Developing Countries*, 7(2): 99-111.
- FMOH, 2005. Essential health service package for Ethiopia. Federal Ministry of Health, Addis Ababa.
- FMOH, 2007. Health Extension Program in Ethiopia. Profile. Federal Ministry of Health, Addis Ababa.
- FMOH, 2008. Health Management Information System (HMIS)/Monitoring and Evaluation (M&E). Strategic plan for the health sector. Federal Ministry of Health, Addis Ababa.
- FMOH, 2011. Community Health Information System. Data Recording and reporting. User’s Manual. Federal Ministry of Health, Addis Ababa.
- FMOH, 2013. Health Sector Development Programme IV. Annual performance report. EFY 2005 (2012/13). Federal Ministry of Health, Addis Ababa.
- Lemecha, G., Church, M., and Accorsi, S., 2008. Benchmarking the Health Management Information System (HMIS)/Monitoring and Evaluation (M&E) reform: an international comparison. *Policy and Practice*, 1(1): 41-50. Federal Ministry of Health, Addis Ababa
- Lemma, I., Azim, T., Akalu, T., Kassahun, H., Lemecha, G., Mesfin, G., Accorsi, S., Mamo, D., 2010. Information

tool for better health care in rural communities: making Family Folder operational. *Policy and Practice*, 3(2): 27-34. Federal Ministry of Health, Addis Ababa.

Majra, J., Acharya, D., 2008. Impact of family folder system on the health status of the community. *The Journal of Health Care Administration*, (6)2. Internet Scientific Publication. <http://ispub.com/IJHCA/6/2/5816> [accessed April 2014].

Temieess, W., 2008. Health Extension Program in Ethiopia: towards better access to health services for the rural poor. *Policy and Practice*, 1(1): 3-9. Federal Ministry of Health, Addis Ababa.

Wakabi, W., 2008. Extension workers drive Ethiopia's primary health care. *The Lancet*, 372: 880.

National Best Performing Public Hospitals Recognition and Award Workshop

Source – Federal Ministry of Health of Ethiopia

<http://www.moh.gov.et>

The Ethiopian Hospitals Alliance for Quality (EHAQ) organized the National Best Performing Public Hospitals Recognition and Award Workshop on 25 January 2014 in the presence of federal and regional government higher officials and development partners. In this occasion, Lemlem Karl, Axum Saint Mary, Debre Tabor, Debre Birhan, Bishoftu, and Butajira Hospitals received an award as lead hospitals, and Wukro, Adigrat, Debre Markos, Alem Ketema Enat, Boru Meda, Mehal Meda, Hidar 11, Mizan Aman, Nigist Eleni Mohammed Memorial and Gandhi Memorial Hospitals received an award as best member hospitals. Debre Birhan, Debre Tabor and Bishoftu clusters received an award as best clusters. Special award was also provided for Dubti and Pawi Hospitals.

At this juncture, H.E. Demeke Mekonen, Deputy Prime Minister of the Federal Democratic Republic of Ethiopia, mentioned that remarkable results were registered in the health sector in the last two decades: “along with disease prevention interventions, providing curative health services to the community is one of the priorities, and, as a consequence, the number of government hospitals in the country has increased from 126 to 313, including 187 hospitals which are under construction, and will be ready to provide services at the end of EFY 2006”. He also pointed out that, to provide quality services to the public, awarded hospitals should build Health Development Army which has brought remarkable results in various sectors, creating a conducive environment for discussion with community. H.E. Dr Kesetebirhan Admasu, Minister of Health, on his part said that hospitals play crucial role in maternal mortality reduction and should provide quality service to community and ensure client satisfaction.

Ratification of WHO Framework Convention on Tobacco Control

Source – World Health Organization

<http://www.who.int/fctc/en>

Ethiopian House of Peoples’ Representatives ratified the WHO Framework Convention on Tobacco Control (WHO FCTC) on 21 January 2014. The main objective of the Convention is to decrease the demand and supply of tobacco and tobacco products. It is the first international treaty negotiated in response to the globalization of the tobacco epidemic. The Convention represents a milestone for the promotion of public health and provides new legal dimensions for international health cooperation.

Sixty-three per cent of all deaths worldwide are caused by

non-communicable diseases (NCD), for which tobacco use is one of the greatest risk factors. Since tobacco is the largest single preventable risk factor for almost all non-communicable diseases, ratification of FCTC will help Ethiopia tackle the growing burden of NCDs in the country. It will also speed up the implementation of legislations to enforce and protect the public from exposure to tobacco, as well as to reduce demand and supply of tobacco products.

On 21 May 2003, the World Health Assembly adopted the WHO Framework Convention on Tobacco Control, that entered into force on 27 February 2005. It has since become one of the most rapidly and widely embraced treaties in United Nations history. As of January 2013, 42 out of 46 countries in the African region have ratified the FCTC; only Eritrea, Malawi, Mozambique and Zimbabwe have not yet ratified the Convention. The ratification of the WHO Framework Convention on Tobacco Control was a result of tireless advocacy work of all health partners and civil society organizations in Ethiopia under the leadership of the Federal Ministry of Health (FMoH) to face the non-communicable diseases epidemic in the country.

Establishment of the International Health Extension Institution

Source – Federal Ministry of Health of Ethiopia

<http://www.moh.gov.et>

The Federal Ministry of Health announced that an International Health Extension Institution is going to be established in Ethiopia, aiming to expand the program in a more organized way and multiply number of trainees. The institution will also train students in pharmacy, laboratory and other health disciplines, besides health extension trainees; community based researches will be also conducted in this context. It will help also respond to requests of some countries for Ethiopia's support to start the health extension program.

Update from the Ethiopia Health Insurance Agency

Source – Federal Ministry of Health of Ethiopia

<http://www.moh.gov.et>

The Ethiopia Health Insurance Agency stated that social health insurance will help improve services provided by health institutions, avoiding also inappropriate prescriptions and improper use of services. With a 3% contribution from their salaries, citizens will become beneficiaries of health services, comprising of outpatient, delivery and surgery services, and including also medicines required for the treatments. Therefore, Ethiopia is prepared to provide broader health insurance service, when compared to other African countries which started the service earlier.



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