



National Maternal and Perinatal Death Surveillance and Response (MPDSR) System Annual Report of 2013 EFY



Ethiopian Public Health Institute
Public Health Emergency Management Center
(PHEM)

April 2014 E.C.

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Acknowledgments

This 2013 EFY Maternal and Perinatal Death Surveillance and Response (MPDSR) system annual report is prepared by the Ethiopian Public Health Institute (EPHI) and MOH with the participation of the national Maternal and Perinatal Death Surveillance and Response (MPDSR) Technical Working Group (TWG) members from different stakeholders at various levels of the health system.

The Ethiopian Public Health Institute (EPHI) - Public Health Emergency Management center (PHEM) would like to express its appreciation and gratitude to all those involved in preparing this annual report.

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Acronyms and Abbreviations

ANC	Antenatal Care
APH	Antepartum Hemorrhage
CAC	Comprehensive Abortion Care
CBNC	Community-Based Newborn Care
CEmONC	Comprehensive Emergency Obstetric and Neonatal Care
C/S	Caesarian Section
DHIS2	Digital Health Information System
EDHS	Ethiopian Demographic Health Survey
EFY	Ethiopian Fiscal Year
EmONC	Emergency Obstetric and Neonatal Care
ENC	Essential Newborn Care
EPHI	Ethiopian Public Health Institute
EPI	Expanded Program of Immunization
FBAF	Facility Based Abstraction Form
HDP	Hypertensive Disorder in Pregnancy
HEW	Health Extension Worker
HMS	Helping Mothers Survive
H.P.	Health Post
HSTP	Health Sector Transformation Plan
ICCM	Integrated Community Case Management
ICU	Intensive Care Unit
IMCI	Integrated Management of Childhood Illness
IMNCI	Integrated Management of Newborn and Childhood Illness
IPLS	Integrated Pharmaceutical Logistics System
IRT	Integrated Refreshment Training
KMC	Kangaroo Mother Care
L&D	labor and Delivery
MBB	Mini Blood Bank
MCH	Maternal and Child Health
MPDSR	Maternal and Perinatal Death Surveillance and Response
MDRF	Maternal Death Report Format
MMR	Maternal Mortality Ratio
MOH	Ministry of Health
NBC	Newborn Care
NICU	Neonatal Intensive Care Unit
PHEM	Public Health Emergency Management
PMR	Perinatal Mortality Rate
PNC	Postnatal Care

PRCMM	Performance Review and Clinical Mentoring Meeting
Q/I	Quality Improvement
RRT	Rapid Response Team
SBCC	Social Behavioral Change communication
SLL	Saving Little Lives
SNNPR	South Nation Nationality and Peoples Region
TOT	Training of Trainers
TWG	Technical Working Group
UBT	Uterine Balloon Tamponed
VA	Verbal Autopsy

Contributors

Mrs. Rozina Tariku	EPHI
Mrs. Zewdnesch Dejene	EPHI
Mrs. Mirtinesh Selfu	EPHI
Mr. Alemu Zenebe	EPHI
Mr. Abduilhafiz Hassen	EPHI
Mr. Neamin Tesfaye	EPHI
Ms. Haymanot Firde	EPHI
Dr. Fetiya Mohammed	EPHI
Mrs. Zemzem Mohammed	MOH
Mr. Sheleme Humnessa	MOH
Dr. Yared Tadesse	(CIRHT/MOH)
Dr. Eyob Assegid	WHO
Mr. Shibabaw Ewenetie	(UNICEF/ MOH)
Dr. Tizta Tilahun	Fenot Project – UBC/Harvard University
Dr. Zelamen Demeke	Clinton Health Access Initiative

Forward Reviewers:

Mr. Aschalew Abayneh D/Director General – Ethiopian Public Health Institute

Mr. Mesfin Wossen Disease and Health Event Surveillance and Response Directorate
Acting Director

Dr. Meseret Zelalem MCH_N Directorate Director -Ministry of Health

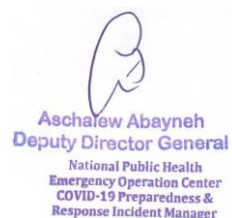
Foreword

Ethiopia can be proud of its success in reducing maternal, neonatal, and under-five mortalities in the last two decades. Ethiopia has made commendable progress in reducing maternal mortality to achieve the target of the Millennium Development Goals (MDGs) 4. Based on MDGs, the United Nations now has set a new target under the Sustainable Development Goal (SDG) to be achieved by 2030 and urges its member countries to reduce the maternal mortality ratio to 70 or less per 100,000 live births and the neonatal mortality rate to 12 or less per 1000 live births, respectively. Per the SDG guidance, Ethiopia also settled a target to reduce the burden of maternal and perinatal death under the Health Sector Transformation Plan II and Reproductive Health Strategy plan prepared for the 2020/21-2024/25 (2013 EFY - 2017 EFY). Thus, the surveillance system will have an integral role in supporting the effort to meet the targets.

Maternal Death and Response (MDSR) was integrated into the PHEM system in 2014. Later, in 2017 Perinatal Death Surveillance and Response (PDSR) were integrated into pre-existing MDSR systems. Therefore, after the WHO nomenclature, MPDSR was renamed Maternal and Perinatal Death Surveillance and Response (MPDSR).

With all limitations, the system tries to measure maternal and perinatal mortality in real-time, involving the community and producing information through case-by-case analysis to enable the relevant stakeholder to take appropriate action as early as possible.

This annual review of 2013 EFY shows progress, opportunities, and barriers to different components of MPDSR, including system performance, maternal and perinatal death analysis, programmatic response, and challenges of the system implementation. Therefore, I call upon government sectors, all other relevant stakeholders, Development Partners, Civil Society Organizations, Private sectors, and the community to utilize this annual report to guide the planning, implementation, monitoring, and evaluation of programs that are geared to reduce the burden of maternal and perinatal mortality.



Aschalew Abayneh

EPHI_ Deputy Director-General

Executive summary

The national Maternal and Perinatal Death Surveillance and Response (MPDSR) system has been implemented nationwide for the last eight years. This is the eighth annual report to describe reported deaths and trends in surveillance data reporting in 2013EFY (from the 4th Quarter of 2012 EFY to the 3rd Quarter of 2013 EFY).

During this 2013 EFY, the system captured 1058 maternal deaths using the weekly notification system, and 700 maternal deaths were reviewed and sent through a case-based report. This represents only 7.2%, and 4.8% of maternal were captured by weekly notification and MDSR compared to the national estimate. Similarly, a total of 8357 perinatal death were notified, out of which 1713 deaths were reviewed and sent through PDRF. 7% and 1.4% of perinatal deaths were notified and reviewed against the national estimate. The report also clearly indicated the presence of noticeable regional variation in the implementation of the system.

Obstetric hemorrhage was the leading cause of maternal deaths taking part for 393(56.1%), followed by Hypertensive Disorder of Pregnancy 87(11.7%) and infection 5(7.8%). Moreover, delay one, delay three, and delay two were responsible for 297(42%), 236(34%), and 167(24%) of reviewed maternal death, respectively. On the other hand, prematurity was the leading cause of perinatal death contributing to 609(35.6%) death, followed by birth asphyxia 534 (31.2%), and Sepsis, Pneumonia & meningitis 229 (13.4%). In addition, delay two, delay three, and delay one was responsible for 827 (48%),467(27 %), and 419(25 %) perinatal death in reporting fiscal year, respectively.

Per the finding of MPDSR data, several measures were taken at the national and sub-national levels to avert similar death in the future. The introduction of innovative technologies, including uterine balloon tamponed, tranexamic acid, and NASG, was taken on this front to handle the major cause of maternal death. Moreover, expansion of mini blood bank service, integration of life-saving medicines into the Integrated Pharmaceutical Logistics System (IPLS), and community engagement were also taken to improve maternal health outcomes. Similar measures were also taken to reduce perinatal mortality. In line with this, capacity-building activities were carried out in Integrated Community Case Management for Newborn and Childhood illness (iCMNCI) and the neonatal intensive care unit (NICU). Furthermore, catchment-based clinical mentorship and upgrading NICU have also been perceptible responses for perinatal death in the reporting fiscal year. Despite all this effort, the surveillance implementation was challenged by poor coordination among sectors, absence of a response capturing mechanism, low community engagement, poor

data quality, and lack of an effective monitoring system. Thus, a concerted effort is needed to address the identified gap and meet the system's very objective.

Rationale of the report

Ethiopia has made remarkable achievements in reducing maternal and child mortality by more than two-thirds from its baseline during the MDG era. Despite this, around 14,000 maternal deaths and 120,000 perinatal deaths were estimated to occur in 2021.

Maternal and perinatal death surveillance and response (MPDSR) is introduced as a system to track and measure all maternal and perinatal deaths in real-time. It enables understanding of underlying causes and contributing factors of the deaths and can stimulate further action to prevent similar deaths in the future. Furthermore, it provides information on the number of deaths, their place, and the timing of preventable maternal death.

Maternal and perinatal death surveillance and response system (MPDSR) is the process of identification, notification, quantification, determination of causes, contributing factors, and preventability of maternal and perinatal deaths happening in the community and facility level to respond to prevent future deaths.

This annual report aims to provide the progress of the surveillance and response for the 2013 Ethiopian fiscal year. Therefore, this annual report emphasizes system performance, comparing the notified death with reviewed one. Besides, the national maternal and perinatal death reports are disaggregated by socio-demographic characteristics, cause, and contributing factors of reviewed deaths. The programmatic response provided by the Ministry of Health (MOH) is also included in the report.

About the Program

Reducing maternal mortality and improving maternal health status is the top priority of the federal ministry of health of Ethiopia, as reflected in the health sector transformation plan and reproductive health strategy for 2014 – 2019 E.C. As part of reducing preventable maternal mortality, Ethiopia introduced the MDSR system as a parallel program under the ministry of health in 2006 then integrated to Public Health Emergency Management system in 2007 E.C. Perinatal death reporting through the PHEM system was also started in 2009 EFY.

The MPDSR system has been designed and implemented as integrated into the existing Integrated disease surveillance and response (IDSR) system in all parts of the country within the existing Public Health Emergency Management (PHEM) system as one among many notifiable cases or events. The MPDSR death notification system has been incorporated into the national District Health Information System (DHIS-2) platform. As a result, the health system is expected to routinely notify each maternal and perinatal death from the community through the DHIS-2 database.

Ethiopia is also currently implementing quality improvement efforts that link the MPDSR information and quality improvement processes from local to national levels focused on improving effective coverage of quality care equitably through scaling evidence-based intervention to reduce preventable maternal and perinatal morbidity and mortality in the nation. This initiative is promoting best practices and learning opportunities among facilities, ensuring lasting improvements in quality of care and moving facilities toward sustainable standardized practice regarding Maternal, Newborn, and Child Health (MNCH) care at the health facility.

Chapter One: Maternal and Perinatal Death Surveillance Response(MPDSR) System Performance

This Chapter portrays the national MPDSR performance summary and the system's data quality dimension. The annual report was prepared based on the report of ten regions and two city administrations of the nation with the reporting period from April 1, 2012, E.C to March 30, 2013, E.C.

This section presented the reporting year system implementation status and performance. In addition to, report completeness, timeliness for maternal and perinatal death notification and case-based report, and regional variation compared with previous years' reporting.

- Only 7.2% and 4.8 % of maternal deaths were captured by the system when compared with the estimated maternal deaths for notifications and case-based reporting, respectively
- 16.7% of zones/sub-cities/town administration were silent for maternal death notification
- A total of 1058 maternal deaths were notified and out of which 700 (66.2%) of them were reviewed and sent through MDRF to EPHI
- Nationally, on average, 19 days were taken from death form identification up to review.
- Variable completeness for case-based reports of maternal death during the reporting year was 84.8%
- Only 7.0% and 1.4 % of perinatal deaths were captured by the system when compared with the estimated perinatal deaths for notifications and case-based reporting, respectively

Maternal death surveillance and response system performance

Coverage of the system

Nationally, 127 reporting zones/sub-city and town administrations were available. Of those, 107 (84.3%) zones/sub-city or town administrations have notified at least one maternal death during the 2013 EFY, slightly lower than 100(86%) of previous years' reports. Furthermore, twenty silent zones were in the seven regions of the country, namely Oromia (9), Somali (3), SNNPR (2), Gambella (2), Addis Ababa (2), Sidama (1), and Tigray (1). The remaining regions and city administrations have no silent zones for the reporting period (Table 1 and Figure 1).

Table 1: Silent zone/town administrations with a respective region for maternal death in 2013 EFY

Region	Zone
Addis Ababa	Addis Ketema
	Nefas Silk Lafto
Gambella	Etang Special zone
	Nuwer
	Assela Town
	Dukem Town
	Gelan Town
Oromia	Holeta town
	Lege Dadi Lege Tafo Town
	Modjo town
	Robe town
	Sululta Town
	Woliso town
Sidama	Hawella Tulla
SNNP	West Omo
	Yem
Somali	Afder
	Erar
	Liben
Tigray	Western Tigray

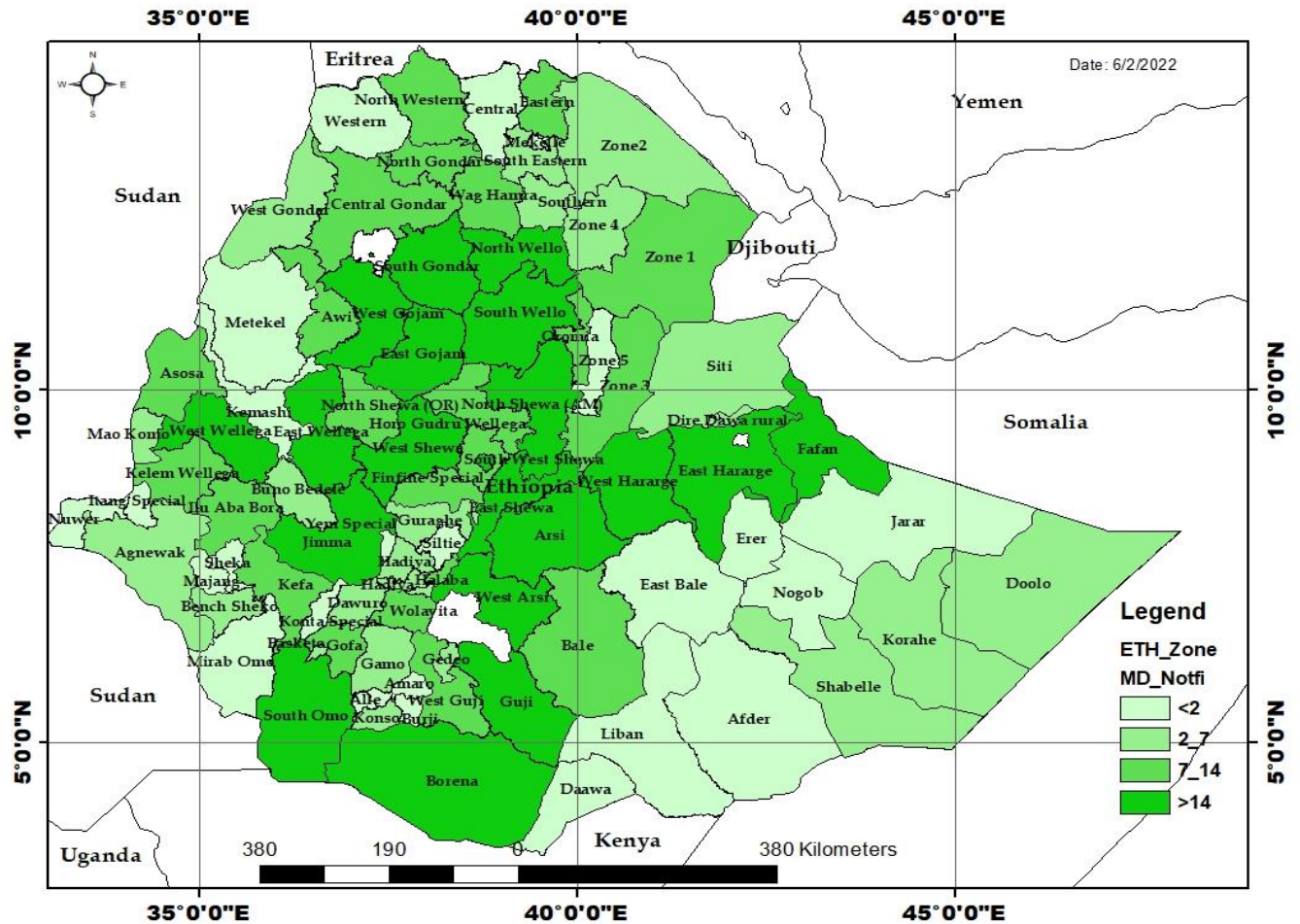


Figure 1:-Coverage of Maternal death reporting, weekly notification by Zones/sub-cities, 2013EFY, Ethiopia

Weekly and case-based reporting of Maternal Deaths

During the 2013 EFY (from the 4th Quarter of 2012 EFY to the 3rd Quarter of 2013 EFY), a total of 1058 maternal deaths were notified, and 700 (66%) were reviewed and reported through the case-based report. In general, of the estimated number of expected maternal deaths to occur in the nation, only 7.2% were captured through the weekly notification PHEM report. 4.8% of maternal deaths reviewed were reported through the maternal death reporting format (MDRF). Regional contrasts in reporting maternal death through weekly PHEM report estimation were done. Of the regions, Harari regions notified 71.8% of maternal deaths of the expected number of deaths in the region. Lower weekly reporting rates were observed in Sidama, Tigray, SNNP, and Somali regions, which were 1.7%, 4.3%, 4.6%, and 5.3%, respectively (Table 2).

According to the MPDSR implementation manual, all identified maternal deaths through PHEM weekly reporting system should be reviewed and reported by MDRF within one month after the

weekly PHEM report. A similar number of weekly notified maternal deaths and MDRFs are expected from a well-established MPDSR system. However, a few inconsistencies among weekly notified and MDRF reports were typical. All weekly reported maternal deaths may not be reviewed and reported through MDRF. Furthermore, investigation for some deaths didn't conduct because some households are challenging to locate following a death, refuse to participate in a verbal autopsy, or suspected maternal deaths reported weekly might be accidental or incidental deaths during verification. Thus, MDRFs are likely smaller than the total number of maternal deaths reported through weekly surveillance.

During 2013 EFY, from the 14,687 estimated maternal deaths, only 1,058 (7.2%) were notified by PHEM weekly reporting system. Of the 1,058 notified maternal death, a total of 700 (66.2%) maternal death reviewed and reported to the higher level (EPHI-PHEM) using a case-based format. There was regional variation in reviewing and reporting maternal deaths succeeding initial death notifications. Of the total 10 regions and 2 city administrations, Sidama region and Dire Dawa city administration had 250% and 209.1% performance, respectively. This indicates that there was case-based reporting without initial notification of deaths through the weekly PHEM reporting system.

On the other hand, Addis Ababa, Somali, and Tigray regions performed well in reviewing and reporting more than 75% of notified maternal deaths, with 95.2%, 79.5%, and 84.4% of performance, respectively. Benishangul Gumuz and SNNP regions had below 50% performance (Table 2).

Table 2: Reported maternal deaths versus estimated maternal deaths and Weekly Vs. MDRF reports-based EDHS 2016est., 2013 EFY

Region	Estimated Live birth*	Estimated maternal death**	Proportion of Notified maternal death Vs. estimated	Proportion of Reported MDRF Vs. notified	% Of reported MDRF from estimated
Addis Ababa	86,735	357	63(17.6%)	60(95.2%)	16.8%
Afar	57,424	237	35(14.8)	18(51.4%)	7.6%
Amhara	799,968	3,296	259(7.9%)	173(66.8%)	5.2%
Benishangul-Gumuz	40,883	168	21(12.5%)	5(23.8%)	3.0%
Dire Dawa	14,938	62	11(17.9%)	23(209.1%)	37.4%
Gambella	14,507	60	4(6.7%)	2(50.0%)	3.3%
Harari	8,457	35	25(71.8%)	18(72.0%)	51.7%
Oromia	1,386,972	5,714	436(7.6%)	265(60.8%)	4.6%
Sidama	144,784	597	10(1.7%)	25(250.0%)	4.2%
SNNPR	604,257	2,490	114(36.8%)	42(36.8%)	1.7%
Somali	202,592	835	44(5.3%)	35(79.5%)	4.2%
Tigray	203,208	837	36(4.3%)	34(94.4%)	4.1%

National	3,564,725	14,687	1,058(7.2%)	700(66.2%)	4.8%
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*FMOH,2019

**MMR of 412 per 100,000 live births (EDHS 2016).

During 2013 EFY, 548 (51.8%) of the total notified maternal deaths were reported from the 20 high maternal death reporting zones in the nation. Half 10(50%) of these zones/sub-city and town administrations were from the Oromia region, followed by 6 zones in the Amhara region (Table 3).

Table 3: - Twenty high maternal death notifying zonal/ sub-city and town structures, 2013EFY, Ethiopia

Zone	Region	# Maternal death reported	% Regional total	% National total
East Hararge	Oromia	57	13.1%	5.4%
South Gonder	Amhara	51	19.7%	4.8%
West Hararge	Oromia	48	11.0%	4.5%
East Gojjam	Amhara	34	13.1%	3.2%
Borena	Oromia	34	7.8%	3.2%
Arsi	Oromia	31	7.1%	2.9%
West Gojjam	Amhara	30	11.6%	2.8%
Harari	Hariri	25	100%	2.4%
Faafan	Somali	25	56.8%	2.4%
North Wollo	Amhara	23	8.9%	2.2%
South Wollo	Amhara	22	8.5%	2.1%
North Shewa	Amhara	21	8.1%	2.0%
Chirkos	Addis Ababa	21	33.3%	2.0%
West Arsi	Oromia	19	4.4%	1.8%
West Shewa	Oromia	19	4.4%	1.8%
East Wellega	Oromia	19	4.4%	1.8%
Guji	Oromia	18	4.1%	1.7%
Nekemte Town	Oromia	17	3.9%	1.6%
West Wellega	Oromia	17	3.9%	1.6%
South Omo	SNNP	17	14.9%	1.6%
National		548	NA	51.8%

N.B.: Caution should be taken during interpretation of this. This may reflect the reporting status rather than the actual burden of maternal deaths in the indicated zonal / town structures.

In addition to notification, 453 (64.7%) of reviewed maternal deaths were reported from the 20 high maternal death reporting zones. The highest reported zones/sub-city and town administrations were from Oromia(8) followed by (8), Amhara (4), and (Table 4 and Figure 2).

Table 4: Twenty high maternal death reviewed city administration zonal/ town structures,2013EFY, Ethiopia

Zone	Region	Number of reviewed Maternal Deaths	% Regional total	% National total
South Gonder	Amhara	51	29.50%	7.30%
Guji	Oromia	50	18.90%	7.10%
East Gojjam	Amhara	45	26.00%	6.40%
East Hararge	Oromia	32	12.10%	4.60%

Trend of maternal death reporting

Weekly maternal death reporting performance showed a decreasing trend for the 2013 EFY compared to the 2012 EFY reporting period. However, the reverse was observed in case-based reporting. A parallel increment is seen between Verbal Autopsy (V.A.) and facility-based abstraction format (FBAF)(Figure 3-5).

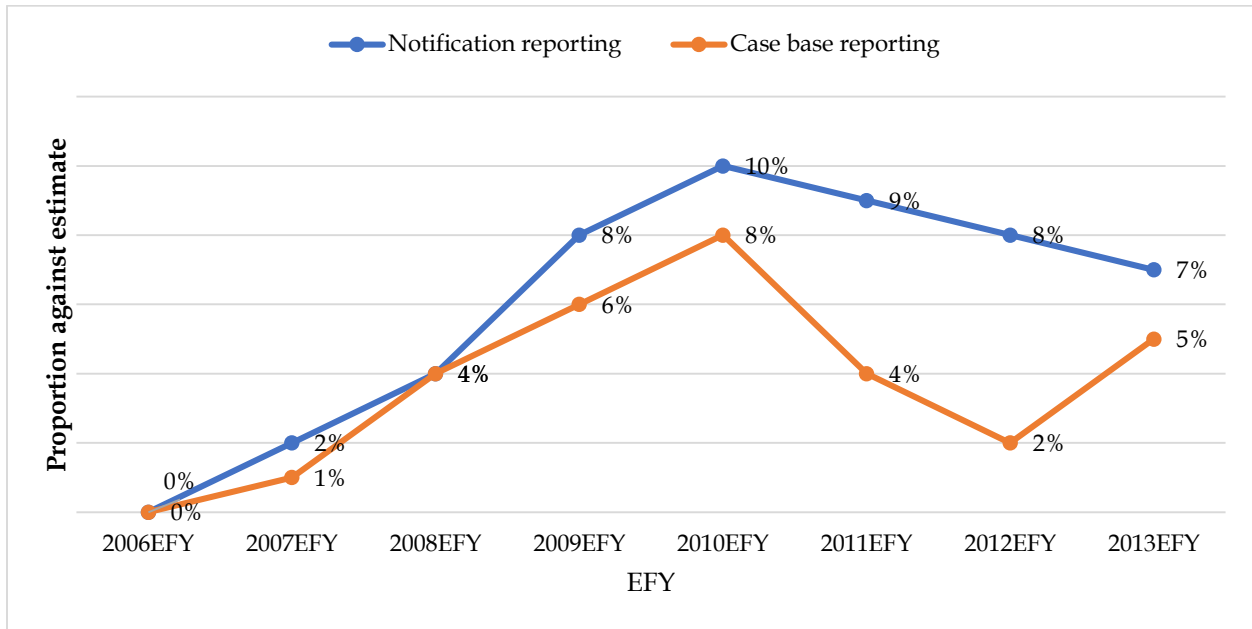


Figure 3:-Maternal death reporting trend from 2006 to 2013 by reporting years

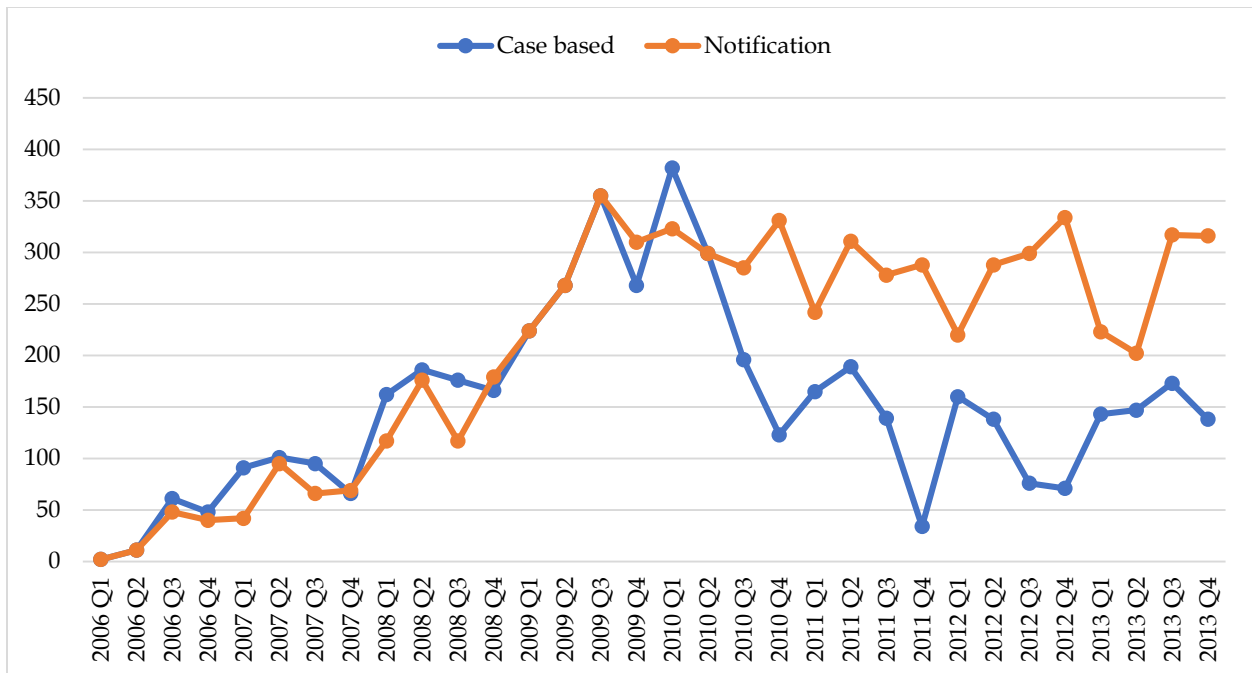


Figure 4:-Maternal death reporting trend from 2006 EFY to 2013 EFY by quarter,

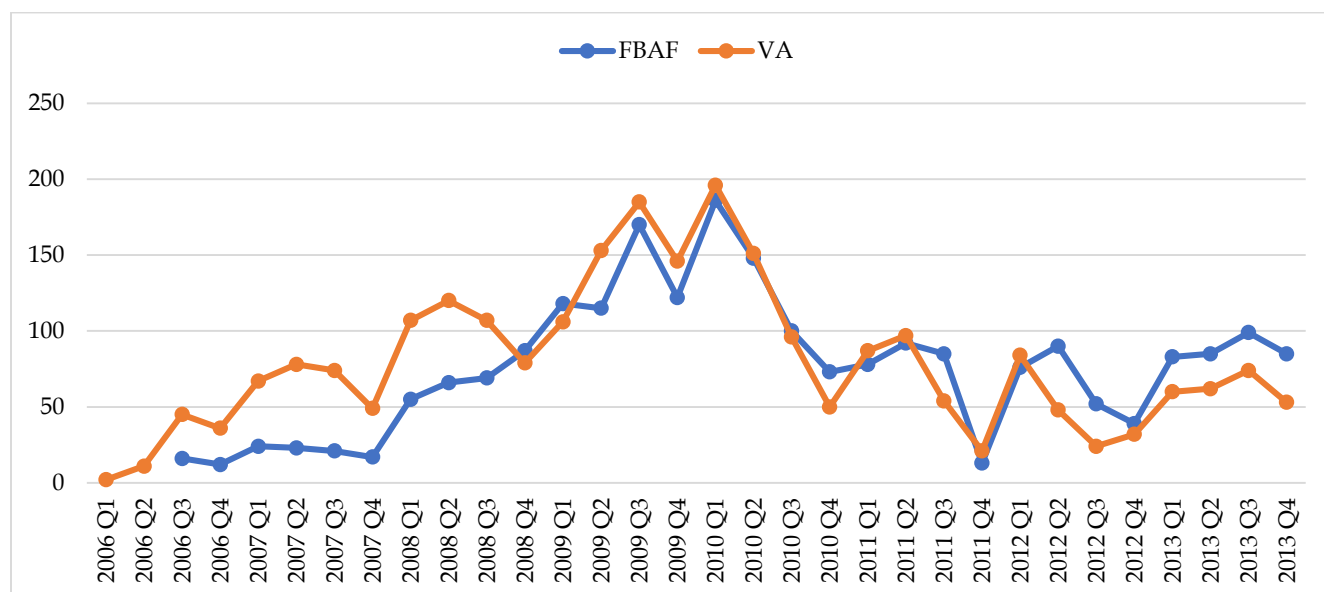


Figure 5:- Quarterly Maternal death reporting trend by a source of abstraction (V.A. and FBAF)

National MDSR Surveillance data quality

Surveillance data quality measures were directly related to the system's capability to receive real-time data with acceptable quality for decision-making to improve the health status of the community. During the 2013 EFY reporting period, the mean number of days taken from death identification up to review was 19 days. The data source shows further variation, with an average of 18 days for extraction through FBAF and 14 days for V.A. (Table 5).

Table 5:-Average number of days from death identification up to review by data source and region sources 2013EFY

Region	Mean number of days		
	Data source		
	Facility-based abstraction format	Verbal Autopsy	Case-based format
Addis Ababa	16	7	17
Afar	16	7	4
Amhara	16	26	23
Benishangul Gumuz	22	–	22
Dire Dawa	45	–	45
Gambella	1	1	1
Hareri	32	–	32
Oromia	16	22	19
Sidama	7	5	7
SNNP	14	10	14
Somali	5	10	6
Tigray	35	40	38
National	18	14	19

Content completeness of maternal death case-based reports received at the national level. Content completeness was calculated as a percentage of filled data elements in the reporting form and during the 2013 EFY was 84.4%. Regional discrepancies in completeness range from the lowest, 80.6% for the Oromia region, and the highest for Benishangul Gumuz (92.5%) (Table 6 and Figure6).

Table 6:-Completeness of Maternal case-based reporting (Content completeness) by region and national, 2013 EFY

Region	Reports by FBAF	Reports by Verbal Autopsy	Total Reports
Addis Ababa	87.9%	88.0%	88.0%
Afar	86.5%	85.3%	87.7%
Amhara	88.6%	89.7%	90.8%
Benishangul Gumuz	92.5%	–	92.5%
Dire Dawa	91.0%	–	91.0%
Gambella	83.4%	82.9%	83.4%
Hareri	82.1%	–	82.1%
Oromia	80.7%	80.5%	80.6%
Sidama	85.9%	86.1%	86.3%
SNNP	81.8%	80.6%	82.9%
Somali	83.6%	77.1%	82.7%
Tigray	82.4%	81.8%	82.1%
National	84.1%	85.8%	84.8%

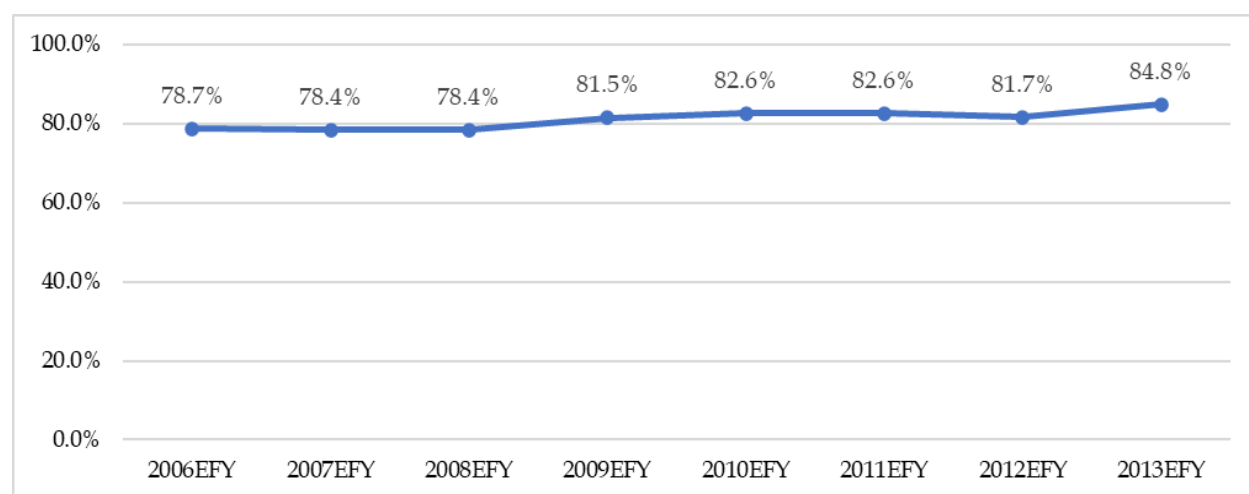


Figure 6:-The trend of content completeness for MDRF from 2006 to 2013

Perinatal Death Surveillance and Response(PDSR) System Performance

According to the 2016 EDHS, the perinatal mortality rate is 33 per1000 pregnancies and is estimated to be 87,000 neonatal deaths and 97,000 stillbirths per year. The unavailability of perinatal mortality indicators in the national health information system was the major challenge in

monitoring the program and performance of the regions at a national level. To track the perinatal mortality and generate information for action, perinatal death surveillance and response were introduced and integrated with the PHEM system in 2009 EFY as a national program.

In 2009 EFY, only three regions, namely Oromia, Amhara, and Addis Ababa city administration, started reporting perinatal deaths through PHEM System. Moreover, in 2012 EFY, Benshangul Gumuz, and Dire Dawa reported through case-based formats. In 2013 EFY, the number of regions reporting and reviewing perinatal deaths increased considerably to 10 regions and two city administrations (table7).

In 2013, 8,357 perinatal deaths were notified from all regions in the country. The reported number of deaths, however, the notification shows only 7% of the national estimated perinatal deaths, and out of the notified 20 % (1713) of the perinatal deaths were reviewed and reported with PDRF.

During the four consecutive implementation years between 2010 EFY to 2013 EFY, 3086 perinatal deaths were reviewed and reported to the national PHEM database. About 2266(73.4%) deaths were reported during 2012 EFY and 2013 EFY. During the four-year implementation, 1626(52.7%), 736(23.8%), and 395(12.8%) perinatal death were reported from Amhara, Addis Ababa, and Oromia, respectively (Table 7 and figure 7).

Table 7: Reported perinatal death versus estimated perinatal death and Weekly Vs. PDRF reports-based EDHS 2016 est., 2013 EFY

Region	Estimated Live birth*	Estimated perinatal death**	Proportion of Notified P.D. Vs.Estimated	Proportion of reported PDRF vs.Notified P.D.	% of reported PDRF estimated
Addis Ababa	86,735	2429	1670(68.8%)	372(22.3%)	15.3%
Afar	57,424	1493	120(8.0%)	0(0.0%)	0.0%
Amhara	799,968	35199	3381(9.6%)	918(27.2%)	2.6%
Benishangul-Gumuz	40,883	1186	275(23.2%)	28(10.2%)	2.4%
Dire Dawa	14,938	403	63(15.6%)	33(52.4%)	8.2%
Gambella	14,507	406	34(8.4%)	4(11.8%)	1.0%
Harari	8,457	338	278(82.2%)	21(7.6%)	6.2%
Oromia	1,386,972	41609	1541(3.7%)	120(7.8%)	0.3%
Sidama	144,784	3764	152(4.0%)	56(36.8%)	1.5%
SNNPR	604,257	15711	548(3.5%)	123(22.4%)	0.8%
Somali	202,592	10130	93(0.9%)	38(40.9%)	0.4%
Tigray	203,208	7315	202(2.8%)	0(0.0%)	0.0%
National	3,564,725	119983	8357(7.0%)	1713(20.5%)	1.4%

**Health & Health-related indicators, FMOH,2019

**PMR of 33 per 100,1000 live births (EDHS 2016)

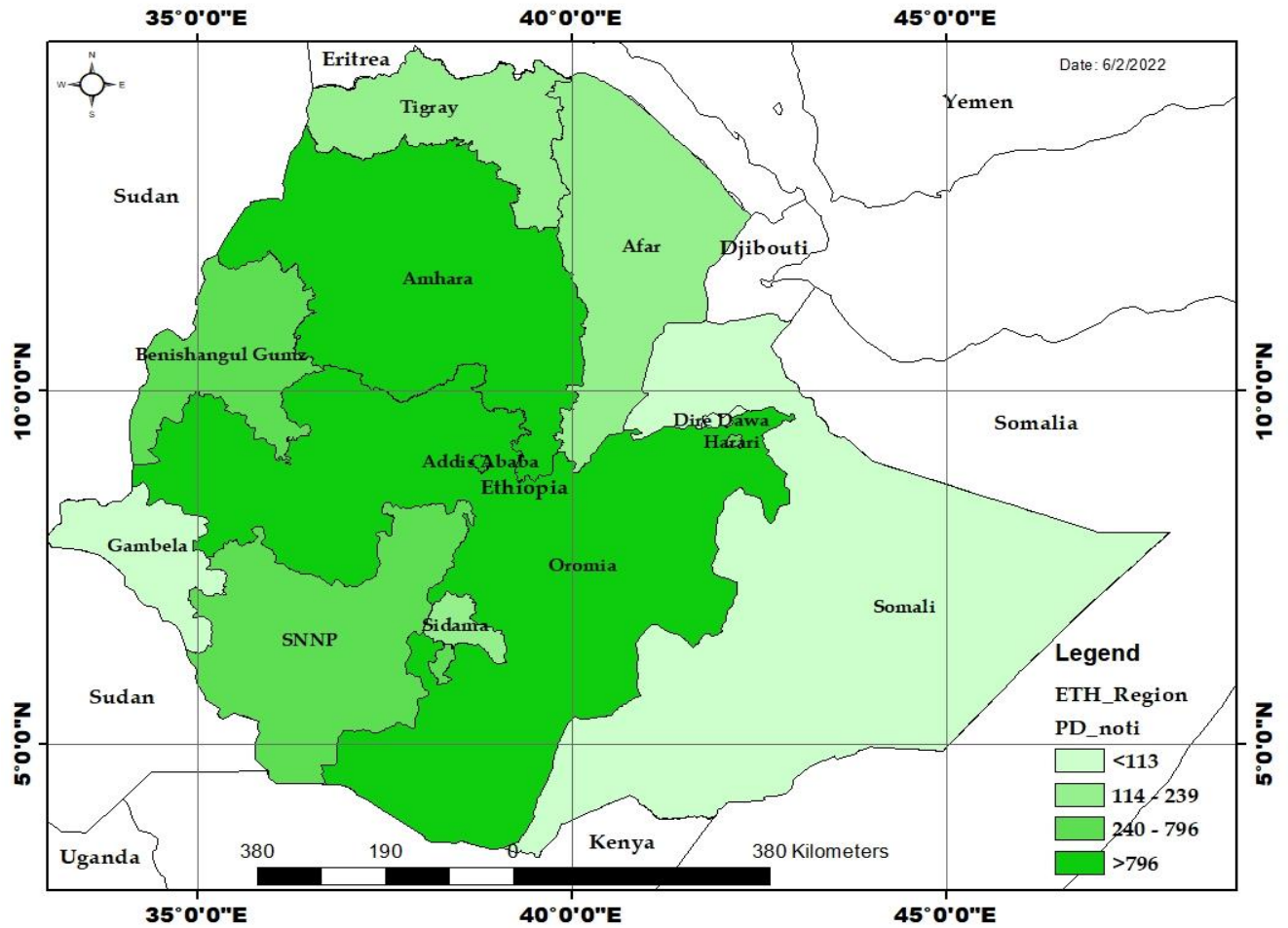


Figure 7: Coverage of Perinatal death reporting, notification by regions,2013EFY, Ethiopia

Moreover, the geographic coverage of perinatal death reporting was lower compared to the expected reporting level. Only 33.7 % of the zones/town admins/sub-cities provided perinatal death data using the Perinatal Death Reporting Format (PDRF) (Figure 8).

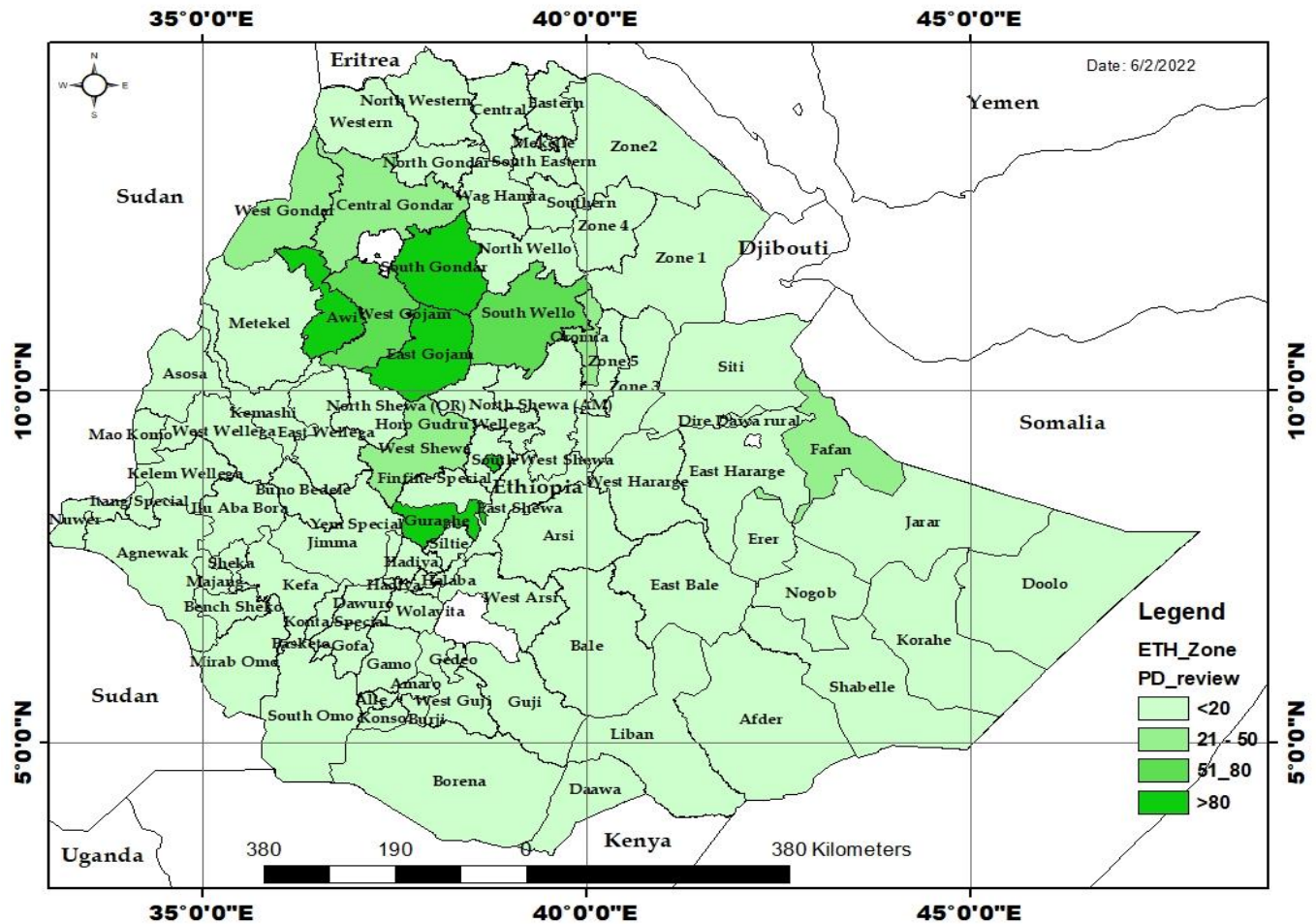


Figure 8:-Coverage of Perinatal death reporting, case-based reporting by Zones/sub-cities,2013EFY, Ethiopia

From the high reporting zones, 1556 (91.4%) perinatal deaths were reported from the 20 high perinatal death reporting zones. The majority (8) zones were from the Amhara region, Addis Ababa (4), Oromia (3), Harari (1), Dire Dawa (1), Somali (1), SNNP, and Sidama (1) (Table 8). Caution should be taken during this interpretation as it may reflect the status of reporting rather than the actual burden of maternal deaths in the indicated zonal / town structures.

Table 8:Twenty high perinatal death reviewing city administration /zonal/sub-city/ structures, 2013 EFY, Ethiopia

Zone	Region	Number of reviewed P.D.	% From regional share	% From national share
Awi	Amhara	348	37.9%	20.3%
East Gojjam	Amhara	222	24.2%	13.0%
Lideta	Addis Ababa	167	44.9%	9.7%
Chirkos	Addis Ababa	140	37.6%	8.2%
South Gonder	Amhara	107	11.7%	6.2%
Gurage	SNNP	102	82.9%	6.0%
South Wollo	Amhara	69	7.5%	4.0%

West Gojjam	Amhara	63	6.9%	3.7%
Sidama	Sidama	56	100.0%	3.3%
West Shewa	Oromia	41	34.2%	2.4%
Fafan	Somali	35	92.1%	2.0%
Dire Dawa	Dire Dawa	33	100.0%	1.9%
Oromia special Zone	Amhara	30	3.3%	1.8%
Arada	Addis Ababa	28	7.5%	1.6%
Central Gondar	Amhara	27	2.9%	1.6%
West Gondar	Amhara	22	2.4%	1.3%
Harer	Harari	21	100.0%	1.2%
Kellem Wollega	Oromia	19	15.8%	1.1%
Akaki Kaliti	Addis Ababa	18	4.8%	1.1%
Guji	Oromia	18	15.0%	1.1%
		1566	NA	91.4%

Chapter Two: - Characteristics of reported Maternal Deaths

This chapter mainly focuses on characteristics of deceased mothers reported through the Maternal death case-based report in 2013 EFY. It includes the socio-demographic characteristics of deceased women, the cause of Maternal death, and contributing factors to maternal Deaths.

- ➔ Of 700 reported maternal deaths, 67.7% of death occurred in health facilities, 13% in transit, and 19% at home
- ➔ About 77% of deceased women died during the postpartum period, 10.7 % during delivery, and 12.3% before delivery
- ➔ Direct causes contributed to 85% of deceased mothers while the indirect cause contributed 8% of maternal deaths and 7% account for unspecified causes
- ➔ Obstetric hemorrhage was the leading cause of maternal deaths accounting for 56.1% followed by Hypertensive Disorder of Pregnancy (Preeclampsia and Eclampsia) at 11.7%, and infection at 7.8%
- ➔ Delay one, delay two and delay three were responsible for 42%, 24%, and 34% of maternal death, respectively.

Socio-Demographic Characteristics of reported maternal deaths

The finding of 2013 EFY is consistent with the year-to-date data since 2013, as the mean age of women who died from pregnancy-related causes was 29 years. The majority (28.1%) of women who died were 25-29 years old, followed by 30-34 years and 20-24, 22.4%, and 20.3% out of 700 total maternal deaths.

As shown in figure 12, most women who died were in the 25-29-year age group, consistent throughout the last 8 years report; all age groups have a similar trend, except age group 35-39 and 40-44 years. The proportion of deceased women in the age group 35-39 years had increased, while it declined for women in the age group between 35-39 years(Figure 9).

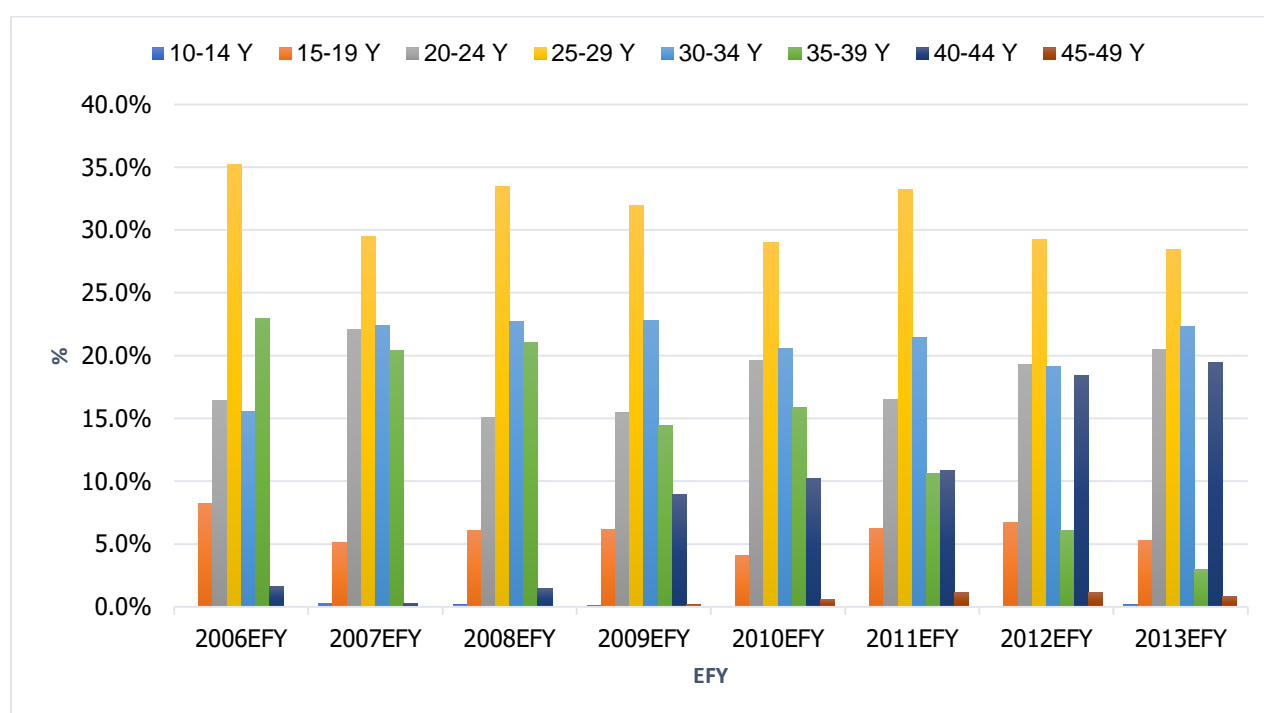


Figure 9: Age groups for all reported maternal death from 2006 to 2013 , Ethiopia

Place of death

As shown in figure 13, the 2013 EFY death review findings show that 67.7% of maternal deaths occurred in health facilities, followed by home (19%) and in transit (both from home to health facility and from facility to facility) (13%)(Figure 10).

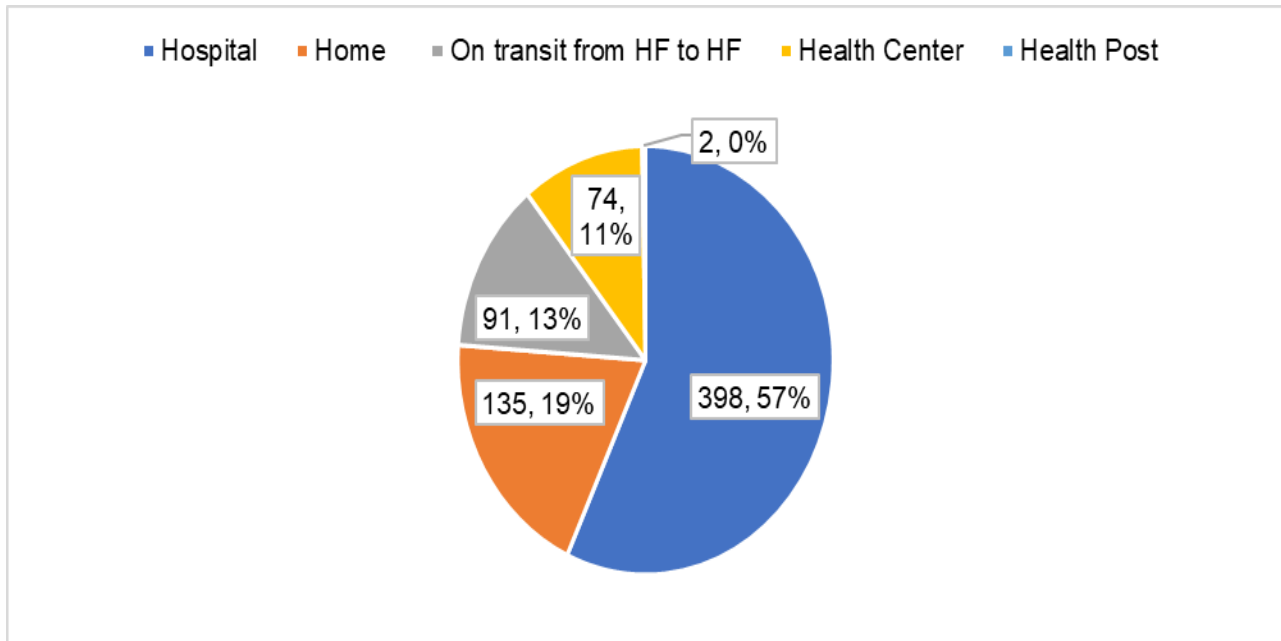


Figure 10: Distribution of the place of maternal death in 2013EFY, Ethiopia N=700

Obstetric history of the deceased mothers

Among the total reported maternal death during 2013 EFY, 43% were multiparous, and 23% were grand multipara delivered five and above. The results are similar to the 2012 EFY results in which 39.4 % were multiparous and 23.2% were grand multigravida. The result also showed that 57% of deceased women had ANC follow-ups (Figure 11 & 12).

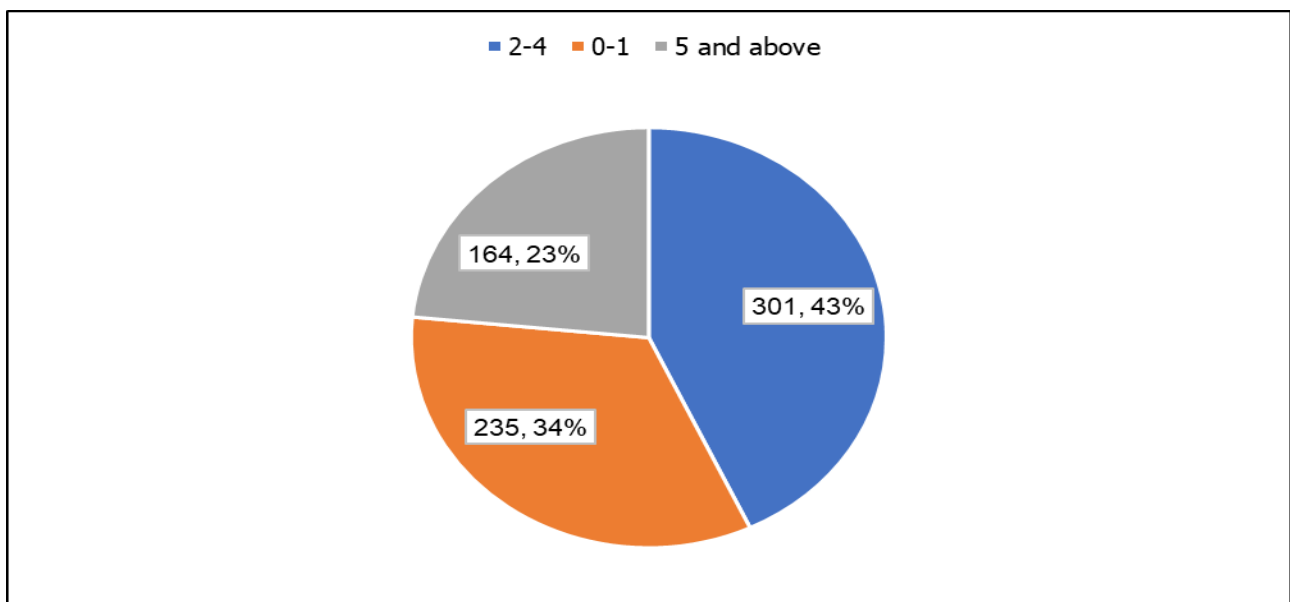


Figure 11: Distribution of obstetrics of history in deceased women by parity in 2013EFY, Ethiopia

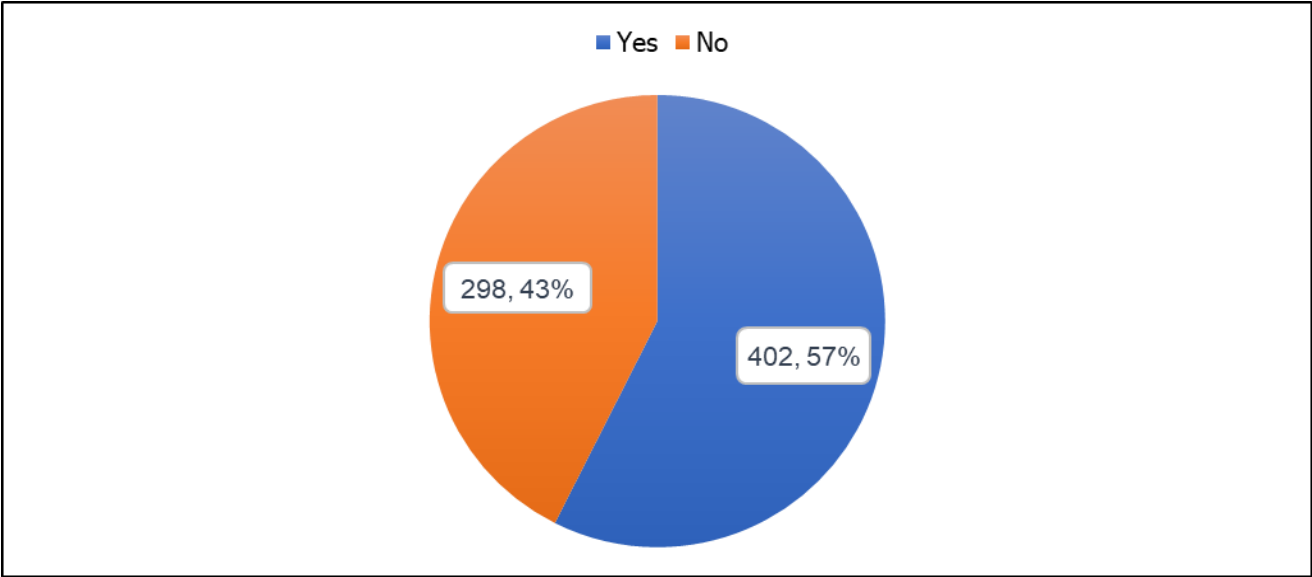


Figure 12: Distribution of obstetrics of history in deceased women by a history of ANC visit in 2013EFY, Ethiopia

Time of death

The 2013 EFY maternal death report revealed that most deaths happened during the postpartum period (77 %), followed by antepartum (12.3%) and intrapartum (10.7 %), which is consistent with aggregated data from 2006 EFY to 2013 EFY(Figure13).

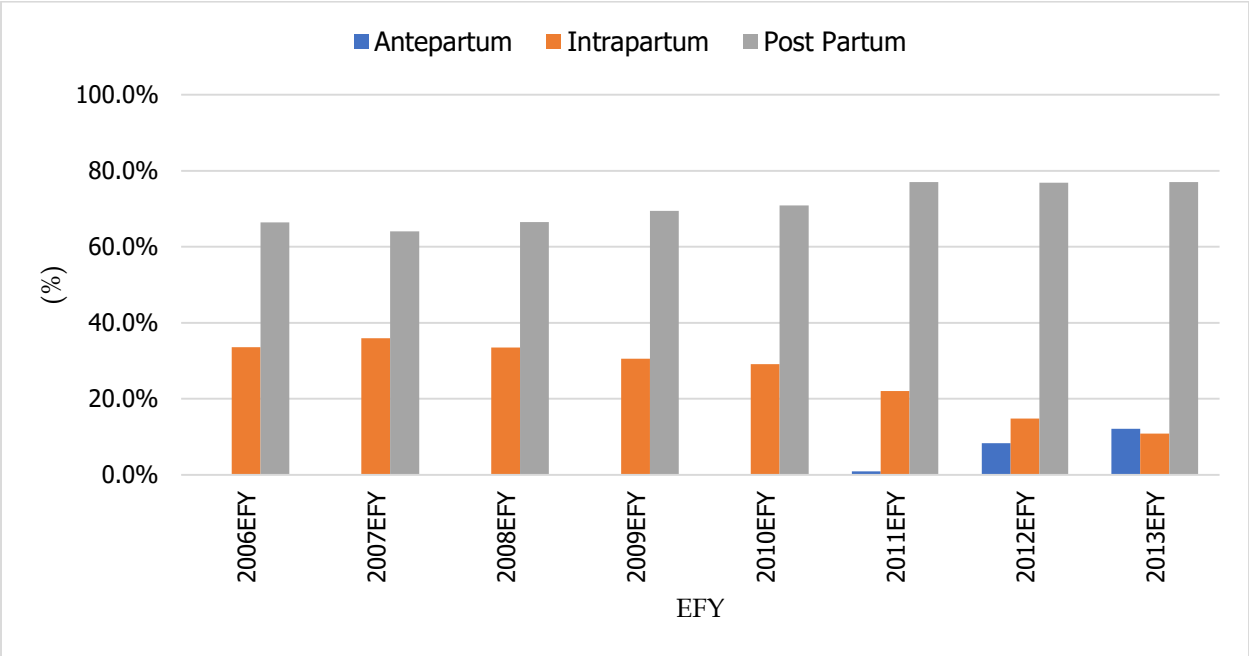


Figure 13:Distribution of time of death for deceased women by reporting during the year 2006-2013, Ethiopia

Causes and trends of Maternal Deaths

In 2013 EFY, of the 700 reviewed maternal deaths, attempts were made by the MDSR team to determine the cause of death. 644 (93%) had a cause of death assigned, while the remaining 8% coded as no cause of death assigned as other direct or indirect causes. Of those whose causes of death were determined, 85% were direct obstetric causes, whereas deaths due to indirect causes accounted for 7% of all deaths (Figure14).

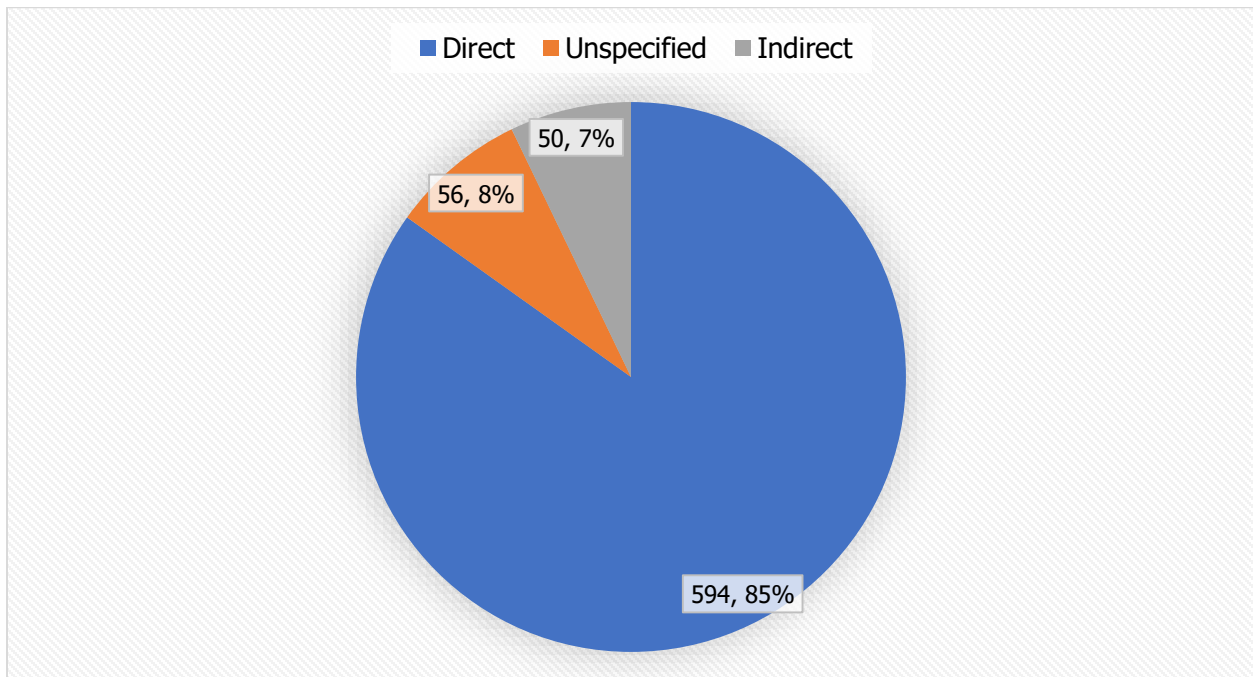


Figure 14:Proportion of Direct & Indirect causes of deaths in EFY, Ethiopia, 2013 EFY (N= 700)

The trend of causes of maternal death over the last 8 fiscal years shows that Obstetric hemorrhage, anemia, HDP, and sepsis persisted as the primary causes (Figure 17). Abortion contributed to only 1% of maternal deaths in 2013 EFY(Figure 15).

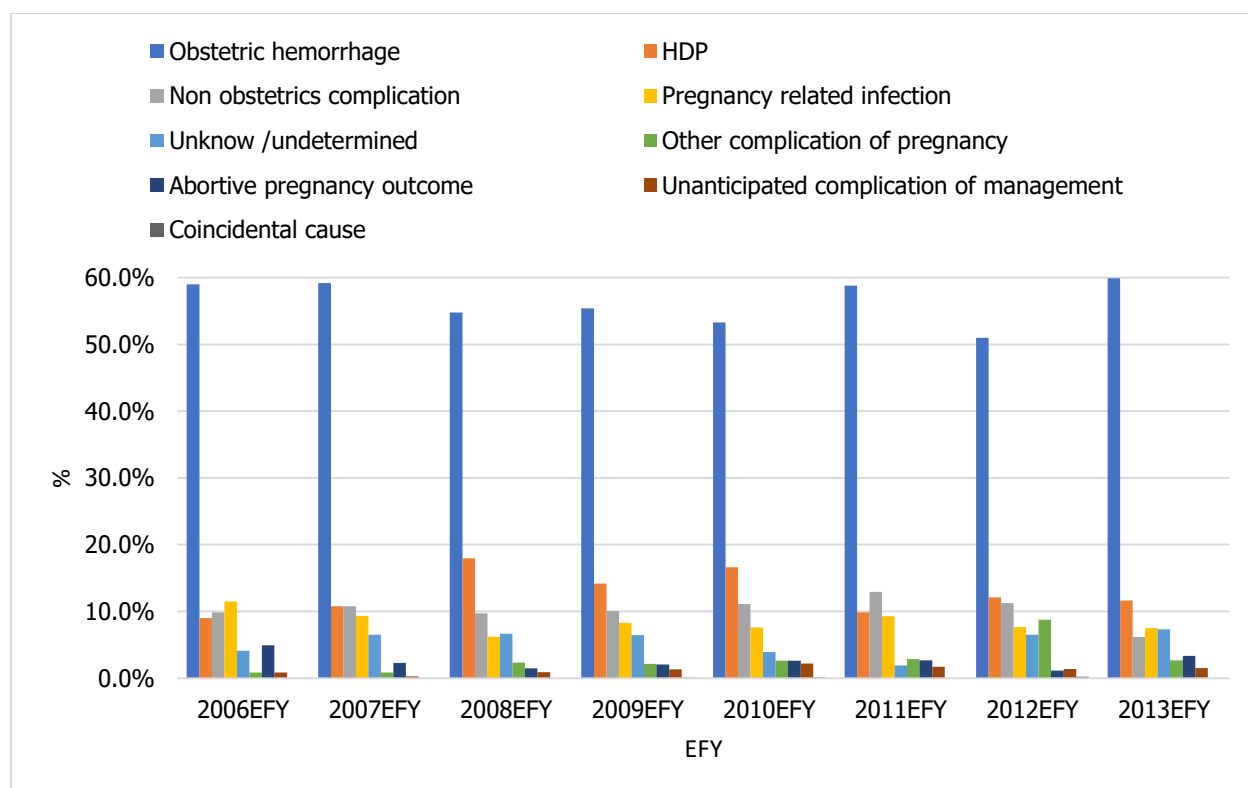


Figure 15: Trends of cause-specific maternal deaths in Ethiopia from 2006 to 2013

The 2013 EFY shows that the direct cause of Obstetric hemorrhage accounts for 66.2%, followed by HDP at 14% and Pregnancy-related infection at 9.3%. As shown in figure 18, Obstetric hemorrhage was the primary direct cause of maternal deaths trained, which was consistent throughout 8 years.

Specific causes of death

Obstetric Hemorrhage

Of the 354 obstetric hemorrhage-related deaths included in the final database, 54% were identified by FBAF and 46% by verbal autopsy (V.A.). Considering the regional distribution, more than 60% of hemorrhage-related deaths occurred in two regions: 33.2% in Oromia and 30.0% in Amhara (Table 9).

Table 9:-Distribution of Obstetric Hemorrhage deaths by Region and Year (2006-2013 EFY), Ethiopia

Region	Total reported	2006EFY	2007EFY	2008EFY	2009EFY	2010EFY	2011EFY	2012EFY	2013EFY
National	2626	2.7%	8.0%	14.4%	23.5%	20.3%	11.8%	8.6%	10.6%
Oromia	873	1.3%	2.2%	3.0%	8.7%	6.7%	4.1%	2.9%	4.2%
Amhara	789	0.7%	2.1%	5.4%	6.5%	5.4%	3.8%	2.6%	3.5%
SNNP	333	0.0%	0.8%	2.5%	4.0%	3.1%	1.7%	0.0%	0.6%

Tigray	275	0.1%	1.4%	2.1%	2.0%	2.2%	1.4%	1.1%	0.1%
Addis Ababa	117	0.1%	0.5%	0.5%	0.8%	1.1%	0.6%	0.5%	0.5%
Dire Dawa	68	0.2%	0.6%	0.6%	0.5%	0.5%	0.0%	0.0%	0.1%
Hareri	47	0.3%	0.3%	0.2%	0.0%	0.2%	0.0%	0.5%	0.3%
Benishangul Gumuz	35	0.0%	0.0%	0.0%	0.3%	0.5%	0.1%	0.3%	0.1%
Somali	32	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.6%
Afar	25	0.0%	0.0%	0.0%	0.4%	0.2%	0.0%	0.1%	0.2%
Gambella	21	0.0%	0.0%	0.1%	0.2%	0.3%	0.1%	0.2%	0.0%
Sidama	10	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%

In the 2013 EFY, more than half (50.8%) of obstetric hemorrhage deaths occurred in hospitals, 9.9 % in health centers, and 24.9% at home. The remaining 14.1% of all obstetric hemorrhage deaths occurred; some women were on-transit from home to health facility and from health facility to health facility (Figure 16).

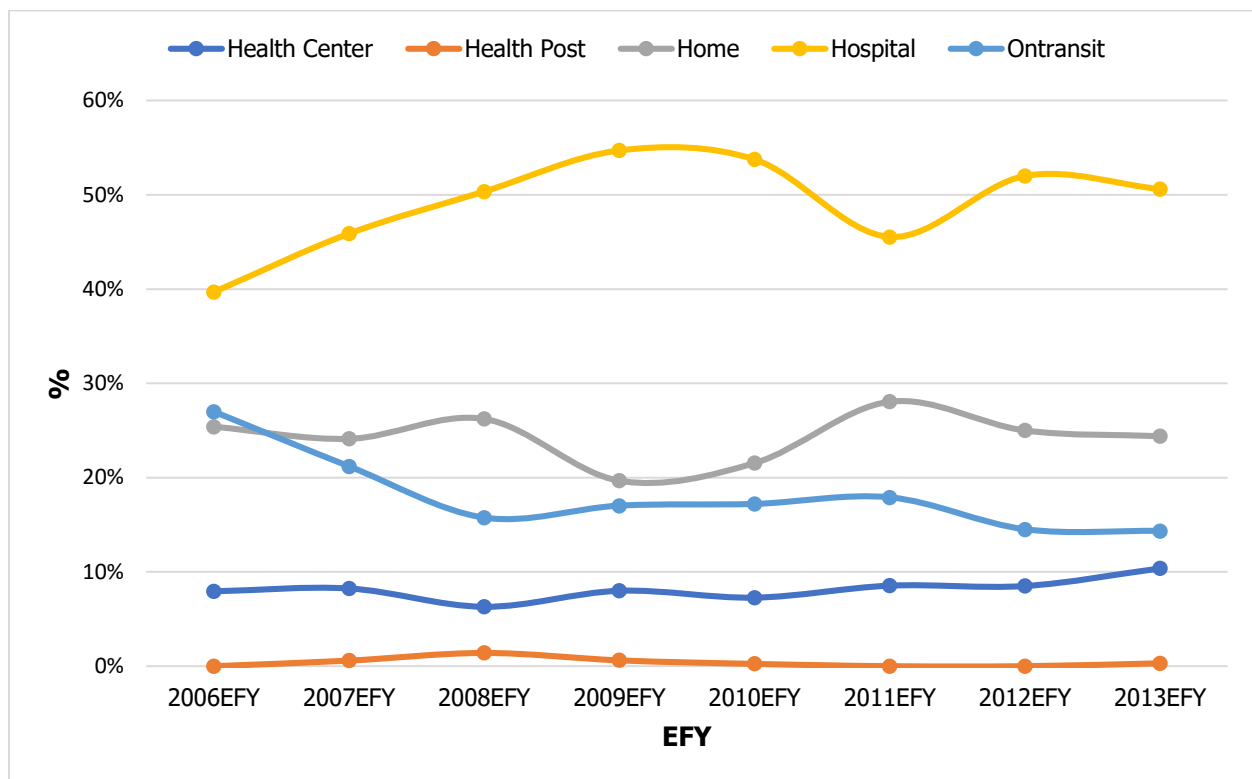


Figure 16:- Trends of Obstetric Hemorrhage deaths by place of death and Year (2006- 2013EFY), Ethiopia

Nearly 83.7% of all hemorrhage deaths occurred during the postpartum period. The rests were 10.1% and 7.6% during intrapartum and pregnancy (antepartum). This has been a similar trend in the past eight years (2006-2013 EFY) (Figure17).

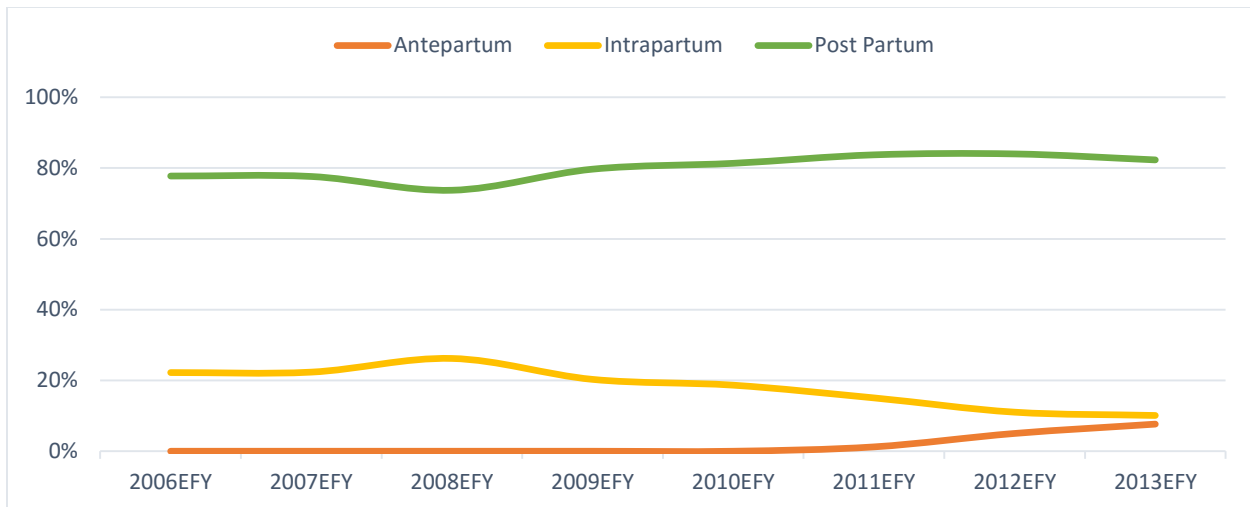


Figure 17: Trends of Obstetric Hemorrhage deaths by the timing of death and Year (2006-2013EFY), Ethiopia

It clearly shows that delay three and delay one was the main contributors to maternal death in the current fiscal year. Late diagnoses, lack of drugs and supplies, inadequate care, or severe mismanagement and/or limited blood supply for transfusion were the contributing factors indicated in delay three. The distribution of place of death among obstetric hemorrhage deaths over the last seven years (2006-2013 EFY) showed a similar trend, except death occurring in transit declining since 2006(Figure18).

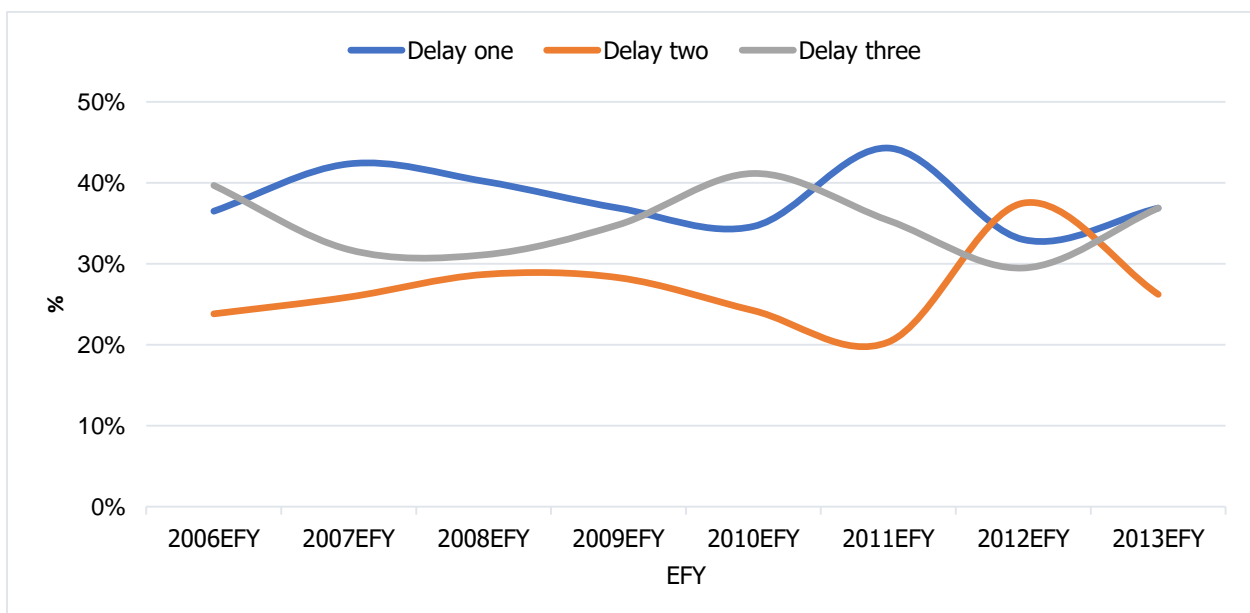


Figure 18: Distribution of Obstetric Hemorrhage deaths by delay model and Year (2006-2013EFY), Ethiopia

Lack of decision to go to a health facility, a delayed referral from home, delayed arrival to the following health facility from another facility on referral, and failure to recognize the problem were the most mentioned delay factors for deaths due to obstetric hemorrhage in 2013 EFY.

Non-obstetrics complication

Non-obstetrics complication-related maternal deaths were included in the final database. Nearly seventy percent of deaths due to non-obstetric complications occurred in four regions: 26% in Oromia and 22% in Amhara, 20% in Tigray, and 9% in SNNP. The trend of eight years shows that it has a consistent trend except in Afar, Somali and Sidama regions (Table 10).

Table 10:- Distribution of non-obstetrics complication deaths by Region and Year (2006-2013EFY), Ethiopia

Region	Total reported	2006EFY	2007EFY	2008EFY	2009EFY	2010EFY	2011EFY	2012EFY	2013EFY
National	488	2.5%	7.8%	13.7%	23.0%	22.7%	13.9%	10.2%	6.1%
Oromia	129	6.2%	5.4%	7.8%	17.8%	27.1%	16.3%	14.0%	5.4%
Amhara	105	1.0%	5.7%	24.8%	16.2%	30.5%	9.5%	5.7%	6.7%
Tigray	97	0.0%	11.3%	13.4%	25.8%	15.5%	18.6%	15.5%	0.0%
SNNP	46	2.2%	10.9%	8.7%	23.9%	32.6%	19.6%	0.0%	2.2%
Addis Ababa	35	0.0%	0.0%	17.1%	22.9%	11.4%	25.7%	8.6%	14.3%
Dire Dawa	21	0.0%	28.6%	28.6%	14.3%	14.3%	0.0%	4.8%	9.5%
Afar	17	0.0%	0.0%	0.0%	82.4%	0.0%	0.0%	5.9%	11.8%
Ben_Gumuz	15	0.0%	0.0%	0.0%	53.3%	33.3%	6.7%	6.7%	0.0%
Hareri	15	13.3%	20.0%	6.7%	0.0%	6.7%	0.0%	33.3%	20.0%
Gambella	5	0.0%	0.0%	20.0%	60.0%	20.0%	0.0%	0.0%	0.0%
Somali	2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Sidama	1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%

In 2013 EFY, of 50 maternal deaths due to non-obstetric complications, out of which 76% of death occurred in hospitals, and 10% occurred at home. The remaining ten percent occurred while women were on-transit from home to the health facility and from the health facility. The distribution of place of death among non-obstetrics complication-related deaths over the last seven years (2006-2013 EFY) revealed a similar trend since 2006 EFY (Figure19).

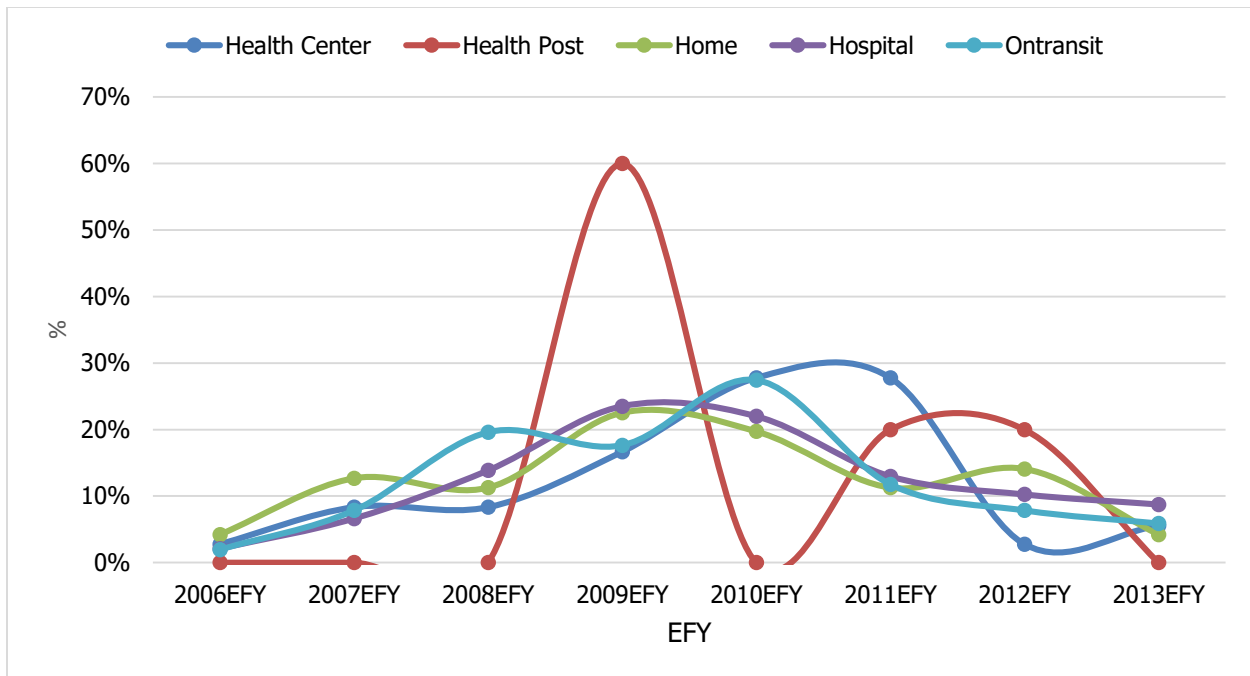


Figure 19:Trends of Anemia related deaths by place of death and Year (2006-2013 EFY), Ethiopia

Nearly 62% of all non-obstetrics complication-related deaths occurred during the postpartum period. This has been a similar trend in the past seven years (2006-2012 EFY) except for deaths during Antepartum raised in 2013 (Figure20).

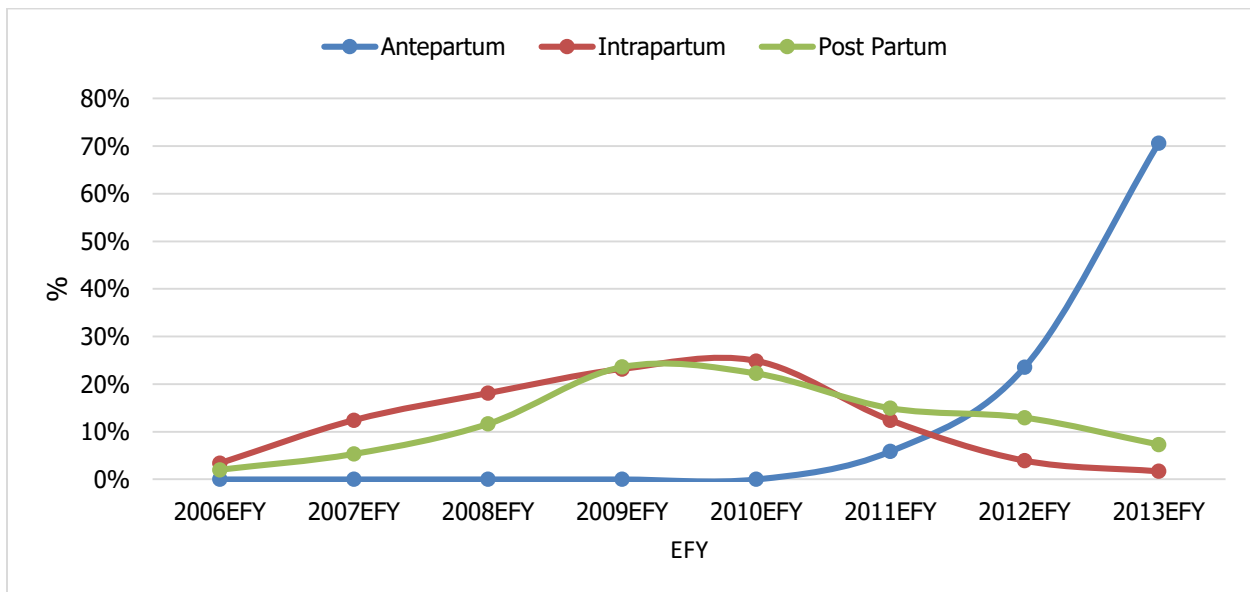


Figure 20: - Trends of non-obstetrics complication deaths by the timing of death and Year (2006-2013 EFY), Ethiopia

Hypertensive disorder of pregnancy (HDP): Preeclampsia and Eclampsia

In 2013 EFY, 87 HDP-related maternal deaths were reported nationally. More than 60% of death due to HDP occurred in three regions: 44% in Oromia, 11% in Amhara, and 10% in Somali. In the last eight years, all-region trends show similar trends except in Somali and Sidama (Table 11).

Table 11:-Distribution of HDP deaths by region and year (2006-2013 EFY), Ethiopia

Region	Total reported	2006EFY	2007EFY	2008EFY	2009EFY	2010EFY	2011EFY	2012EFY	2013EFY
National	650	1.7%	5.8%	19.1%	24.3%	25.5%	8.0%	8.3%	7.2%
Oromia	214	3.3%	5.6%	8.4%	22.4%	23.8%	12.6%	11.2%	12.6%
Amhara	164	1.2%	3.7%	32.3%	24.4%	23.8%	4.9%	7.3%	2.4%
SNNP	75	0.0%	1.3%	26.7%	30.7%	28.0%	9.3%	1.3%	2.7%
Tigray	65	0.0%	9.2%	23.1%	21.5%	26.2%	3.1%	16.9%	0.0%
Addis Ababa	43	0.0%	4.7%	4.7%	25.6%	34.9%	11.6%	11.6%	7.0%
Dire Dawa	37	2.7%	27.0%	27.0%	18.9%	10.8%	5.4%	0.0%	8.1%
Afar	17	0.0%	0.0%	0.0%	52.9%	41.2%	0.0%	0.0%	5.9%
Hareri	16	6.3%	6.3%	31.3%	0.0%	50.0%	0.0%	6.3%	0.0%
Beni-Gum	12	0.0%	0.0%	8.3%	50.0%	33.3%	8.3%	0.0%	0.0%
Sidama	4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Somali	2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Gambella	1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%

In 2013 EFY, 81.3% of HDP deaths occurred in hospitals, 8.8% occurred at a health center, and 6.3% at home. The remaining (2.5%) occurred while women were on-transit from home to health facility and from health facility to health facility. Women's inter-health facility transfer should be improved with early identification and administration of pre-referral life-saving medications. The distribution of place of death among HDP-related deaths over the last eight years (2006-2013 EFY) showed a similar trend since 2006(Figure 21).

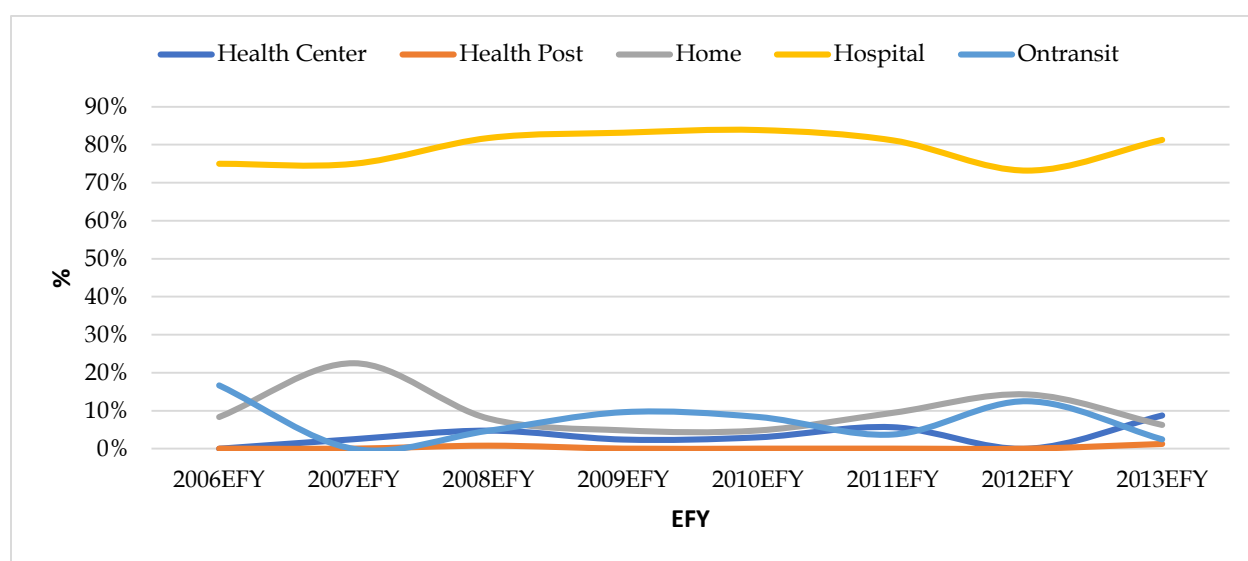


Figure 21: Trends of HDP related deaths by place of death and Year (2006-2013 EFY), Ethiopia

Nearly 61% of all HDP related deaths occurred during the postpartum period, and the remainder 19% and 20%, in the intrapartum and pregnancy (antepartum), respectively, and this has been a similar trend in the past eight years (2006-2013 EFY) except for deaths during intrapartum appears declining since 2009 (Figure 22).

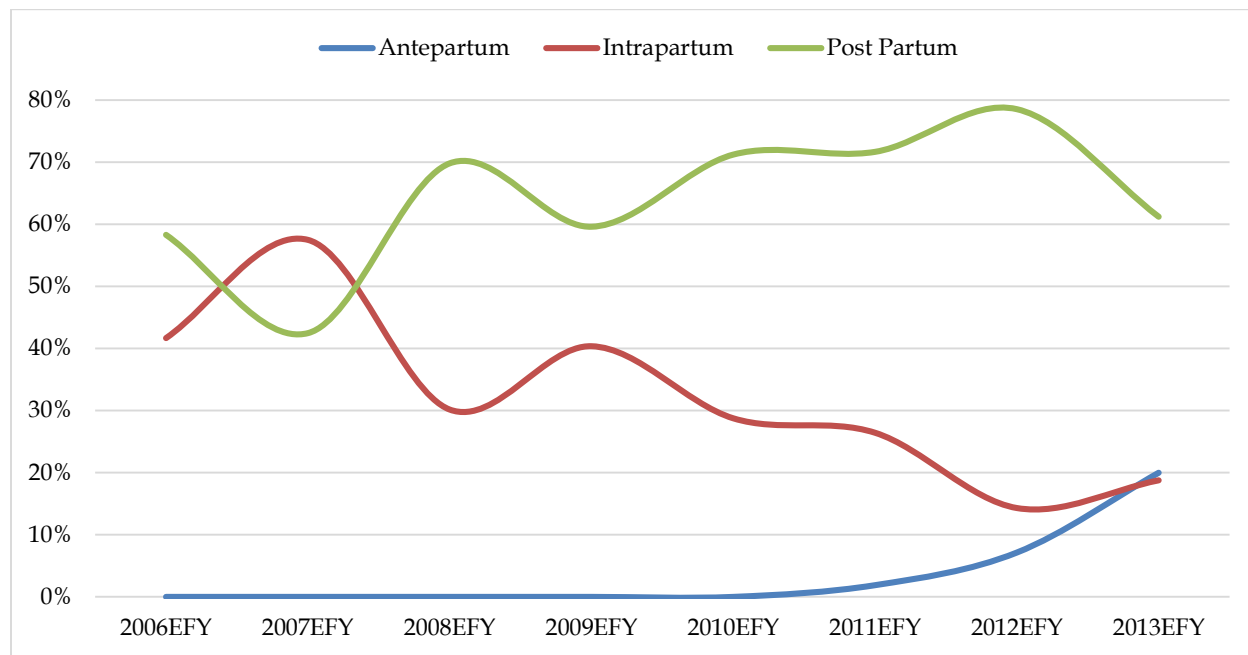


Figure 22:-Trends of HDP deaths by the timing of death and Year (2006-2013 EFY), Ethiopia
 Delay-one factor (delay to seek care) contributed to 40% of the obstetric HDP-related deaths. In comparison, delay-two and delay-three factors contributed to 15% and 45% of these deaths in the 2013 EFY (Figure23). Delay-one factor persisted as the primary contributor to HDP- related deaths over the last seven years. It indicates there is still a problem in seeking care, and it might have decreased the chances of survival.

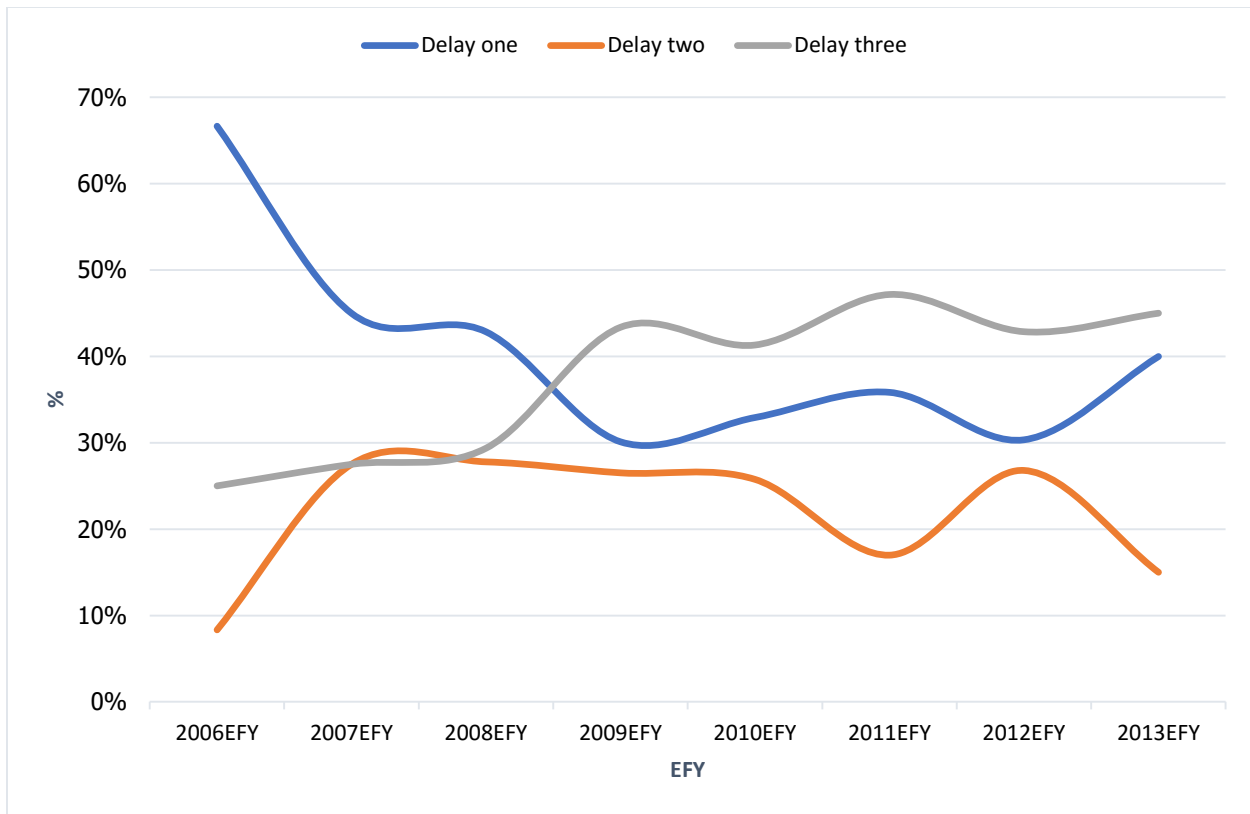


Figure 23:- Distribution of HDP related deaths by delay model and Year (2006-2013 EFY), Ethiopia

Contributing factors for maternal deaths in Ethiopia

Findings from 700 maternal death review reports revealed delay one was responsible for 297 (42%), delay two for 167 (24%), and delay three for 236 (34%) maternal deaths. From delay one, lack of decision to go to a health facility is the most contributing factor. In contrast, delayed arrival to the next facility from referring health facility is the leading factor to delay three factors (Figure 24).

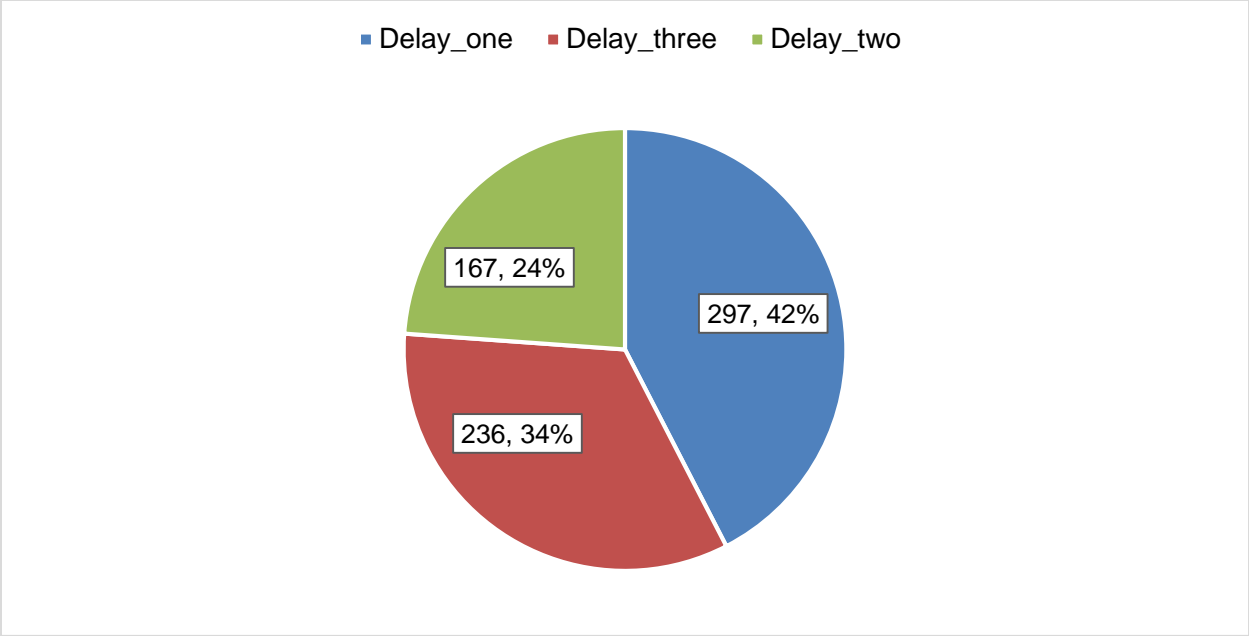


Figure 24:- Contributing factor for maternal death in Ethiopia, 2013 EFY (N= 700)

Regarding the trend in contributing factors for maternal deaths in Ethiopia over the last eight years, delay one has been the top contributing factor. It demonstrates a significant raised from 30% to 36%. Since 2012 EFY, delay three was the second leading contributing factor to maternal death, and it has a slight increment from 33% to 34%. Significant change is not seen in the trend of delay three during the last 8 implementation years (Figure 25).

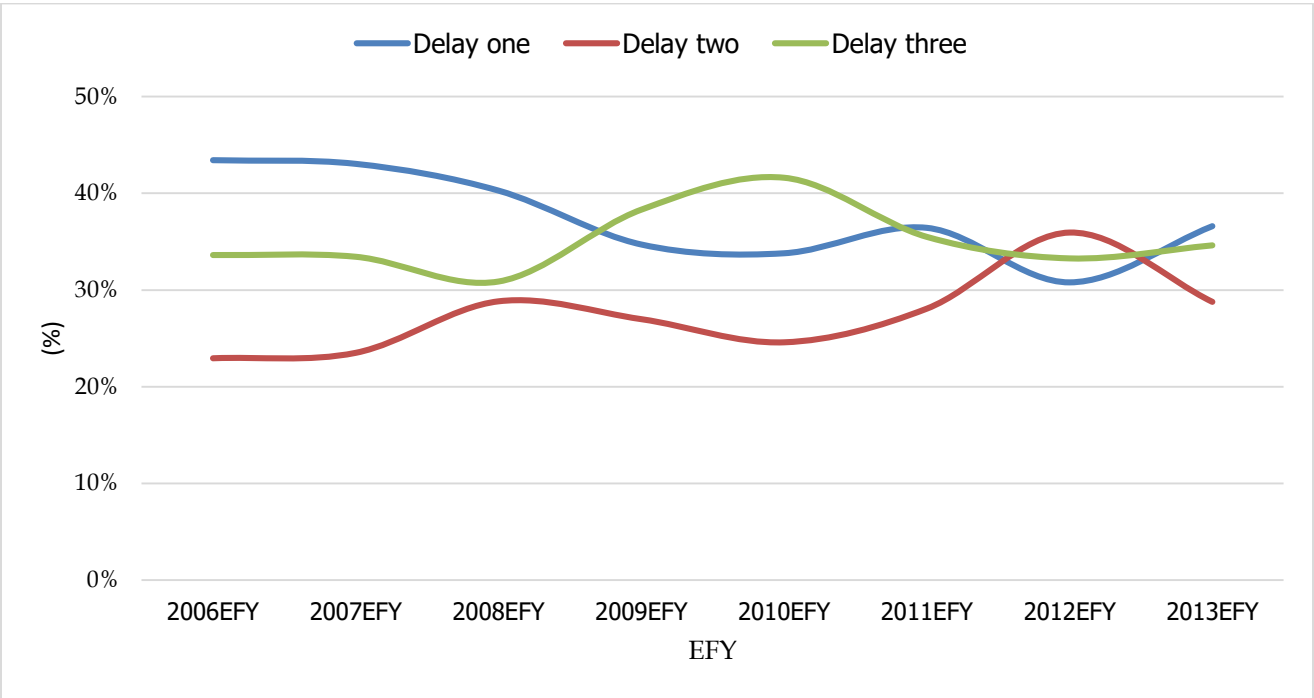


Figure 25:- Trend of delay factors contributing to maternal death 2006-2013

The 2013 EFY maternal death review finding was consistent with the previous findings regarding the nation's contributing factors for maternal deaths. The main reasons for the delay as one contributing factor to maternal death were lack of decision to go to a health facility (41.3%), a delayed referral from home to a health facility (25.3%), failure to recognize the problem (21.4%), and traditional practices (19%). Similarly, the main reasons for delay two were delayed arrival to a referred facility (22.6%), lack of transportation (13.7%), and no facility within a reasonable distance (2.7%). Additionally, the predominantly reported specific delay three factors were delayed arrival to the next facility from another facility during referral (20.3%), delayed management after admission (13.6%), lack of supplies and equipment (9.3%), and Human error or mismanagement (5.6%) (Table 12).

Table 12: Contributing factors to maternal death, 2013 EFY

Contributing factors	Characteristics	Frequency	Percentage
Delay one	Traditional Practices	133	19.0%
	Family poverty	64	9.1%
	Failure to recognize the problem	150	21.4%
	Lack of decision to go to a health facility	289	41.3%
	Delayed referral from home	177	25.3%
Delay two	Lack of roads	46	6.6%
	Delayed arrival to the referred facility	158	22.6%
	Lack of money for transport	25	3.6%
	Lack of transportation	96	13.7%
	No facility within a reasonable distance	19	2.7%
Delay three	Delayed arrival to next facility from another facility on referral	142	20.3%
	Delayed or lacking supplies and equipment	65	9.3%
	Delayed management after admission	95	13.6%
	Human error or mismanagement	39	5.6%

Chapter Three - Perinatal Death

- Out of the total perinatal death reports received at the national level, more than half (53.6%) were from the Amhara region, followed by Addis Ababa (21.7%) and Oromia (7%)
- 63.0% of deceased perinate were alive during delivery
- Prematurity and asphyxia were accountable for 1143 (66.8%) deaths
- 221 (13.0%) mothers of the deceased perinate were reported as maternal death
- Delay one, delay two and delay three were responsible for 48%, 27%, and 25% of perinatal death, respectively

Description of reporting facility for perinatal deaths

A total of 1,713 perinatal death were reviewed and sent through PDSR. Of the reported death, nearly 80.0% were reported from hospitals, and 95.5% of death were extracted from facility-based abstraction format. Ten regions reported using PDSR; more than half of the reviewed death (53.6%) were sent from the Amhara region (Table13).

Table 13: Distribution of perinatal death reports received by type of reporting health facility, data source, and reporting regions, 2013EFY, Ethiopia

Reporting characteristics	Frequency(N=1713)	Percentage
Type of reporting facility		
Health center	345	20.1%
Hospital	1368	79.9%
Data source		
FBAF	1628	95.0%
VA	85	5.0%
Reporting region		
Addis Ababa	372	21.7%
Amhara	918	53.6%
Benishangul-Gumuz	28	1.6%
Dire Dawa	33	1.9%
Gambella	4	0.2%
Harari	21	1.2%
Oromia	120	7.0%
Sidama	56	3.3%
SNNP	123	7.2%

Somali	38	2.2%
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General Information of the deceased perinate

Of the total perinatal death reported in 1713, 991 (57.9%) were male, 1081 (63.1%) were stillbirth, and 920 (53.7%) was reported to be between 28 to 35 weeks of estimated gestational age. Regarding the place of death, 1351 (78.9%) of deaths occurred in hospitals, followed by 198 (11.6%) at a health center. Perinatal deaths occurred outside of the health facility environment at home, on transit, and health post level, accounting for 164 (9.6%) of the total reported death (Table 14).

Table 14: General description of the deceased perinate characteristics in 2013 EFY, Ethiopia

Variable	Frequency (N=1713)	Percentage
Sex of the deceased perinate		
Male	991	57.9%
Female	722	42.1%
Birth outcome		
Alive	1081	63.1%
Stillbirth	632	36.9%
Estimated gestational age		
28_35	920	53.7%
35_38	513	29.9%
38_43	280	16.3%
Place of death		
Hospital	1351	78.9%
Health Center	198	11.6%
Home	123	7.2%
On Transit	39	2.3%
Health Post	2	0.1%

General Information of deceased perinate mother

A total of 1396 (81.5%) of the deceased perinate mothers aged 20 to 34 years. Perinatal deaths from mothers aged 25 to 29 years have shown significant change compared with perinatal death reports during 2010 EFY. Perinatal death reports from mother in other age group has no significant change compared with the death reports in a similar fiscal year (Figure 26 and 27).

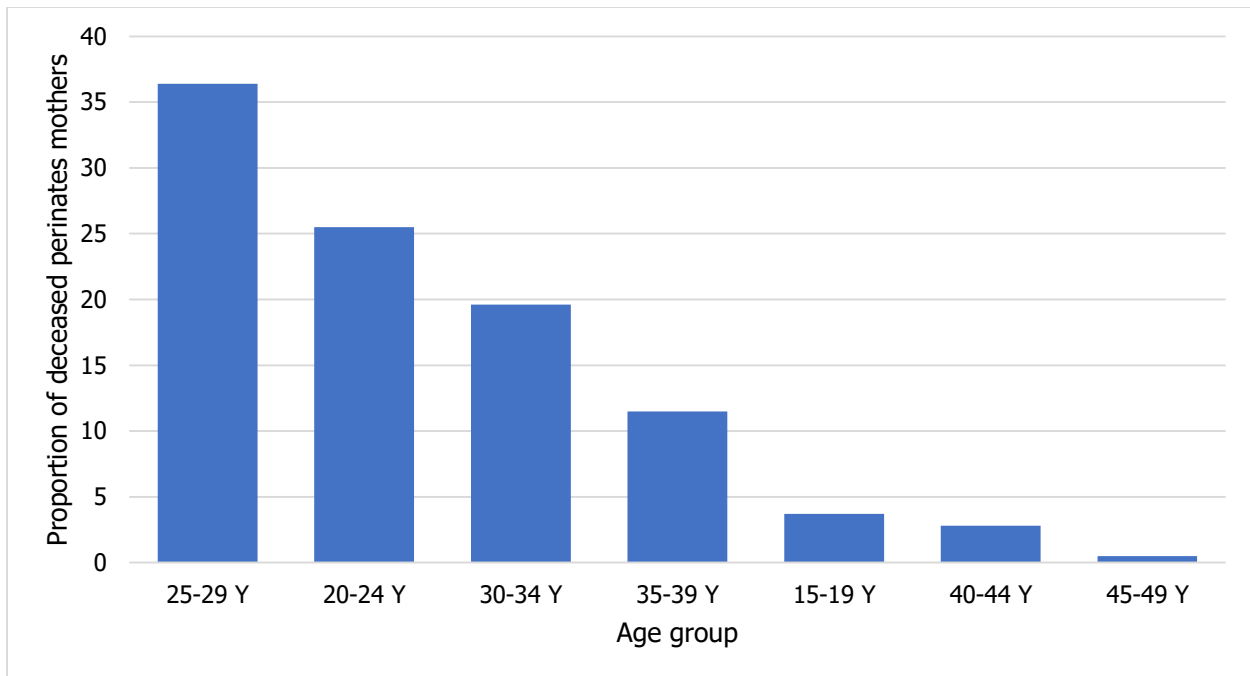


Figure 26: - Proportion of perinatal death reports by age groups of deceased perinates mother, 2013 EFY, Ethiopia

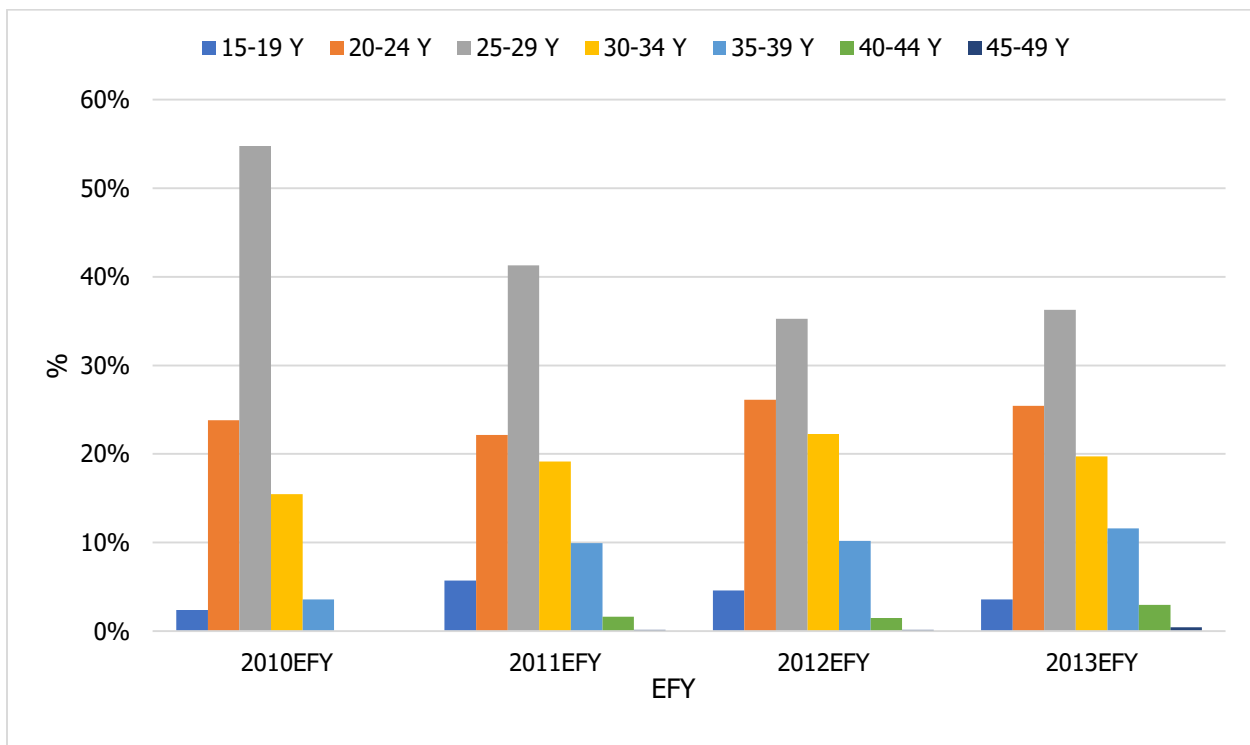


Figure 27:- Trends of perinatal death reports by age groups of deceased perinates mother and reporting period, 2013 EFY, Ethiopia

ANC follow-up

Regarding the ANC follow-up, 1378 (80.4%) mothers of the deceased perinates claimed to attend ANC follow-up at least once (Figure 28).

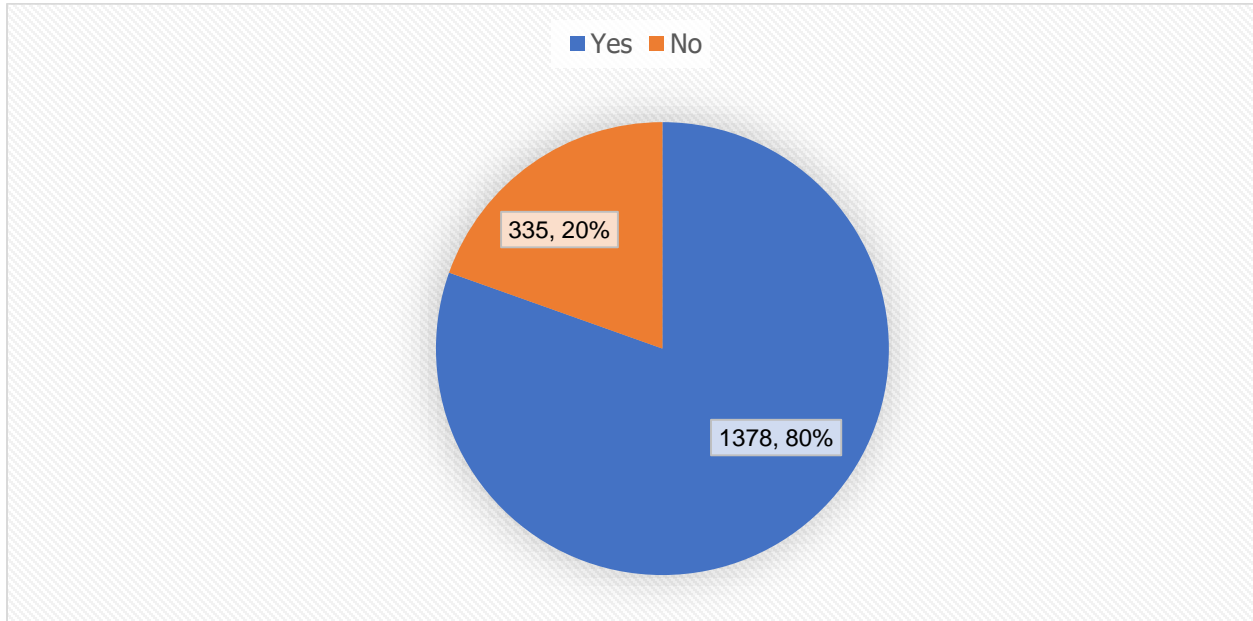


Figure 28:-Status of ANC follow up of deceased perinates mother, 2013 EFY, Ethiopia

Cause of death

Deaths due to prematurity and asphyxia continued to be the leading cause of fatalities for perinatal deaths. Of the total deaths, prematurity and asphyxia were accountable for 1143 (66.8%) deaths. Prematurity was the second cause for 609 (35.6%) (Figure 29).

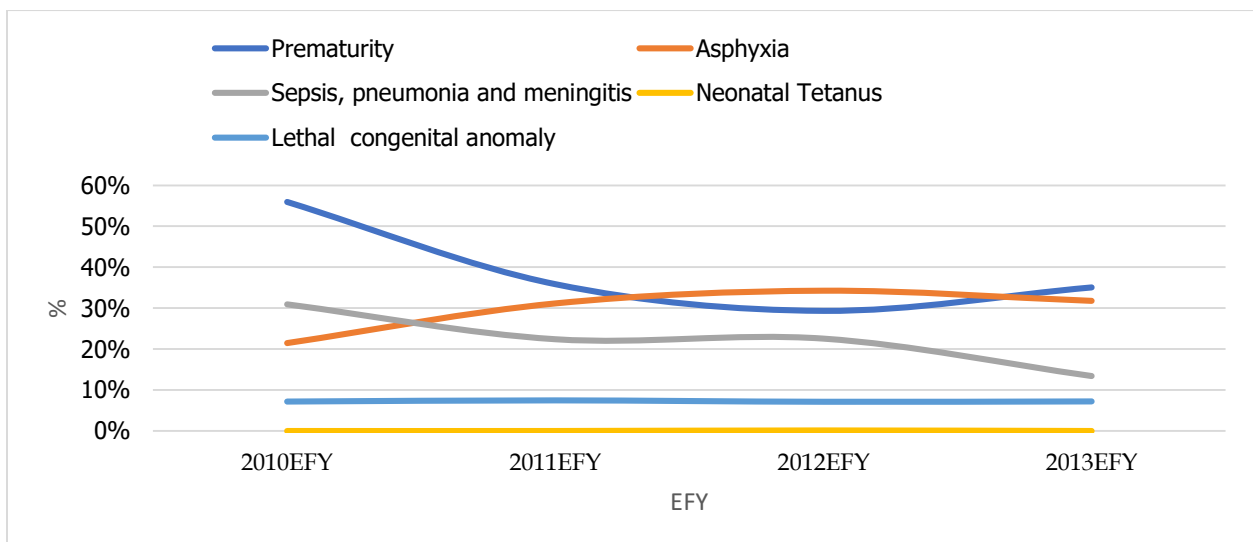


Figure 29: - Trend of causes of perinatal death during 2010-2013EFY, Ethiopia

Mothers' status of the deceased perinate

Out of the total 1713 mothers of deceased perinates, 221 (13.0%) of them reported maternal death. Out of the total, obstructed labour and APH (Placenta previa or abruption) were indicated as a cause of death for deceased mothers for a total of 19 (8.6%) and 16 (7.2%) dead mothers of perinates, respectively (Figures 30& 31).

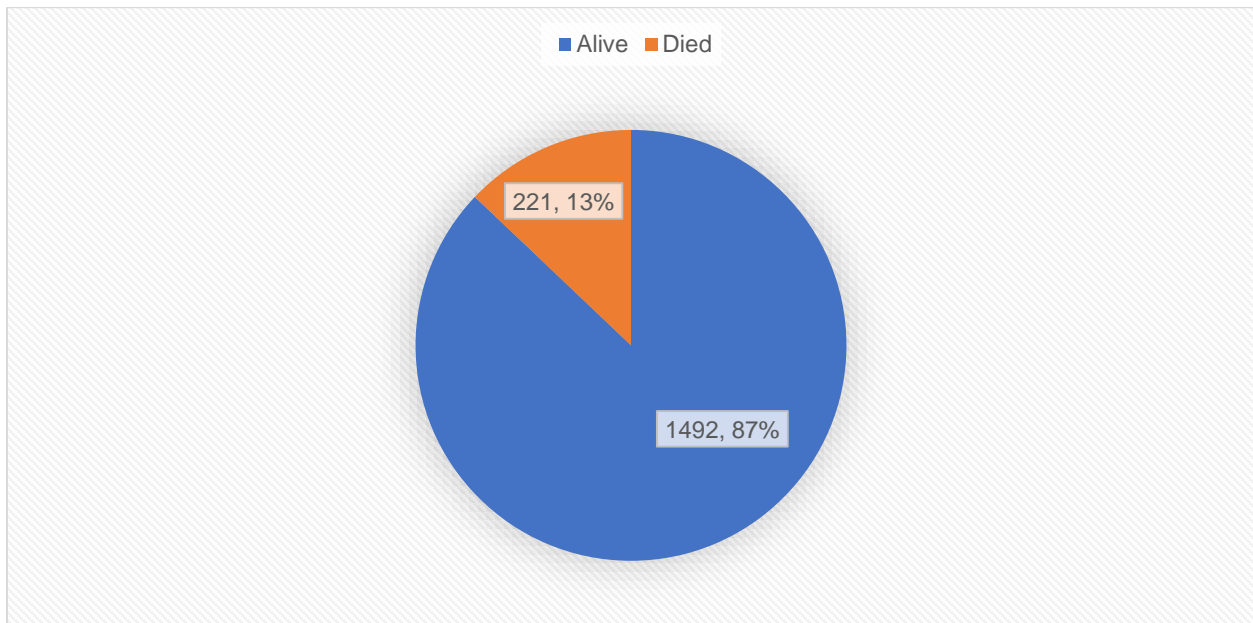


Figure 30: - Mother status of deceased perinates, 2013 EFY, Ethiopia

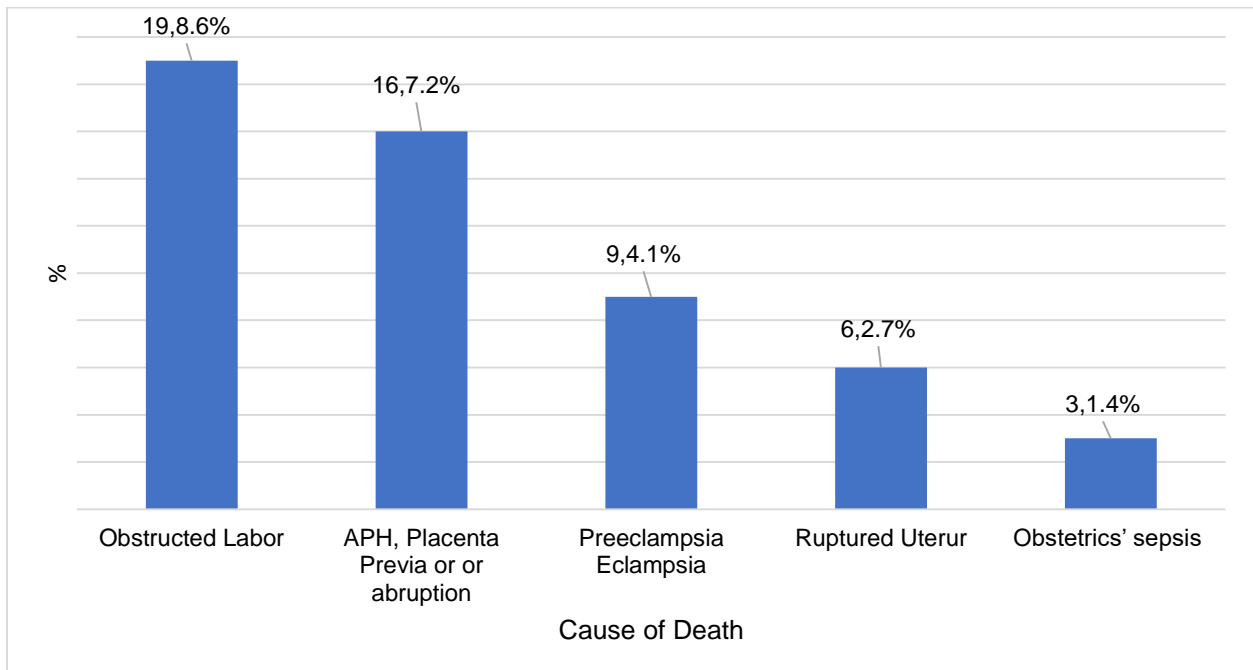


Figure 31: - Cause of death for mothers of the deceased Perinate in 2013EFY, Ethiopia(N=221)

Contributing factors for perinatal deaths

As indicated in the figure below, delay two, a delay in reaching the health facility, was a leading contributing factor for deceased perinates. Delay one, delay two, and delay three were responsible for 48%, 27%, and 25% of perinatal death, respectively (Figure 32).

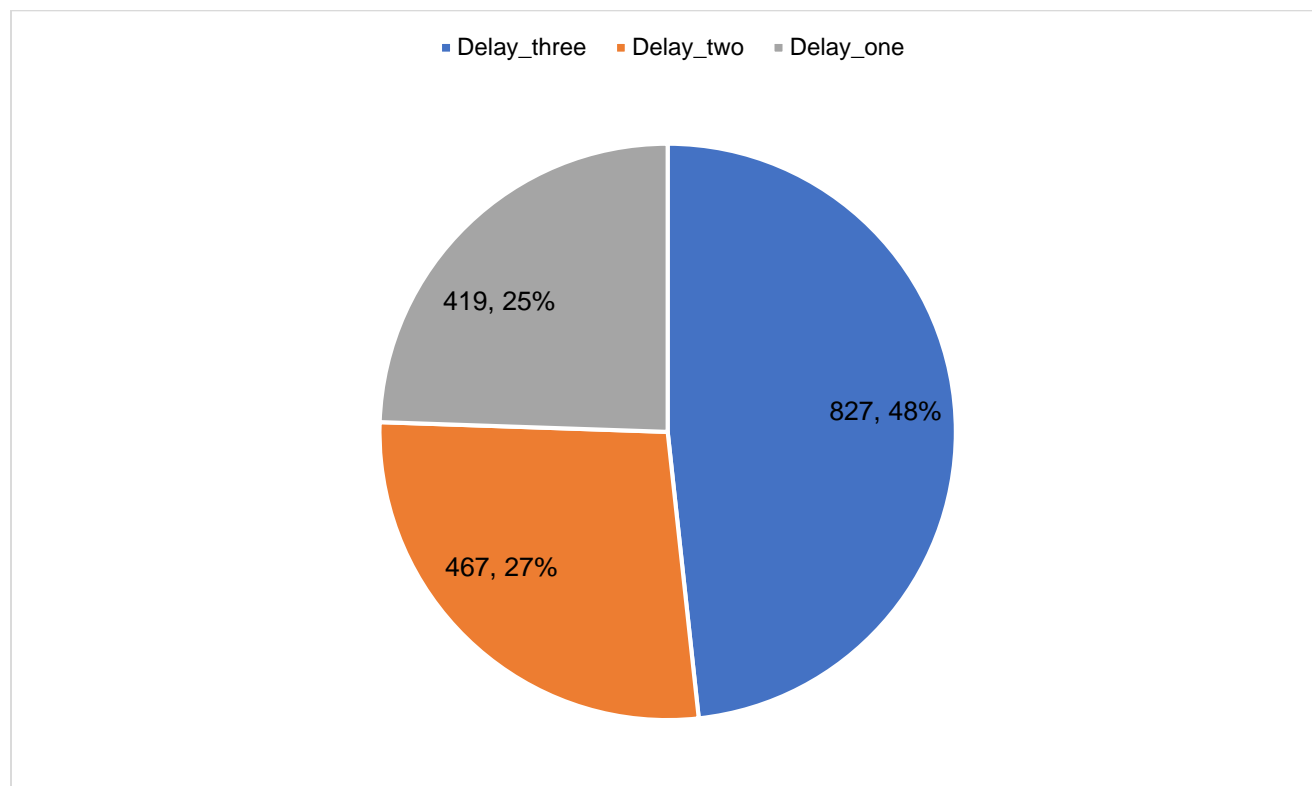


Figure 32:- Proportion of contributing factors indicated for deceased perinatal in 2013 EFY, Ethiopia n=1713

Among delay one factor, which is a delay in seeking care and contributes to 25.0% of perinatal deaths, a relatively high proportion of deaths (17.2%) were due to unawareness of warning signs and didn't recognize the danger signs of the newborn is 14.7%. Among delay two factors, which is a delay in reaching the health facility, unavailability of transportation contributes to a total of 5.0% of perinatal deaths, followed by an absence of a health facility within a reasonable distance of 3.7%.

Findings on the delay three-factor show that delay arriving in the following health facility from the referred facility contributes to 19.2% of perinatal deaths, followed by a lack of supplies or equipment for care at health facilities, which accounts for 5.8% of deaths (Figure 33).

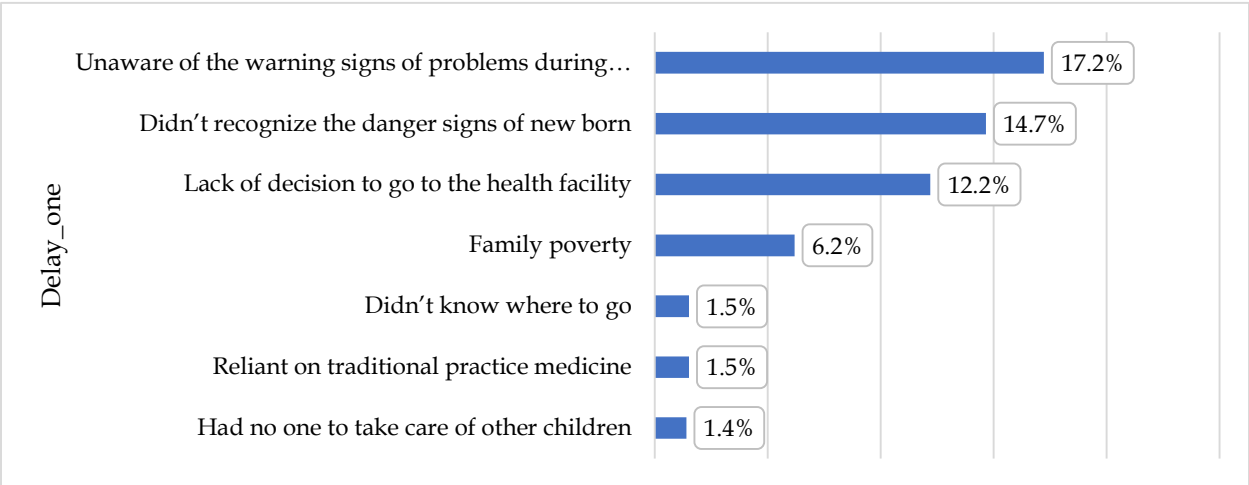
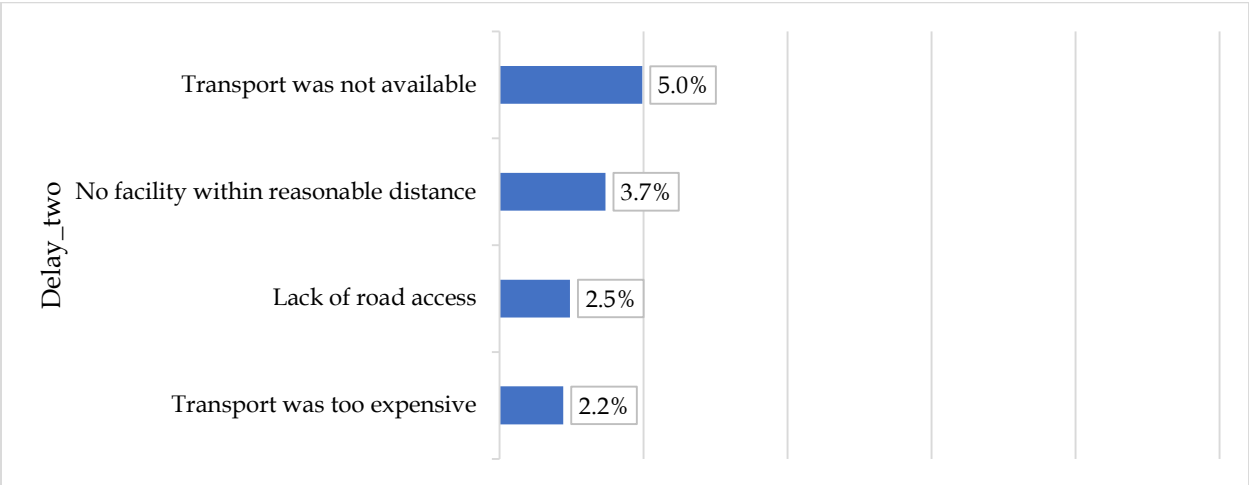
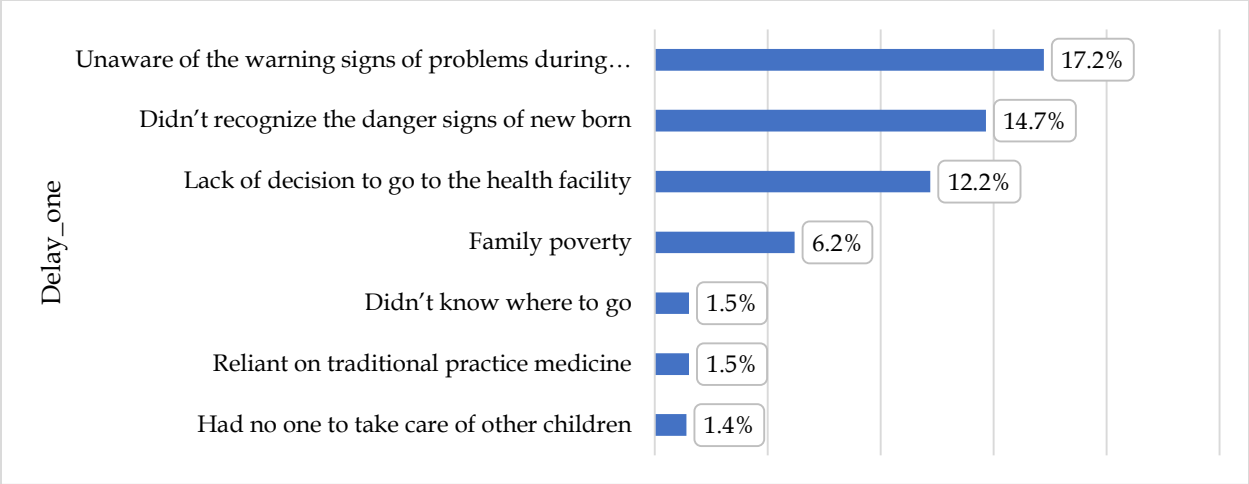


Figure 33: - Proportion of individual factors responsible for perinatal deaths under delay three in 2013 EFY, Ethiopia

Relatively decline was shown in delay two factors for perinatal deaths compared with 2010 EFY, but other delay factors remain the same (Figure 34).

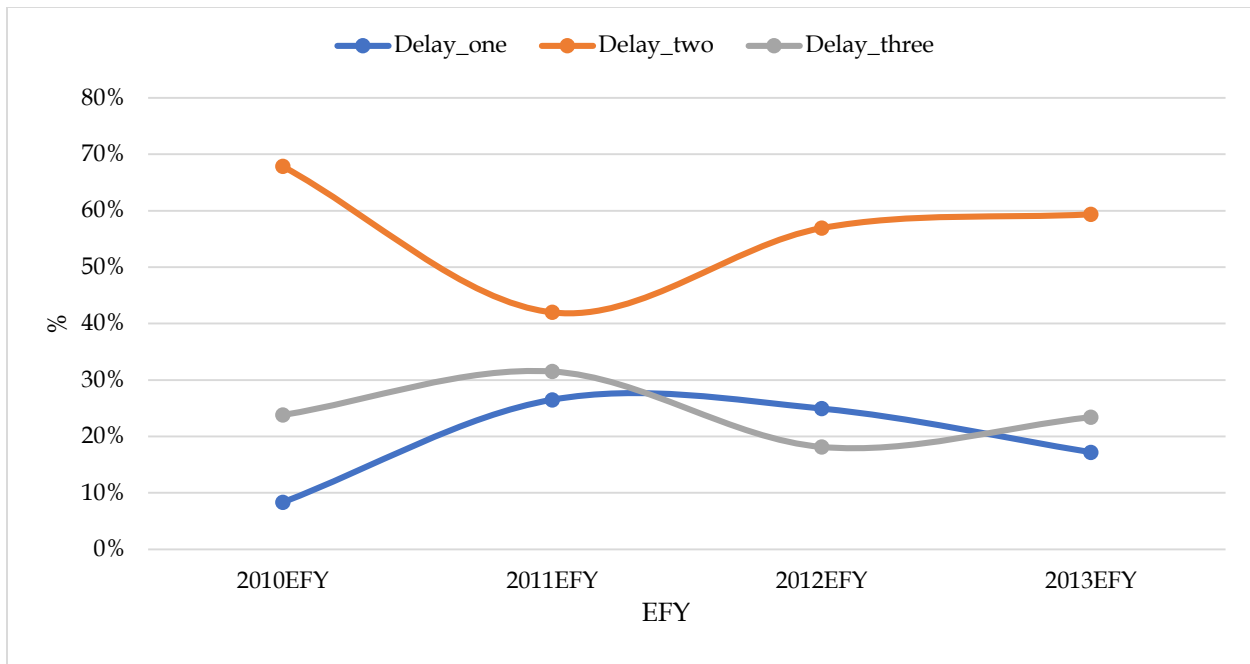


Figure 34: - Trends of delay factors for perinatal death reported from 2010-2013EFY, Ethiopia

Chapter Four: Response

Response to maternal death

The response ensures appropriate actions based on recommendations from maternal death reviews with the main aim to prevent further similar maternal deaths. The action taken depends on whether decisions are being made at the national and sub-national levels, based on the information received from data collection and analysis of surveillance data. It framed the formulation of focused and strategic prioritized recommendations for action, which can be translated into a response to prevent future deaths through addressing modifiable factors and improving the quality of care at the facility. Those responses that are likely to have a large effect and are most feasible to implement regarding the availability of financial, human, and infrastructure resources are highlighted.

Thus, this report includes implemented activities at the national, regional, district, facility, and community levels during the 2013 Ethiopian Fiscal Year and consists of a supply of essential equipment & obstetric drugs and a transport system to improve referral linkage among facilities and communities.

Response to improving Community care-seeking for maternal health:

- Conducted social mobilization and awareness creation activities to strengthen early ANC attendants, which led to increase institutional delivery and 24-hour PNC and stay.

- Safe motherhood month initiative
- Pregnant women conferences
- Other SBCC interventions
- Ensured MNCH service continuity during the COVID_19 pandemic; demand creation activities were conducted using mass media like T.V., radio, and print media
- Produce mass media campaigns through T.V., radio, and print media spots on HDP & consumption of iron rich foods during pregnancy to prevent anemia and disseminate to increase community and healthcare providers' awareness, practice, and care-seeking behaviors across different settings
- As an advocacy platform to increase Community awareness of obstetric hemorrhage, safe motherhood month is celebrated with “Preventing maternal deaths from obstetric hemorrhage.”
- Conduct press conferences to aware the public about the safe motherhood month and the theme “Preventing maternal deaths from obstetric hemorrhage.”
- A sensitization workshop has been done about the maternal health program for Transformation Woreda (Gimbichu Woreda)
- In partnership with Communities and health facilities, representatives worked to create community awareness and strengthen maternity home in-kind & financial capacity

Response to improve the capacity of health extension workers & quality of services at Health Posts:

- Regularly assigned Midwives from the health centers to their respective catchment health posts community and provide maternal and newborn health-related education, and assisted the pregnant mother conference activities
- Early identification & linkage of pregnant women from the community (health post) to the catchment health center by health extension workers
- Regular supportive supervision visits are conducted from the Primary Health Care unit to improve the quality of service being provided by catchment health post

Response to build the capacity of Health Workers

- Through the direction given by Her Excellency Dr. Liya Tadesse, a “call to action” framework was established to guide the hemorrhage response plan of all Regions. This direction shifted the mind from celebrating safe motherhood month only every January/year to working throughout the year focusing on the leading cause of maternal

deaths, that is, “hemorrhage.” Based on this direction training provided for all regions towards the implementation of framework under four thematic areas:

- To establish hemorrhage response task force in all regions,
- To reduce home delivery by 50%
- To strengthen readiness of hospitals to manage hemorrhage
- To ensure accountability at all levels
- Conducted capacity building for health care providers on comprehensive abortion care service
- Health care providers were trained on how to use and implement new technologies, including uterine balloon tamponed, tranexamic acid, and NASG, to improve the management of postpartum hemorrhage and hemorrhage management algorithms.
- To improve MNCH quality of care & obstetric emergency care training cascaded on Catchment-based mentorship program for health care providers from selected health facilities of the regions in 2013 EFY.

Response made to ensure availability of essential maternal drugs, supplies, and equipment

- Adapt innovative packages to reduce postpartum hemorrhage related deaths:
 - NASG distribution and training
 - Tranexamic acid
 - Uterine ballon-tamponade (UBT)
- Different consultative discussions held with the EPI Team about oxytocin integration with EPI cold chain system- under study
- Annual maternal health commodity quantifications, procurement, and IPLS-based drug distribution to all regions are ongoing to avail essential life-saving commodities free of charge to health facilities.
- Develop Call to action document & implement activities

Response to strengthen health facility capacity

- Enhance implementation of initiatives such as early ANC initiation and post-natal 24- hour care and stay, maternity waiting for a home, and the establishment of obstetric referral networking within & out of catchment area
- Program performance monitoring has been conducted through regular supportive supervision and program review meetings

- Capacity building on Catchment based clinical mentorship so far reached 265 hospitals & 530 health centers were mentored
- Budget Allocation for CBCM to health facilities through Regional Health Bureaus
- Mini Blood Bank expansion as per EmONC assessment finding
- Support conflict-affected areas' health facilities technically and by mobilizing resources
- Strengthen the MPDSR system & develop new initiatives such as confidentiality inquiry and expansion and strengthening maternity waiting home
- Improve CEmONC health facilities readiness through equipment for C/S, staff training, and availing blood

Strengthening referral system

- Develop an obstetric referral system platform in PHCU to strengthen the networking of health centers with their respective catchment health posts.
- 20 ambulances (12 from MOH and 8 from regions) were provided to Tigray regional state
- Decisions were made at all levels for the allocation of resources for fuel and maintenance (fuel, ambulances & maintenance) and to promote appropriate utilization

Response to ensure availability of essential surgery and safe blood

- Safe motherhood promotional campaign carries out in all regions to create awareness of blood donation, early ANC initiation, institutional delivery
- Expand blood bank service in different parts of Ethiopia and other related activities. The major activities and achievements in 2013 EFY are:
 - The number of blood banks that collect blood from voluntary blood donors has reached 43
 - The number of blood banks that perform component production has increased from 10 in 2011 EFY to 17 in 2013 EFY
- Establishing a Mini blood bank in all primary hospitals is underway with promising circumstances, crosscutting issues for institutionalizing quality culture within the health care system
- Development and launching of the National Healthcare Quality and safety strategy II (2021-2025): National Healthcare quality and safety strategy was developed to continually improve health outcomes and confidence in the system through the realization of the following five Objectives:
 - Improve evidence-based essential health care provision
 - Improve people-centered care

- Reduce harm arising from the care delivery
- Improve efficiency in the health care delivery
- Create a quality culture through continuous learning and improvement
- National quality coaching guides have been developed and introduced to enhance quality coaching skills and components at different levels of the health system
- A health facility accreditation roadmap has been drafted with the determination of putting an illustrative futuristic pathway for the health facility accreditation system in the country
- Enhance quality culture at a health facility level, and technical support has been provided to conduct a regular clinical audit, dashboard utilization, and onsite Q.I. coaching and Q.I. training
- The hospital clinical audit tool has been revised, and a clinical audit tool has been developed for health centers
- The 6th National Annual Healthcare Quality Summit was held since its establishment in 2007EC. It is one of the platforms where facilities and organizations share their experiences on quality and safety and continuous learning for a better outcome

Response to Perinatal death

Taking actions to prevent maternal & perinatal deaths is the primary objective of MPDSR. Aside from improving the quality of obstetric practices, there is a crucial need to increase demand for early ANC initiation, skilled birth attendance, prevention of newborn infections, premature deliveries, early identification of neonatal danger signs, and timely referral impact neonatal mortality. Furthermore, the importance of increasing the availability of vital life-saving drugs for neonatal case management and improving supply chain management must be emphasized. Additional elements contributing to delays, such as strengthening community knowledge and seeking care for newborn care, are also crucial.

Responses to the 'P' in MPDSR data should occur at all health system levels, including the community, health facilities, and administrative levels, i.e., woreda, zonal, regional, and national. This section will describe the national-level response to the perinatal data in 2013 EFY.

Response to expand access to community-based newborn care services in pastoralist regions:

- Financial support was provided to three pastoralist regions to expand the community-based Newborn Care (CBNC) program in 36 districts (24 in Somali, 9 in Afar, and 3 in Gambella).

- CBNC program post-training follow-up visit was provided to 103 health posts in the Somali region.
- Performance review and Clinical mentoring meeting (PRCMM) was conducted in 5 Woredas of Gambella, 6 Afar, 2 Woredas of Benishangul Gumuz, and 6 Woredas of Somali.
- Performance review and Clinical mentoring meeting (PRCMM) training were given to 20 professionals from the four pastoral regions.

Response to improve the capacity of health extension workers & quality of services at Health Posts:

- Provision of training on Integrated Community Case Management for Newborn and Childhood illness (iCMNCI) to 152 Woreda and Zone Health Office experts from newly implementing woredas.
- Orientation provided to 20 regional health bureau child health experts from pastoralist regions on the Contextualized iCMNCI implementation guide.
- Initiated the evidence generation process for implementation research on possible Serious Bacterial Infection (PSBI) in two selected woredas of Amhara & Oromia regions.
- To improve the service quality of iCMNCI, a pilot implementation of eCHIS is launched, which is inclusive of iCCM/CBNC modules in one woreda of the Oromia region.

Response to build the capacity of Health Workers

- Capacity building was provided to health care workers from selected health facilities, woreda health offices, and RHBs from all regions focusing on IMNCI, essential newborn care (ENC), and neonatal intensive care unit services (NICU) training packages. Major topics covered include knowledge and skill-based sessions on Neonatal resuscitation, kangaroo-mother-care (KMC), and sepsis management in newborns.
- Catchment-based clinical mentorship reached 265 hospitals and 530 health centers were mentored. Neonatal content is integrated into the implemented catchment-based mentorship program in all regions of selected health facilities which is expected to improve the quality of essential newborn care & the care for babies with birth asphyxia requiring resuscitation.
- NICU management protocol and Clinical reference manual for advanced neonatal care (for high-level neonatal ICUs) are under revision & development, respectively, and will be finalized in 2014 EFY.

- Orientation to 30 health science college instructors on the revised IMNCI training manuals and chart booklet to strengthen the quality of the pre-service education.
- NICU Clinical mentorship was conducted in 45 hospitals with high neonatal mortality in Amhara, Oromia, SNNPR, Sidama Afar, and Benishangul Gumuz regions.
- Gap filling training on basic NICU was provided for 233 NICU nurses.
- NICU, KMC, and L&D Clinical mentorship were conducted in 56 selected hospitals from Sidama, Amhara, Oromia, and SNNP Regions through the SLL project.
- Clinical mentorship ToT provided on NICU, KMC L& D Quality improvement for 176 Healthcare workers (48 SNNPR and Sidama, 47 Tigray, 52 Oromia, 29 Amhara regions).

Response to ensure availability of essential newborn drugs, supplies, and equipment

- Annual newborn health commodity quantifications, procurement, and IPLS-based drug distribution to all regions are ongoing to avail essential life-saving commodities free of charge at health posts & health centers. These include imperative newborn life-saving commodities such as Amoxicillin D.T., Gentamycin, Tetracycline ophthalmic ointment, Vitamin K, and Chlorhexidine Gel for umbilical cord care.

Response to strengthen health facility capacity

- At the end of 2013 EFY, 79 hospitals were equipped with Level III NICU equipment and made ready for level III NICU service & received support in the form of supportive programmatic supervision.
- A virtual quarterly meeting on the NICU mortality rate of selected hospitals was conducted to improve NICU quality service; participants included 52 hospital CEOs, 33 NICU heads, 19 MCH directors, and child health focal persons.
- Formative assessment on NICU, KMC L&D was conducted in 27 hospitals in Oromia, 18 hospitals in Sidama and SNNPR, 19 hospitals in Amhara, and 10 hospitals in Tigray regions. Based on the assessment findings, procurement was ordered for the following medical equipment: Digital weigh scale, neonate Oxygen nasal Prongs, Pulse oximeter and Oxygen concentrator and KMC wrap, gown and reclining chair & Television.
- High-level advocacy was conducted during the world prematurity day celebration, and a documentary film was developed; radio and television spot messages broadcasted to raise awareness of newborn care .

Challenges

National

- Lack of guidance on the implementation of MPDSR system in humanitarian setting
- Inadequate coordination among the relevant sectors including government and NGOs
- Poor utilization of partners per the guidance of the government
- Limited progress in the revitalization and repurposing of the RRT at the lower level
- Poor partner mapping and engagement in MPDSR activities
- Absence of routine data monitoring and evaluation to ensure the data quality

Regional

- The presence of financial constrain for supportive supervision and review meeting
- Absence of clear guidance in the review process of perinatal death
- Absence of a functional regional technical working group for MPDSR
- Lack of consistency between data sources (PHEM Vs. DHIS2) and others in the health system
- Poor referral linkage among health facilities located in a between regions
- Poor follow up and supportive supervision in the silent zone
- Inadequate follow up and support to strengthen response at community level.

Districts level

- Poor coordination between PHEM and MCH
- The absence of support and follow up to promote the facility level response

Facility level

- Lack of partner support in MPDSR implementation at facility level
- Presence of poor data management and utilization practice
- Lack of budget for investigation and review of community death
- Presence of trained staff turnover
- Low engagement of the community in identification and notification of death (maternal and perinatal)
- Review of death without notifying through the PHEM weekly reporting system
- Delay in reviewing and reporting the reviewed death
- Absence of reporting format and updated guideline of MPDSR

- Poor documentation and data handling for verification of information
- Absences of refreshment training on time
- Lack of response capture/documentation mechanism
- Fail to assign a cause of death after review

Recommendation

Maternal death

- Strengthening implementation and integration of MPDSR and PHEM structures at all levels starting from RHBs by providing training for untrained PHEM focal points
- Strengthening the existing national and subnational MPDSR TWGs
- Strengthening ownership of regional and woreda health offices PHEM unit by including MPDSR in the performance indicators of the unit
- Identification, follow up, and continuous feedback for silent zones, woreda structures, and health facilities for MPDSR by the regional health bureau and national PHEM
- Providing orientation for community leaders, one-to-five networks, HDA, HEWs, Political leaders, and health professionals working in different departments of the health institution about when and how to notify maternal death
- Strengthen the engagement of all relevant stakeholders for the response, including Partner mapping and resource mobilization
- Revitalizing the national and regional MPDSR TWG
- Improve maternal health commodity overall budget allocation for maternal health programs
- Finalize reimbursement protocols to initiate reimbursement of maternal health commodities
- Planning and close monitoring of procurement to establish a mini blood bank in 77 hospitals
- Institutionalize a uniform mentorship payment system
- Improve ambulance management, secure budget for maintenance & buy additional ambulances
- Address maternal health service in a humanitarian setting
- Support implementation of Reproductive Health strategic plan, national obstetric fistula elimination strategy, Obstetric protocols, and ANC and Catchment Based Clinical Mentorship guideline

- Ensuring response to all maternal deaths tracked through MPDSR at all health management levels.
- Lay ground to Confidential Enquire (C.E.) system to strengthen response and guide on policy direction.
- Establish and strengthen interregional forms to facilitate response.
- Strengthen linkage between public-private partnerships.

Perinatal death

- Work on Partner mapping, Data quality, operationalizing delay factors, and preparing customized ICD-10 protocol for causes of maternal and perinatal death
- Develop national guide to review perinatal death at facility and community level
- Mobilize resources to fully roll out CBNC in all pastoralist regions and cascade the revised iCMNCI training.
- Make quality KMC service the theme for the annual world prematurity day to emphasize providing good information to mothers and families.
- RHBs should monitor woreda health offices on the performance of the 'P' in MPDSR/QI projects and provide support as required.
- Continuous mentorship support hospitals in improving quality audit or self-assessments on the clinical management of birth asphyxia, sepsis, and premature birth and implementing quality improvement projects on the identified gaps.
- Making neonatal mortality a national priority and developing a neonatal health-driven national newborn and child survival strategy for 2020/21-2025.
- Continue the quarterly dashboard-based NICU death mortality status of 80 hospitals & share the DHIS-2 data findings with NICU staff, hospital leadership, and RHB experts.
- Continue the technical support for the roll-out of neonatal content of the IRT for HEWs.
- Increase the number of health centers with newborn care corners (NBC) via improving access to radiant warmers & resuscitation kits at labor & delivery (L&D) units.
- Capacity building training to staff at NICUs to improve appropriate clinical application and use of newly installed advanced NICU equipment.
- Improve the quality of care at NICUs, strengthening & expanding the catchment-based clinical mentorship program to new health facilities.
- Continue the roll-out of the saving-little lives (SLL) mentorship focused initiative targeting 298 hospitals in five regions (Amhara, Oromia, Sidama, SNNP, and Tigray) through the

L&D, NICU, KMC, and quality improvement (Q.I.) packages that aim to improve the quality of service and increase neonatal survival both at L & D and NICUs.