

Trends and Causes of Perinatal Death in Ethiopia, 2010-14

Background: Perinatal deaths are a combination of foetuses that are born dead (stillbirths), pregnancy that lasts for at least 28 weeks of gestation but showed no evidence of life after complete birth and babies that die in the first week after birth (early neonatal deaths)¹. Recent evidence indicates that globally, deaths during the perinatal phase are responsible for almost 40 percent of all infant deaths². A systematic review of sixteen hospital and community based studies between 1974 and 2013 in Ethiopia estimated perinatal mortality rate that ranged from 66 to 124 per 1000 births³. In order to monitor and evaluate progress towards achieving national goals of reducing infant and child mortality and improving maternal health, information on the patterns and causes of perinatal mortality is required. However, information on perinatal mortality in Ethiopia was lacking to show trends and causes of death at the community level. Therefore, the objective of this analysis was to determine the magnitude and causes of perinatal deaths in Ethiopia at community level overtime.

Methods: The Health and Demographic Surveillance System in six networked Ethiopian Universities Research Centers has been registering vital events (births, deaths, marital changes, in and out migrations) in different part of the country. The research centers follow an open dynamic cohort of geographically defined population and update the population every 3 to 6 months regularly with standardized procedures and tools. The mortality surveillance was undergoing in each research center where causes of deaths were assigned by two independent physician reviewers and a third physician was used when the first two disagree. Underlying causes of death were determined based on verbal autopsy coding together with WHO ICD 10 classifications. The analysis used causes of death data for stillbirths and newborn in the first one week from the verbal autopsy and births from the population update databases.

Results: Total of 1,336 perinatal deaths (33.6%) stillbirths and (66.4%) early neonatal deaths were registered out of 48,994 births. More than 75% of the deaths occurred outside of health institutions. The average perinatal mortality rate during the five years was calculated to be 27.3 per 1000 births that ranged between 25.5 per 1000 in 2014 and 29.5 per 1000 births in 2010 that equalled 13.6% declining rate. Stillbirth rates resulted an increasing trend by 28.7% between 2010 and 2014 though it started declining during the last one year, 2014. The early neonatal mortality rate was 18.3 per 1000 live births that consistently declined between 2010 and 2014 with an average declining rate of 27.5% (Fig. 1).

Stillbirths on average contributed 33.6% of all perinatal deaths. On the other hand, among early neonates, about 84% of the deaths were due to birth asphyxia, neonatal sepsis and prematurity. In general, cause specific death rate due to asphyxia, sepsis and prematurity showed a declining pattern except prematurity related deaths that showed increasing in 2013 and 2014. Between 2010 and 2014 deaths due to birth asphyxia declined by 22.3%, neonatal sepsis by 38.6% and prematurity by 11.2% (Fig. 2).

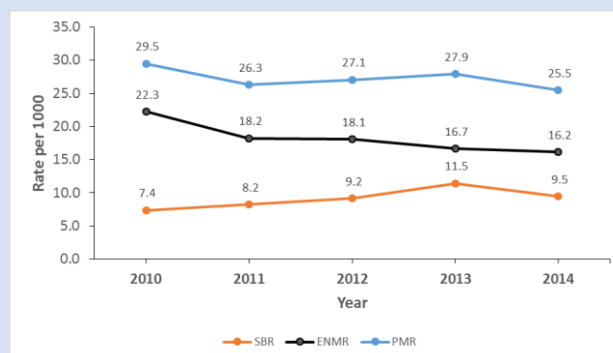


Fig. 1: Stillbirth, Early Neonatal and Perinatal Mortality Rates by Year, 2010-14

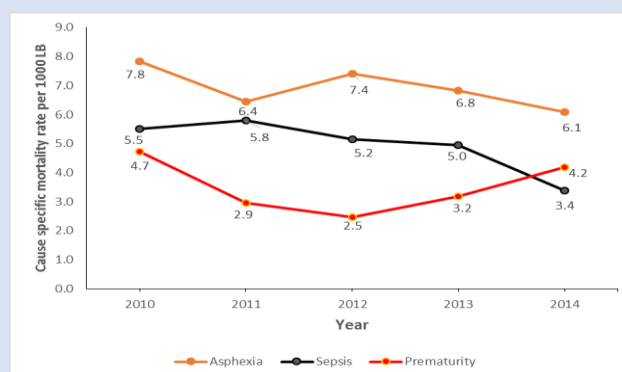


Fig. 2: Cause-specific Mortality Rates among Early Neonates by Year, 2010-14

Among early neonatal deaths, the first 24 hours remained the critical time for the survival of the newborn that contributed about 61% of the deaths and reached its pick at 64.9% in 2012 and lowest (56.9%) in 2011. About 26% of early neonatal deaths occurred during the first 2-4 and about 13% between 5-7 days of life. No change in the distribution of time of neonatal deaths observed throughout the surveillance period (Fig. 3).

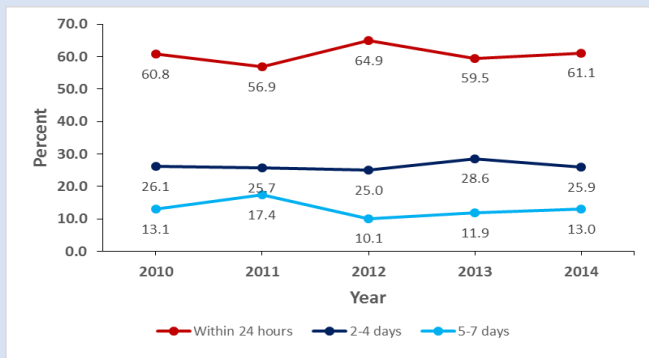


Fig. 3: Time of Early Neonates Death by Year, 2010-14

Conclusion: The rate of perinatal mortality rate in the surveillance sites over the study period remained high. Stillbirth rate didn't show much change over the reporting period rather it showed an increasing trend though there existed some decline in the last three years of observation. Birth asphyxia, neonatal sepsis and prematurity were the most important causes of death during the first seven days of life after birth. For neonates the first 24 hours of life after birth were found to be the most critical time of survival and no change observed during the five years period.

Recommendations

1. The identified causes of early neonatal deaths are preventable and concerted efforts should be exerted so that pregnant mothers attend antenatal care for early detection and preventive measure can be taken by health professional
2. Maternal nutrition and health promotion specially during pregnancy should be addressed by involving families, community and health care providers as well as policy makers
3. Mother should be encouraged and necessary information should be provided so that they deliver in health institutions to minimize and avoid deaths of newborns due to birth asphyxia and sepsis

4. More data analysis and research is also important to get local information to advance evidence based decision making at all levels.

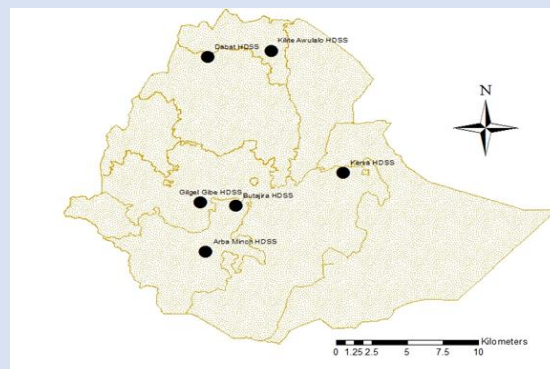
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2. Ezechi, O. C. and David, A. N. (2012). Overview of global perinatal mortality, Perinatal mortality, Dr. Oliver Ezechi (Ed.), ISBN: 978-953-51-0659-3, Croatia: In Tech Europe
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Vision of the Ethiopian Universities Research Centers Network: To see evidence based decision making practices in health and development sectors in Ethiopia

Research Centers Profile and Location as of 2015

Name of site	Year established	Population	Active # of households	# of kebeles
Butajira	1987	77,583	17,313	10
Dabat	1996	68,471	16,693	13
Gilgel Gibe	2005	63,234	12,748	11
Kersa	2007	129,532	25,926	24
Kilte Awlaelo	2009	63,503	13,835	10
Arba Minch	2009	72,581	14,322	9
Total		474,904	100,837	77



Location of the Research Centers, Members of the INDEPTH Network

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