

## Trends and Causes of Neonatal Death in Ethiopian, 2010-14

**Background:** Neonatal deaths accounted for 40% of under-five mortality<sup>1</sup>. Evidence from 193 countries in 2012 estimated the global and Sub-Saharan neonatal mortality rate to be 21 and 32 per 1000 live births, respectively<sup>2</sup>. The 2011 Ethiopian Health and Demographic Survey estimated the neonatal mortality rate to be 37 deaths per 1,000 live births<sup>3</sup>. Neonatal mortality rate was high with little or no sign of reduction during the MDG period and continues to be the focus during Sustainable Development Goals (SDG) period. Hence, having community level data on the magnitude and causes of neonatal deaths is an important step to develop appropriate strategies and to reduce unacceptably high death rates. Therefore, the objective of this analysis was to describe trends and causes of neonatal deaths in Ethiopian Universities Research Centers.

**Methods:** The Health and Demographic Surveillance System (HDSS) 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 deaths of neonates in the first four weeks of life from the verbal autopsy and live births from the population update databases.

**Results:** During the period from 2010 to 2014, a total of 1,205 neonatal deaths and 48,545 live births were recorded that gave a neonatal mortality rate of 24.8 per 1000 live births with net reduction of 20.7% in five years (Fig 1). Of the neonatal deaths, 78% occurred at home and only 19.0% at health facilities (Hospital & Health Center).

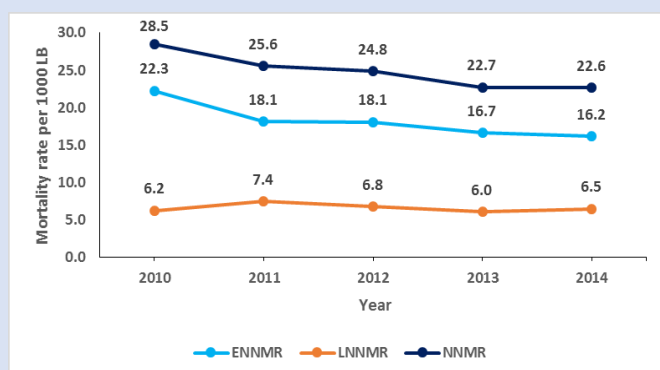


Fig. 1. Patterns of neonatal mortality rates, Ethiopian Universities Research Centers, 2010-14

ENNMR - Early Neonatal Mortality Rate, LNNMR - Late Neonatal Mortality Rate and NNMR - Neonatal Mortality Rate

Of the identified causes, bacterial sepsis of the newborn (36.7%), birth asphyxia and perinatal respiratory disorder (28.5%) and prematurity including respiratory distress (16.3%) were the leading causes of neonatal deaths. As shown in Fig.2, though bacterial sepsis and asphyxia related deaths showed a declining pattern over the five years, prematurity related deaths showed an increasing trend after 2012.

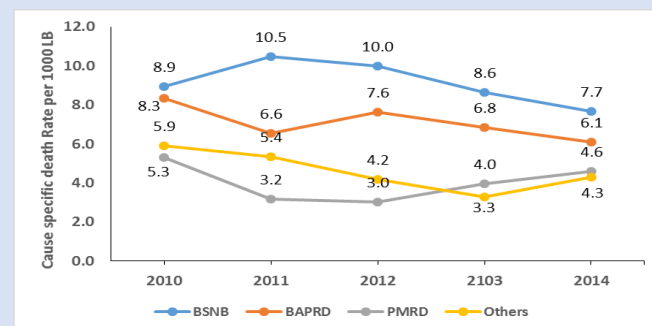


Fig. 2. Patterns of neonatal mortality rates, Ethiopian Universities Research Centers, 2010-14

BSNB – Bacterial Sepsis of Newborn, BAPRD – Birth Asphyxia and Perinatal Respiratory Disorder and PMRD – Prematurity and Respiratory Distress

## Conclusion

The neonatal mortality rate over the five years period was 27.6 per 1000 live births with average reduction rate of 20.7%. Only 19.0% of the neonatal deaths occurred in health facilities. Bacterial sepsis of the newborn, birth asphyxia and perinatal respiratory disorder and prematurity including respiratory distress were the leading causes of death.

## Recommendations

1. As the identified causes of neonatal deaths are preventable, improving maternal and newborn health services, early detection and follow-up of mothers during pregnancy will help in reducing the burden of neonatal deaths due to prematurity. In this regard, intensifying antenatal and prenatal health care services will play the major role.
2. Promoting health institution delivery at all levels including health extension workers, health development army, etc. will improve survival during the neonatal period by reducing deaths related to sepsis and asphyxia.

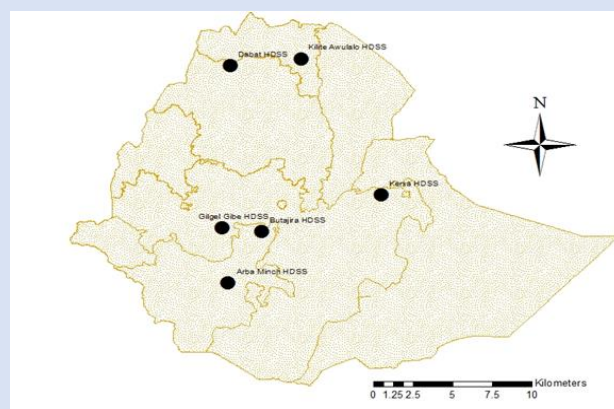
## References:

1. Liu L et al. 2012. Health Policy Plan. Lancet: 79(9832): 2151-61
2. UNICEF, WHO, World Bank, UNFPA, 2012, levels and trends in child mortality report, New York, UNICEF.
3. Central Statistical Agency, 2011. Ethiopian Health and Demographic Survey. ICF International Calverton, Maryland, USA.

**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 Awlalelo	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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