

Reliable cause-of-death data for better child health practice in Ethiopia



Reliable cause-of-mortality data are essential to inform newborn and child survival strategies in Ethiopia, where evidence to understand the causes of death in children is scarce.¹ To address this scarcity of data, the Child Health and Mortality Prevention Surveillance (CHAMPS) network is assessing specific causes of death for stillbirths, infants, and children by combining minimally invasive tissue sampling (MITS), clinical information, and information from caregivers as part of verbal autopsy.² This surveillance network, with a new site located in eastern Ethiopia, has provided detailed information on the chain of events leading up to stillbirth and deaths among young children, as reported by Lola Madrid and colleagues in *The Lancet Global Health*.³ The CHAMPS method is more advanced than a verbal autopsy alone, which is a widely applied cause of death identification process in Ethiopia.⁴ Studies have already recognised the limitations of verbal autopsy, including recall bias and a lack of specificity in regards to causes of death reports. Using verbal autopsy to identify causes of stillbirth and deaths in newborns has been a major challenge.^{4,5}

Meanwhile, the CHAMPS network has created a data system that combines health facilities data with population based surveillance systems.⁶ This is an important undertaking that shows the possibility of integrating digital health management information systems with population-based surveillance systems (also known as health and demographic surveillance systems [HDSS]) to generate reliable data for better child health practices.⁶

With the CHAMPS approach, by integrating health management information systems with HDSS, data from more than 1 million people in Ethiopia could potentially be captured under continuous surveillance in the existing 13 HDSS catchment areas across the country. This is also important to expedite the development of the civil registration and vital statistics system in Ethiopia. However, Madrid and colleagues' analysis of CHAMPS data from Kersa, Haramaya, and Harar in Ethiopia shows that details of the causes of stillbirths and deaths in young children might not be complete for home deaths.³ Home deaths account

for more than 70% of the total deaths among children younger than 5 years, which might be partly explained by low rates of attendance by trained midwives or clinicians and other services at these locations.⁷ The analysis in Ethiopia has shown that a majority of deaths happened at home; however, in Madrid and colleagues' study, 90% of the deaths occurred in hospital.³ In this sense, it is challenging to consider the study as population-based and to claim representativeness of the findings. This analysis also reviewed only 193 (14%) of the 1369 deaths captured by the HDSS during the study period. The authors stated that the limitations of their study include the problems with capturing community deaths because of information delay and a lack of willingness by community members to participate in the process. Efforts to improve this should include using mobile phones for data collection, conducting MITS procedures at health posts closer to the community, and improving community participation to address sociocultural barriers to death notification. The findings of this study³ indicate the importance of fully engaging health posts in CHAMPS and MITS procedures and of health extension workers to report home deaths. In addition, researchers could further investigate the feasibility of using this method in hard-to-reach communities.

Nevertheless, the results of this surveillance³ have highlighted four major causes of death in children younger than 5 years: perinatal asphyxia or hypoxia, infections, birth defects, and malnutrition. Based on these findings, the recommendations to (1) strengthen antenatal care and maternal services; (2) strengthen strategies to reduce neural tube defects through folate fortification; (3) strengthen vaccine delivery and uptake; (4) implement infection prevention and control programmes; and (5) improve management of malnutrition in health facilities, are important to improve newborn and child survival and attain Sustainable Development Goal targets.

The results of this study³ combined with findings from the CHAMPS network in sub-Saharan Africa and southeast Asia, also in *The Lancet Global Health*,⁸ have shown that neural tube defects are a common cause of

See [Articles](#) pages e1032 and e1041

death among stillbirths, infants, and young children, and that these data could support designing neural tube defect prevention strategies, such as periconceptual folate supplementation and food fortification for Ethiopia. The studies by Madrid and colleagues^{3,8} have also highlighted the importance of initiating research programmes to understand the epidemiology of neural tube defects. These data are important for national and subnational burden of disease estimations for children younger than 5 years.

We declare no competing interests.

Copyright © 2023 The Author(s). Published by Elsevier Ltd. This is an Open Access article under to CC BY 4.0 license.

**Awoke Misganaw, Asnake Worku*
awoket@uw.edu

Institute for Health Metrics and Evaluation, University of Washington, Seattle, WA, USA (AM); National Data Management and Analytics Center, Ethiopian Public Health Institute, Addis Ababa, Ethiopia (AM, AW)

- 1 Misganaw A, Naghavi M, Walker A, et al. Progress in health among regions of Ethiopia, 1990–2019: a subnational country analysis for the Global Burden of Disease Study 2019. *Lancet* 2022; **399**: 1322–35.
- 2 Breiman RF, Blau DM, Mutevedzi P, et al. Postmortem investigations and identification of multiple causes of child deaths: an analysis of findings from the Child Health and Mortality Prevention Surveillance (CHAMPS) network. *PLoS Med* 2021; **18**: e1003814.
- 3 Madrid L, Alemu A, Seale AC, et al. Causes of stillbirth and death among children younger than 5 years in eastern Hararghe, Ethiopia: a population-based post-mortem study. *Lancet Glob Health* 2023; **11**: e1032–40.
- 4 Assefa N, Lakew Y, Belay B, et al. Neonatal mortality and causes of death in Kersa Health and Demographic Surveillance System (Kersa HDSS), Ethiopia, 2008–2013. *Matern Health Neonatol Perinatol* 2016; **2**: 7.
- 5 Fligner CL, Murray J, Roberts DJ. Synergism of verbal autopsy and diagnostic pathology autopsy for improved accuracy of mortality data. *Popul Health Metr* 2011; **9**: 25.
- 6 Cunningham SA, Shaikh NI, Nhacolo A, et al. Health and demographic surveillance systems within the Child Health and Mortality Prevention Surveillance network. *Clin Infect Dis* 2019; **69** (suppl 4): S274–79.
- 7 Anteneh A, Araya T, Misganaw A. Factors associated with place of death in Addis Ababa, Ethiopia. *BMC Palliat Care* 2013; **12**: 14.
- 8 Madrid L, Vyas KJ, Kancherla V, et al. Neural tube defects as a cause of death among stillbirths, infants, and children younger than 5 years in sub-Saharan Africa and southeast Asia: an analysis of the CHAMPS network. *Lancet Glob Health* 2023; **11**: e1041–52.