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# Bridging Gaps in Under-Five Child Health

**- A Comprehensive Assessment of their Social Determinants  
and the Health System Performance in Tigray, Ethiopia**

Atakelti Abraha Derbew

## **Akademisk avhandling**

som med vederbörligt tillstånd av Rektor vid Umeå universitet för  
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Avhandlingen kommer att försvaras på engelska.

För att delta digitalt via Zoom:

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Opponent: Professor Yemane Berhane

Addis Continental Institute of Public Health, Addis Ababa, Ethiopia.

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Atakelti Abraha Derbew

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## Abstract

**Background:** Achieving the Sustainable Development targets related to child health necessitates a deep understanding of the multifaceted factors influencing their health.

**Aim:** To comprehensively examine the social determinants of the access to, and quality of, child health services, and the performance of the health system in the region of Tigray.

**Methods:** The study was conducted in six randomly selected rural districts of Tigray. The study employed focus group discussions and interviews (sub-study I), a retrospective case-control study (sub-study-II), a capture recapture method (sub-study III), and a two-stage mortality survey (sub-study IV).

**Results:** Sub-study I: underscored a good knowledge on the causes and management of common childhood morbidity, and that the health posts were conveniently located and provided trusted services. However, several barriers to using health services were identified. These included cultural beliefs, seasonal mobility, economic constraints, limited decision-making power for women, and accessibility challenges.

Sub-study II: Revealed that only 76% of eligible children born to HIV-positive mothers were tested, with 17% testing positive for HIV, and only 29% of them linked to anti-retroviral treatment.

Sub-study III showed that the concordance correlation coefficient between the Family Folder data and the household survey for the total population, reproductive age women, and under-five year child population were all above 0.73, while they were close to zero for other child health parameters. Tracing and recording neonatal deaths, and the aggregation of data at various levels were the major operational challenges.

Sub-study IV identified infectious diseases (52.9%), neonatal causes (35.6%), nutritional disorders (6.6%) and external causes (4.3%) as the major causes of child death. The cause for 76 (16.2%) children was indeterminate. Tracing neonatal deaths and logistical challenges, especially in remote areas were the major operational issues of conducting the mortality survey.

**Conclusion:** In spite of the improvements in health literacy, access to cost-free reproductive, maternal, neonatal and child health services and improved utilization, various interrelated social determinants, including cultural beliefs, financial barriers and health system-related factors continue to hinder the optimal utilization of essential child health services. Moreover, the health system's performance in the prevention of mother-to-child transmission of HIV and its effect in reducing mortality among exposed children is generally poor. Policymakers in the region should focus on tackling those social determinants, including the health system, to improve children's health. The community health information system showed promising potential. However, the operational issue of capturing neonatal deaths adequately and the process by which community data can be aggregated upwards through the health system has to be improved. The study underscored the viability of implementing a cause-specific mortality survey using health extension workers, and the need to standardize data collection tools and logistics before implementation on a larger scale.

**Key words:** Under-five children, family folder, community, health information, verbal autopsy, health extension program, health system, Tigray, Ethiopia

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