Neonatal and maternal mortality: An ongoing challenge

The number of babies who die annually in the first 28 days of life—also known as the neonatal period—has been a serious health challenge for decades. In the 1990s, approximately 5 million neonatal babies died each year in the first month of life. Over the past three decades, investments in health care infrastructure and improvement in practices have reduced these numbers. However, according to pre-COVID-19 2020 estimates, approximately 2.4 million babies still die each year in the neonatal period—most from easily preventable or manageable conditions. Most of these deaths occur in low- and middle-income countries. A baby born in sub-Saharan Africa has a tenfold higher chance of dying than one born in a high-income country.

Maternal mortality is as challenging as neonatal mortality. Each year, 295,000 mothers die around the world, with maternal mortality being the health indicator with the greatest disparity between high-income and low- and low-middle income countries.

Neonatal mortality in Ghana mirrors the global picture (Figure 1). More than 20,000 babies die in the first month of life annually, which is more than half of all deaths in children under five years of age in Ghana. There is significant regional disparity in these deaths. For example, in the Greater Accra Region encompassing the capital of the country, for every 1,000 live births, 19 neonates die. In contrast, in the more rural Central Region, for every 1,000 live births, 31 neonatal babies die.

In addition, 2,700 women die in Ghana each year of causes related to pregnancy and childbirth—a statistic that has remained nearly unchanged over the last two decades. These are, for the most part, preventable deaths, with causes rooted in gaps in access to health care services or inappropriate care for the management of pregnancy and childbirth.

Preventable infections

Globally, infections cause 10 to 20 percent of the 295,000 maternal deaths and over a third of the 2.4 million newborn deaths each year—rates that hold true for Ghana as well. Any initiative to accelerate reduction in maternal or neonatal mortality must include effective prevention, screening, and treatment of infections in mothers and their babies. An effective strategy against infections includes screening and treating dangerous infections during pregnancy—known as the antenatal period. In many countries, including Ghana, antenatal screening and treatment for important infections that affect the mother and/or baby throughout pregnancy is often unavailable, late, inconsistently or incorrectly administered, and poorly resourced.

Multiple studies have found strong associations between infections in pregnancy and poor maternal and neonatal outcomes. These include spontaneous termination of pregnancy, premature labor, stillbirth, preterm birth, low birth weight, and neonatal and perinatal mortality and morbidities. For example, neonates born to mothers who had antenatal urinary tract infections (UTIs) were 3.5 times more likely to develop neonatal sepsis. Additionally, certain sexually transmitted infections (STIs)—in particular, HIV and syphilis—are associated with transmission of...
In Ghana, a significant proportion of neonatal mortality is attributable to infections or complications of low birth weight and preterm births. These are conditions with causes often rooted in pregnancy or its management.

According to Ghana’s National Reproductive Health Policy and Standards, disease screening is an integral part of antenatal care (ANC). However, even as Ghana has prioritized prevention of mother-to-child transmission of infections including but not limited to HIV, evidence to date indicates that screening for infections apart from HIV (e.g., syphilis, hepatitis B, and even UTIs) often remains suboptimal. This is particularly the case at peripheral levels of the health system, even as one in six pregnant women is seropositive for infections including hepatitis B and group B Streptococcus.

Ghana Health Service and PATH: An enduring partnership

Over the past two decades, the Ghana Health Service (GHS) and PATH and have built a strong partnership to improve maternal and newborn health. PATH has worked with GHS to implement various successful projects in Ghana, resulting in policy, program, and research advancements that ultimately improve the health outcomes of Ghanaian mothers and their babies. Examples of successful joint projects include the Making Every Baby Count Initiative I, Prevention of Postpartum Hemorrhage Initiative, Oxytocin Initiative, and work under the United Nations Commission on Life-Saving Commodities for Women and Children.

Integrated Antenatal Care project overview

Since November 2022, GHS and PATH have been working to improve diagnosis and management of maternal infections during the antenatal period. The project is achieving this through an integrated technology-intervention bundle in a comprehensive maternal and newborn infection prevention and management approach.

Over a 24-month period, the team is integrating screening and treatment for infectious diseases including hepatitis B, UTIs, group B Streptococcus, and STIs (e.g., chlamydia, gonorrhea, and syphilis) into routine ANC in five districts of Ghana’s Bono East Region (Figure 2). Working mainly at the primary health care level in nearly 70 facilities, the team is addressing multiple needs: expanding the capacities of community-based and first-level health care providers in diagnosis and management of maternal infections, improving the availability of services through ANC, and strengthening connections between primary and referral facilities.

Interventions include point-of-care and laboratory diagnostics for infections, streamlined linkages and referral systems between primary and regional facilities, and social and behavior change communication activities with health care providers, patients, and communities.

Figure 1. Leading causes of neonatal deaths in Ghana. Source: Healthy Newborn Network. Ghana. Accessed January 24, 2024. www.healthynewbornnetwork.org/country/ghan

Figure 2. A map depicting the five districts in which the Integrated Antenatal Care project is being implemented in Ghana’s Bono East Region.
Key project activities

GHS and PATH are collaborating on the following activities through the Integrated ANC project:

- Leading regional trainings to upgrade provider skills around infection screening and management as part of ANC. Trainings are augmented by on-the-job supportive supervision to build and maintain provider capacity and confidence in infection prevention and management.
- Expanding availability of diagnostics, screening facilities, and therapeutics at first- and second-level care facilities to optimize maternal and neonatal infection prevention and control at the primary health care level.
- Strengthening linkages between primary care facilities and district and regional hospitals to improve patient management and referral systems.
- Conducting social and behavior change activities to engage communities and increase demand for services by improving knowledge of maternal infections, risks to new borns, and prevention strategies.
- Mobilizing human and financial resources through advocacy activities.
- Developing a data management smartphone application to streamline screening management and referral of ANC clients via improved access to data.

Several elements have contributed to the project’s success to date. Strong regional, district, and facility leadership and commitment has enabled rapid ramp-up and ownership of project activities. ANC providers are also keen to learn and put new skills into practice, seeing value in the intervention’s impact on improving maternal and newborn health outcomes. The intervention has also been positively received by women, demonstrated by an increase in follow-up ANC visits and enhanced continuity of care. Local community leaders have also shown a high level of engagement, serving as project champions and building awareness in the community.

The team has also encountered a few implementation challenges. For example, the long distances required for sending follow-up samples (i.e., cultures) to adequately equipped labs have proved difficult. Upgrades to municipal labs could help reduce time for sample transport, and discussions are underway regarding how this might be achieved.

As the project nears completion, the PATH team is working with GHS to develop a roadmap for sustained impact through long-term integration and scale-up of these ANC interventions—not only to prevent maternal and neonatal deaths in Ghana, but to provide a replicable model for other low- and middle-income country settings around the globe.

References