Where there is no toilet: Case study of water and sanitation in birth locations in Tanzania

May 11, 2015

Lenka Benová, London School of Hygiene and Tropical Medicine, UK

Ms. Joyce Mrope demonstrates a hand washing station outside her home in Chiwata Village, Tanzania. Source: Flickr User Gates Foundation

Tanzania has struggled to achieve both the water and the maternal mortality Millennium Development Goals. In 2010, UNICEF/WHO's Joint Monitoring Programme estimated that only half of Tanzania's 45 million residents had access to improved water sources and only 10% had access to improved sanitation.[1] At the same time, and despite some improvements, Tanzania's maternal mortality ratio stood at 454 deaths per 100,000 births, meaning that nearly 8,000 women die yearly from the largely preventable or treatable complications of pregnancy and childbirth.[2] Approximately one in ten maternal deaths in Tanzania is caused by puerperal sepsis, which is caused by infection introduced at the time of labour and delivery.

Reduction of maternal mortality and access to reproductive health is a key component of the Millennium Development Goals and the post-2015 development agenda. This issue is an international priority and a priority of African countries, including Tanzania.

Our recent paper containing a systematic literature review showed that a lack of sanitation facilities and access to water appear to be associated with higher maternal mortality.[3] We also noted a paucity of primary studies assessing the impact of water and sanitation environments on maternal mortality. In another paper we developed a country case study to look at the burden of unsafe water and sanitation at the time of birth.[4]

We chose Tanzania as a case study because recent data were available regarding maternal

labour and delivery and health facilities, making it possible to evaluate the degree of water and sanitation ("WATSAN") access in the various environments in which births occur. Our goal in this study was to shed light on the water and sanitation environment of birth settings in Tanzania and to demonstrate that even modest gains in access to water and sanitation can have significant benefits on maternal health.

Methodology

We categorized birth conditions as either WATSAN-safe or WATSAN-unsafe, and then examined the geographic distribution of WATSAN-unsafe births in the country. For the purposes of this study, a WATSAN-safe environment was broadly defined as having access to improved water and sanitation facilities. The sources of data were the 2010 Tanzania Demographic and Health Survey (survey of households and women of reproductive age) and the 2006 Tanzania Service Provision Assessment (survey of health facilities).

Findings

Our main finding was that **less than one-third of all births in Tanzania took place in a setting with safe water and sanitation**. Specifically, we also found that:

- Approximately 57% of births Tanzania took place in a health facility; of these births, about 50% took place in a hospital, 20% in a health centre, and 30% in a dispensary (village-level health posts which are the lowest level of health facility in the Tanzanian health system).
- On the whole, 44% of all facilities conducting deliveries in Tanzania were classified as WATSAN-safe. Of the facilities reviewed, 90% of hospitals met our definition of WATSAN-safe; 62% of health centres met the definition; and 39% of dispensaries were considered WATSAN-safe. That said, we found that sometimes a facility could be considered WATSAN-safe, but the actual delivery room could fail to meet the standard.

Of the facilities considered WATSAN-safe, less than half had delivery rooms that met the standard.

- Approximately 43% of births took place in the home; only 1.5% of these births occurred in WATSAN-safe conditions.
- The proportion of all births in WATSAN-unsafe environments varied significantly across geographic areas, from 48% in Zanzibar to 89% in the north-west point of the country (the less urbanised areas).

Conclusions

This case study, combined with other research the SHARE Consortium has supported, led to a global call to action on WASH and maternal health. However, a better understanding of water and sanitation-based exposures is still urgently needed to inform useful definitions for WATSAN-safe/unsafe environments as it relates to maternal health. For example, in order to define what constitutes a WATSAN-safe environment of births in health facilities in our research, we defined our own criteria based on available data rather than an internationally recognised definition of acceptable or improved WATSAN environments in health facilities, which does not currently exist. Such a definition needs to be developed in order to better monitor and improve WATSAN environments and facilities.

Water supply and sanitation focus groups discussion in Tanzania with the Sustainable Sanitation Alliance. Source: Flickr User SuSanA Secretariat

To reduce maternal mortality, the Tanzanian government plans to scale-up basic emergency obstetric and newborn care services at dispensaries and health centres, and it also plans to

improve the ability of rural health centres to perform caesarean sections and blood transfusions.[5] We showed that the WATSAN profiles of both home and facility births in Tanzania are in great need of improvement. Deliveries in health facilities should occur in an enabling environment that includes adequate hygiene. Developing and implementing improved planning/building regulations can be one way to help ensure that facilities have appropriate WATSAN infrastructure. Also, clear responsibility, lines of accountability and sufficient budget need to be allocated for equipment maintenance. In terms of home birth environments, our findings provide an extra impetus to accelerate general efforts to improve service provision of improved water and sanitation to households in Tanzania.

For births in both home and facility environments, there is a pressing need to understand, measure and ultimately improve water and sanitation provision. This means far more than just ensuring sufficient water and sanitation infrastructure. It also requires the continuous supply of clean water, an appreciation of gender-issues related to their use (i.e. acceptability of female facilities), good hygienic practices of mothers, birth attendants and other facility staff, and socio-cultural factors that promote/prevent construction and utilization of improved WATSAN in communities. The opportunity to improve maternal and newborn health through ensuring access to sustainable and affordable water and sanitation services must not be missed during the lead-up to finalizing the Sustainable Development Goals agenda.[6]

References:

1. UNICEF, WHO (2012) Progress on Drinking Water and Sanitation: 2012 Update. New York, NY: UNICEF and World Health Organization.
2. World Health Organization (2014) Trends in maternal mortality: 1990 to 2013. Estimates by WHO, UNICEF, UNFPA, The World Bank and the United Nations Population Division. Geneva: WHO.
3. Benova L, Cumming O, Campbell OM (2014) Systematic review and meta-analysis: association between water and sanitation environment and maternal mortality. Trop Med Int Health 19: 368-387.

4. Benova L, Cumming O, Gordon B, Magoma M, Campbell OMR. Where There Is No Toilet: Water and Sanitation Environments of Domestic and Facility Births in Tanzania. 2014. PLoS ONE. 9(9): e106738.
5. Tanzanian Ministry of Health and Social Welfare (2014) Women and Children First: Countdown to ending preventable maternal, newborn and child deaths. Available at countdown2015mnch.org: Published by Countdown to 2015.
6. Velleman Y, Mason E, Graham W, Benova L, Chopra M, Campbell OMR, Gordon B, Wijesekera S, Hounton S, Esteves Mills J, Curtis V, Afsana K, Boisson S, Magoma M, Cairncross S, Cumming O (2014) From Joint Thinking to Joint Action: A Call to Action on Improving Water, Sanitation, and Hygiene for Maternal and Newborn Health. PLoS Med. DOI: 10.1371/journal.pmed.1001771.

Lenka Benová is a Research Fellow in the Department of Infectious Disease Epidemiology at the London School of Hygiene and Tropical Medicine. She is a quantitative social scientist with training in management, economics, Middle East studies and demography and has a keen interest in maternal health research and evaluation in low- and middle-income countries. Lenka was a part of a SHARE-funded research team assessing the importance of water and sanitation to maternal health.