



Facts and Figures

Water, sanitation and hygiene | maternal and newborn health

The scale of the problem

This factsheet highlights the latest evidence on the link between water, sanitation and hygiene (WASH) and maternal and newborn health (MNH).

Maternal and newborn survival remains a significant challenge in many parts of the world, and especially in sub-Saharan Africa.

Good progress has been made since the 1990s in reducing the deaths of children under-five years of age. Yet, despite this progress, much less attention has been paid to addressing deaths during the first 28 days of life – the neonatal period. In 2012, **2.9 million babies** died worldwide during the neonatal period. This represents two out of every five child deaths¹.

Similarly, maternal mortality has remained high in many settings. Every year, an estimated **287,000 women die worldwide** from complications during pregnancy, delivery, and after the birth (postpartum period)², while 10 to 20 million women are affected by subsequent health complications³.

Evidence exists of a link between water and sanitation and maternal and newborn health, so that improvements in water and sanitation are one way through which the health of mothers and babies could be improved, and their lives saved⁴.

The links between maternal health and water and sanitation are multiple and occur not only during the continuum of care from pregnancy, to delivery, and the postpartum period, but also throughout the life of the mother and her child.

However, access to clean water and improved sanitation is often insufficient, with poor households and health facilities often lacking access to adequate water sources and sanitation. Despite the fact that the Millennium Development Goal 7 target on water was met in 2010, 768 million people worldwide still relied on unimproved drinking water sources in 2011⁵. Sanitation coverage in 2011 stood at 64%, which remains largely below the MDG sanitation target of 75%⁵.

WASH matters for safe pregnancy and healthy mothers

Access to adequate, safe water and sanitation is important throughout pregnancy, and significantly contributes to the well-being and health of the mother and newborn. There are many ways in which water and sanitation contribute towards good health during pregnancy:

- @ **Access to water:** Distance to the water source affects the health of mothers-to-be. Having to walk long distances to fetch water often means that lower amounts of water are collected at a time or that water has to be stored in-house which increases the risk of water contamination. This in turn influences personal and household hygiene, with increased consequences for pregnant women who are more vulnerable to water and sanitation-related diseases and infections⁶. In addition, walking long distances to fetch water negatively affects pregnant women's weight gain during pregnancy^{7,8}.
- @ **Water quality:** not only should water sources be accessible, but they should also be safe for use. Safe water is key in preventing the transmission of a range of bacterial, viral and parasitic infections. For example, hepatitis E is usually transmitted through faecal contamination of drinking water, and is proven to have more severe consequences in pregnant women than for the broader population⁹. Chemical contamination of water also puts pregnant women at risk. For example, contamination with arsenic is known to increase the risk of anaemia^{10,11,12} which in turns puts pregnant women at higher risk of severe bleeding¹³. High levels of salt in drinking water is known to lead to increased risk of hypertension and pre-eclampsia in pregnant women¹⁴.
- @ **Access to sanitation:** hookworm infestation is thought to infect nearly 44 million pregnant women across the world, and increases the risk of anaemia and therefore severe bleeding¹⁵. Access to adequate sanitation throughout pregnancy is therefore important to prevent hookworm infestation as well as other sanitation-related diseases, with a related positive impact on maternal health¹³.

WASH matters for safe delivery

Availability of safe water and adequate sanitation is critical during and around the time of delivery.

Babies are the most vulnerable to life-threatening infections such as sepsis and tetanus immediately or shortly after birth¹⁶. It is estimated that 30-40% of the infections resulting in sepsis-related deaths are transmitted at the time of birth and have early onset of symptoms¹⁶.

Similarly, it has been shown that more than two out of five maternal deaths occurring within 24 hours of birth are from causes related to sepsis alongside severe bleeding¹³, and that 15% of all maternal deaths are caused by infections in the six weeks following delivery¹⁷.

Many of these infection-related deaths in mothers and babies are caused by a lack of hygiene and infection control during and around delivery^{18,19}.





Exposure to unsafe water and sanitation and poor waste management in health facilities increase the risk of infection transmission in both mothers and babies. Poor water and sanitation prevents basic clean birth practices such as hand washing, clean equipment and cord-cutting, which adversely affect mortality outcomes¹⁸.

Research has shown the impact of clean birth practices on maternal and newborn mortality. One study suggests that half of all infection-related deaths could be averted if skilled birth attendants adopted more hygienic birth practices¹⁸.

Another study concludes that neonatal sepsis deaths could be reduced by 27% through clean birth practices in a facility, and 40% by clean postnatal care practices¹⁶. The same study found that neonatal tetanus deaths could be reduced by 38% through clean birth practices in a facility, and by 40% through clean postnatal care practices¹⁶.

Women going into labour should have access to safe health facilities with consistent, predictable running clean water, clean toilets, safe refuse disposal, clean beds and areas for deliveries²⁰.

In addition, the six cleans promoted by the World Health Organization (listed below) have been found to be strongly associated with a lower occurrence of sepsis, thus saving lives of mothers and babies^{21,22}.

WASH matters for healthy mothers and babies in the long term

After delivery, access to adequate water and sanitation is also important for maternal and newborn health on the longer term in various respects:

- @ Many mothers suffer from delivery-related trauma such as perineum rupture and obstetric fistula, with two million young mothers in sub-Saharan Africa and Asia living with untreated obstetric fistula²³. These women need access to adequate water and sanitation for their personal hygiene and frequent cleansing, which are key to managing their conditions and to prevent infections^{24,13}.
- @ Longer term, access to adequate water and sanitation is key to good menstrual hygiene and to preventing subsequent infections and health problems¹³.
- @ Access to clean water is also crucial for mothers who do not breastfeed, to ensure safe formula preparation for infants and safeguard infants' health¹⁸.

What can be done | Policy makers:

Policy makers have an important role in¹³:

- @ Working to better understand the association, and to integrate and implement policies, strategies, and road maps on MNH and WASH
- @ Using political will to advocate for safe sanitation in households and health facilities
- @ Developing, using, and monitoring minimum standards for health facilities that will ensure safe water and sanitation facilities exist with a practical maintenance system

What can be done | Health professionals

There are things that the health professional should know and practice in relation to WASH and MNH¹³:

@ **Follow clean birthing protocols:** for example, wearing clean medical clothing and practising the “six cleans” recommended by the WHO²⁰:

1. Clean hands of the attendant
2. Clean surface
3. Clean blade
4. Clean cord tie
5. Clean towels to dry the baby and then wrap the baby
6. Clean cloth to wrap the mother



- @ **Practise in a clean health facility:** maintain and manage water, sanitation and hygiene facilities and materials in the clinic or hospital, as well as clean patient beds/rooms and birthing rooms
- @ **Communication:** provide informative and respectful communication to mothers and their families, from all ethnic and economic backgrounds. Also, communicate clearly to mothers and their family key WASH-related issues during antenatal sessions and hospital/clinic stays
- @ **Emergency response:** follow routines and ensure there is equipment in place for clean, appropriate and rapid emergency responses

What can be done | Academic institutions:

There is a lack of robust research, assessment and programme evaluation on the link between WASH and MNH. In order to address this gap, academic institutions could work to support, lead, and advocate for this research. Shordt et al (2012) has provided some suggested areas of further research¹³:

- @ Study the impact of WASH on maternal mortality and morbidity at household and/or community level
- @ Continued study on the barriers for behaviour change and ‘(positive) change agents’ within communities in relation to maternal health and WASH. With the view of using these positive examples for scaling up
- @ Rapid assessments of the conditions of water and sanitation in health facilities

What can be done | Everyone:

@ Gain health benefits by¹³:

- @ Drinking and cooking with safe quality water that is free from chemical and bacterial contamination
- @ Using at least 20 litres of clean water for personal and domestic hygiene

- @ Consistently using hygienic toilets in order to make sure there are no human excreta in the environment
- @ Follow personal and domestic hygiene practices such as hand washing with soap after defecation and before eating; bathing with clean water; maintaining and cleaning toilets and water points; safe disposal of children's stool; control of garbage and animals excrement
- @ Make sure that mothers deliver in a safe health facility where clean water is available
- @ If your health facility is missing any of these services talk to local policy makers – make sure they are accountable!

Useful resources and websites:

- @ The Soapbox Collaborative: a new evidence-based initiative to make a difference for mothers & babies in the poorest countries of the world focused on preventing infections at birth among mothers and babies in low-income countries. Visit the website here: <http://soapboxcollaborative.org/>
- @ WaterAid: an international non-governmental organisation which aims to transform lives by improving access to safe water, improved hygiene and sanitation in the world's poorest communities. Visit the website here: www.wateraid.org/
- @ Shordt, K., Smet, E., & Herschderfer, K. (2012). *Getting it Right : Improving Maternal Health Through Water, Sanitation & Hygiene*. Haarlem, The Netherlands: Simavi. Available [here](#) on MamaYe.
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