

# Healthy Start: the first month of life



Ensuring every child gets the water,  
sanitation and hygiene they need



# Introduction

Bringing a new life into the world should be a time of love and hope for mother and baby, wherever they happen to live.

But, around the world, one in every 50 births leads to heartbreak for parents, as their precious newborn son or daughter will die before they are a month old.

In 2013, over 2.7 million babies died in their first four weeks of life. This is overwhelmingly a problem of the developing world – with over 99% of neonatal deaths occurring in low and middle income countries.<sup>1</sup>

This huge waste of life and potential is not for the most part due to an absence of the expensive, intensive care systems available to sick babies in the developed world. It is estimated that in seven out of ten cases, their lives could have been saved through simple, cheap medical procedures.<sup>2</sup>

Tragically for one in five babies who die in their first month in the developing world, just being washed in clean water and cared for in a clean environment by people who had washed their hands could have prevented their untimely deaths.<sup>3</sup>

Last year, four babies died every five minutes in Sub-Saharan Africa or Southern Asia<sup>4</sup> from highly-preventable causes such

as sepsis, meningitis or tetanus – all infections strongly linked to unhygienic conditions. Research shows that by ensuring that every baby is given a healthy start, the risk of contracting those infections falls dramatically.

It is hard to imagine that there is any medical professional, health department official or health minister who is unaware of the risks of exposing babies to infection due to unclean birth conditions and poor hygiene practices. And yet, women are still giving birth in environments which do not have clean water, soap and sanitation, attended by carers who cannot or do not observe basic hygiene.

The links between dirty hands, dirty water and infant mortality have been known for over 150 years, so this is not a situation waiting for an answer, but an injustice waiting for action.

In the year the world replaces the Millennium Development Goals with the Sustainable Development Goals, it is time to ensure that the next generation of children is given the best start in life – a healthy start.



## The background

Next year will see the culmination of the Millennium Development Goals. Goal 4 is to reduce child mortality by two-thirds on its 1990 level.

This target at current rates of progress will not be met globally until 2028, according to United Nations projections. Currently only two regions, Latin America and East Asia and Pacific have reached the target reductions.

Globally, the mortality rate for under-fives has nearly halved – from 90 deaths per thousand live births to 48. Today 17,000 fewer children will die than in 1990 and encouragingly the current rate of reduction in death rates is the highest it has been for two decades.

However, one in ten children in Sub-Saharan Africa will not reach their fifth birthday and over six million children still die each year, mostly from preventable causes.

Progress in reducing neonatal deaths has been slower, falling by only a third between 1990 and 2012. As a result, babies who die in the first month of life now account for 44% of all deaths of children under five, compared to 37% in 1990.

It is estimated that at the current rate of progress of reducing the neonatal mortality rate in Sub-Saharan Africa, the risk of dying within the first four weeks of life in Africa will match the current risk in Higher Income countries by 2166.<sup>5</sup>

This year, the United Nations will decide the successors to the MDGs, known as the Sustainable Development Goals.

WaterAid is calling for a dedicated goal to deliver water and sanitation to everyone, everywhere by 2030.

## Giving babies a healthy start

The first few weeks are the most vulnerable time of a child's life – he or she is 15 times more likely to die than at any other point in the first year of life.<sup>6</sup>

In Sub-Saharan Africa and South Asia around one in five deaths in the first month of life are caused by sepsis, meningitis and tetanus.<sup>7</sup> In those two regions in 2013 these infections together killed over 400,000 new babies. Of these, sepsis is the most dangerous, leading to 18-20% of neonatal deaths.<sup>8</sup>

In those 80 countries with high neonatal mortality rates, which together account for nearly nine out of ten deaths globally, sepsis accounts for 40% of late neonatal deaths.<sup>11</sup>

To be able to infect a human being, bacteria need a transmission route – a way to pass from one human being to another. The transmission route for these three bacterial infections is strongly linked to unhygienic conditions and practices at birth. This is why it is so crucial for babies to be given a Healthy Start; beginning life in a hygienic setting and cared for safely.

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## Sepsis

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Sepsis is an invasive infection normally caused by bacteria. The bacteria that cause neonatal sepsis are acquired shortly before, during, and after delivery. They can be obtained directly from mother's blood, skin, or birth canal before or during delivery, or from the environment during and after delivery. Clean water, safe sanitation and hygienic practices of healthcare staff and mothers in birth facilities can reduce the risk of infection in both cases.

Clean delivery practices and handwashing during delivery, and handwashing by healthcare providers after delivery are necessary for reducing the risk of sepsis. Infections can also be easily transmitted if dirty implements are used to cut the umbilical cord, and by contaminated surfaces such as beds and other objects.

A failure to make sure that a woman has a clean place to give birth, that a midwife, birth attendant or doctor has clean hands when helping her deliver and that the blade which separates the child from his mother by cutting the umbilical cord is clean puts a baby at risk of contracting sepsis.

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# The scale of the problem

## Neonatal mortality due to infections

The rates of death from infection in newborns vary across the developing world. While two thirds of all neonatal deaths come from only ten countries (Table 1), the proportion of deaths due to infection varies within those countries.

Angola, for example, is the most dangerous place in the world to be a baby, with all infections accounting for nearly 30% of all neonatal deaths. Although China is one of the countries with the highest absolute number of newborn deaths, the percentage of deaths from all infections is just over 10%.

Table 1: Countries with large numbers of neonatal deaths

Countries with the largest numbers of neonatal deaths	Neonatal mortality rate (numbers per 1,000 live births)	Number of deaths	Numbers of neonates lost to sepsis/meningitis/tetanus <sup>9</sup>	Percentage of neonatal deaths due to sepsis/meningitis/tetanus
India	29.2	758,143	122,554	16.4
Nigeria	37.4	261,549	51,749	19.8
Pakistan	42.0	193,718	43,412	22.0
China	7.7	143,268	5,476	3.7
DRC	38.2	104,604	19,509	18.6
Ethiopia	27.5	84,437	17,240	20.4
Bangladesh	24.2	76,722	14,852	19.3
Indonesia	14.4	65,828	8,934	13.5
Angola	46.6	42,625	9,053	21.2
Kenya	26.3	39,596	7,499	18.9

## Case study

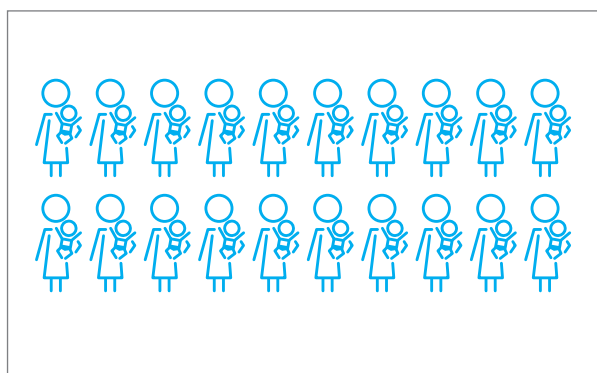
Mary Mwape, 39, is a midwife at Lubwe Mission Hospital, in north-eastern Zambia. The hospital serves as a referral centre for the area despite not having adequate water and sanitation.

“A labour ward without water is a danger to the life of newborn children. If a newborn child with a fresh cord [umbilical cord] is washed using water from shallow wells or unsafe water, the child is likely to be infected with diseases like neonatal tetanus or neonatal sepsis, which may lead to death.

We know that we are supposed to wash our hands thoroughly before attending to another patient, but what do you do in a situation where there is no running water?

We teach expectant mothers about maintaining good personal hygiene standards during pregnancy, but a challenge comes in when we as health workers fail to provide a safe and clean environment for mothers to deliver from.”





**In Sierra Leone, which has one of the highest neonatal mortality rates in the world, on average, in her lifetime, one woman in every 21 will lose a child to infection in its first month. The equivalent risk in the United Kingdom is one woman in 7,518.**

Countries with relatively lower neonatal mortality rates tend to also have a smaller percentage of deaths due to infection. In countries with a higher neonatal mortality rate, typically between a quarter and a third of those deaths are due to preventable, treatable infections.<sup>10</sup> A baby in Sub-Saharan Africa is 30 times more likely to die of an infection within the first month of life than a baby in the developed world, and in many parts of the developing world such deaths are a common occurrence.

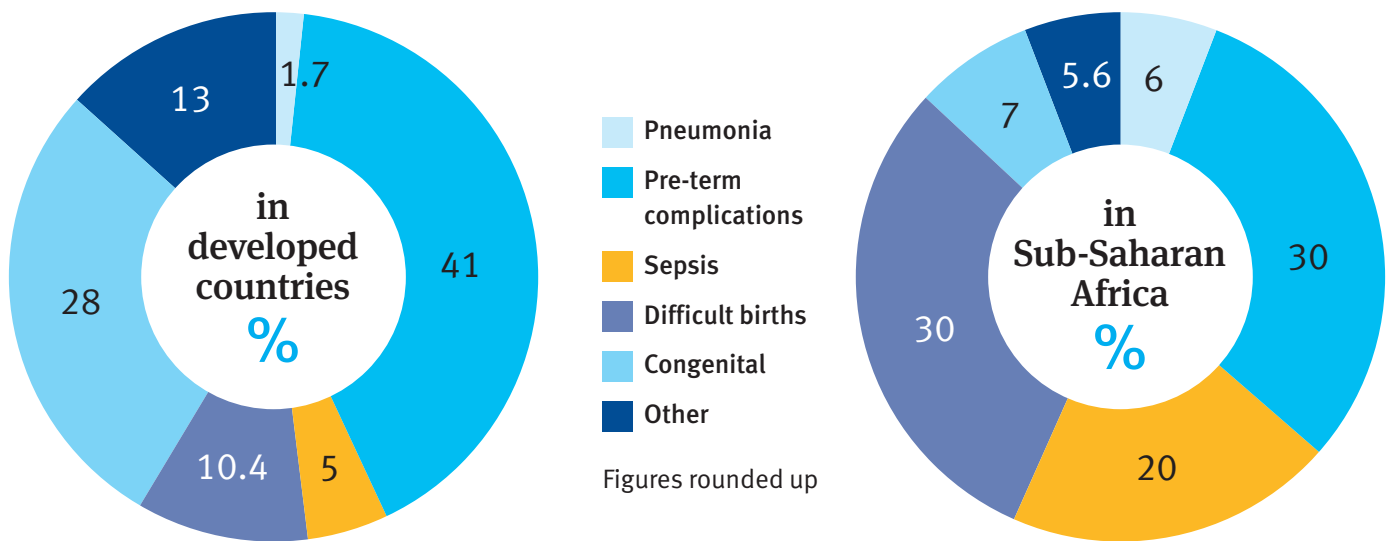
For example, in Sierra Leone, which has one of the highest neonatal mortality rates in the world, on average, in her lifetime, one woman in every 21 will lose a child to infection in its first month. The equivalent risk in the United Kingdom is one woman in 7,518 (Table 2).

Poor mothers are much more likely to lose a baby to infection – babies born into low income households are three times more likely to die of sepsis in their first month than those with high income parents.<sup>11</sup>

**Table 2: Countries with high rates of neonatal deaths from sepsis/tetanus/meningitis compared to risks in the developed world**

Country	Neonatal mortality rate – all causes <sup>12</sup> (numbers per 1,000 live births)	Numbers of neonatal deaths in 2013	Mortality rate from sepsis/tetanus/meningitis	Number of neonatal deaths from sepsis/tetanus/meningitis	Percentage of neonatal deaths from sepsis/tetanus/meningitis <sup>13</sup>	Chance of a mother losing a baby to sepsis etc over a lifetime <sup>14</sup>
Sierra Leone	44.3	9,430	9.8	2,101	22.3	1 in 21
Guinea-Bissau	44	2,688	9.8	599	22.3	1 in 20
Angola	46.6	42,625	9.8	9,053	21.2	1 in 17
Somalia	46.2	20,754	9.5	4,281	20.6	1 in 16
Pakistan	42	193,718	9.4	43,412	22.4	1 in 32
Lesotho	43.9	2,554	8.7	511	20	1 in 37
Mali	40.2	27,724	8.2	5,709	20.6	1 in 17
Afghanistan	36.3	36,777	8.2	8,374	22.8	1 in 23
Zimbabwe	39.2	17,311	7.9	3,502	20.2	1 in 35
Côte d'Ivoire	37.5	27,925	7.9	5,896	21.1	1 in 26
USA	4	16,802	0.18	741	4.5	1 in 2,958
UK	2.8	2,145	0.07	51	2.5	1 in 7,518
Sweden	1.6	178	0.13	15	8.1	1 in 4,000
Australia	2.4	770	0.07	21	2.9	1 in 7,407
Canada	3.4	1,374	0.17	70	5	1 in 3,649
Japan	1	1,086	0.06	67	6	1 in 11,820

## Causes of neonatal mortality



### Water, toilets and hygiene in healthcare facilities

As part of the Millennium Development Goals, there has been a concerted effort to increase the number of births attended by a skilled health worker, and in particular births in healthcare facilities.

Yet even in the very facilities that are set up to serve their communities with healthcare and welcome new life into the world, there is often no constant clean water supply, functioning toilets or handwashing facilities. As clearly set out in the World Health Organization’s (WHO) ‘Essential environmental health standards in healthcare’<sup>15</sup>, these are the basic front line defences in the battle against infection and a lack of those services calls into question whether such establishments can adequately serve as healthcare facilities.

A forthcoming WHO survey of healthcare facilities in 54 developing countries<sup>16</sup> reveals that 38% lack a clean water supply, 19% do not provide improved sanitation, and 35% do not have soap for handwashing. In the Sub-Saharan African countries surveyed, that percentage rises to 42%. Those figures also do not reflect whether the water supply is constant. The WHO estimates that of those healthcare facilities that have some form of clean water supply, around half do not have a reliable supply.

### Case study



Peggy Mpundu, 36, of Mwasha Village in Lubwe, recently lost twins to a suspected infection just four days after their birth.

Kapya and Mpundu were delivered in hospital and discharged on their second day. The day after, they started having problems breathing and their parents took them back to hospital where sadly both died.

“I was then told that water from shallow wells was harmful to the babies. Having bathed my children using water from a shallow well just left me with a feeling of guilt and regret. I wish I knew that water could be harmful.”

Peggy has since had another child but her husband Sylvester says that the loss of the twins has had a huge impact on the couple. They are careful to use clean water to guard against infecting their new baby.

## Water, toilets and hygiene at birth

With no readily available source of clean water to clean the wards or hands, healthcare facilities can become harbours for dangerous bacteria with health workers unknowingly transmitting disease from one patient to the next. A review in 2011 of healthcare-acquired infections showed that in some developing countries up to one in every two patients (45.6%) left hospital with an infection they had not had on arrival.<sup>17</sup> Over 150 years since Ignaz Semmelweis made the link between handwashing and infections contracted by mothers at birth, improving hygiene practices by healthcare professionals worldwide remains a challenge. In one study<sup>18</sup> at a large African teaching hospital, handwashing was only attempted 12% of the time and done effectively in only 4% of opportunities, despite nine in ten of the wards having a sink with soap available. A study<sup>19</sup> in maternity units in Southern Nigeria showed that only two out of five facilities had soap or antiseptic in or near operating theatres or delivery rooms.

To ensure a clean birth, WHO advocates the practice of 'six cleans': clean hands, a clean delivery surface, a clean perineum, nothing unclean inserted into the vagina, a clean umbilical cord cutting tool and a clean cord tie. Village health workers in Tanzania, as part of a study, were given training in the WHO six cleans and a clean delivery kit with plastic sheeting, a clean razor blade, a string to tie the cord and a bar of soap. Newborn infants whose mothers used the delivery kit were over 13 times less likely to develop a cord infection. Even just the mother bathing before birth reduced the risk of cord infection by nearly four times.<sup>20</sup>

In Southern Nepal<sup>21</sup>, over 23,600 newborn babies were observed for their first month and their mothers asked by researchers whether the person who helped deliver their baby had washed their hands before the birth and also whether they themselves washed their hands before handling their newborn child.

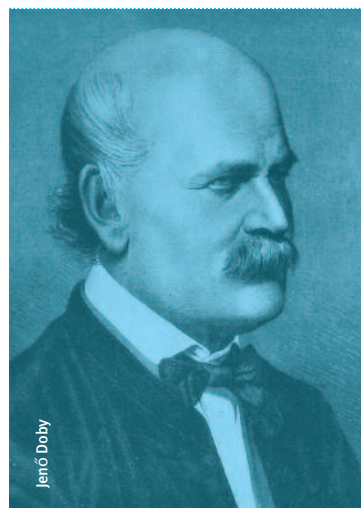
Those babies who were delivered by someone who had washed their hands were 25% less likely to die, even if their mother didn't wash her hands. Once both mother and birth attendant washed their hands, the baby's chance of dying more than halved (56%). In Nepal, a 56% reduction in neonatal mortality would have saved over 7,000 new lives last year alone.

Beyond the risk of infection that such conditions can cause, lack of clean water, toilets and good hygiene may have other consequences for healthcare users. For example, women in labour may be asked to bring in their own jerry cans of water for drinking and washing during the birth. Such water may be fetched from unsafe sources such as rivers or ponds. This not only puts mothers and their babies at grave risk of contracting a potentially fatal infection, but the lack of hygienic conditions can put women off attending healthcare facilities, thereby undermining efforts to increase the proportion of births assisted by skilled attendants. Provision of water and sanitation services in healthcare facilities can also empower healthcare workers to provide safer care for mothers and newborns, thereby supporting efforts to increase staff retention and motivation.

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### Who was Ignaz Semmelweis?

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Semmelweis was the first person to realise the importance of washing hands in preventing infections. In 1847, he worked in the maternity clinic of Vienna General Hospital and became convinced that cleanliness was the key in preventing puerperal fever, commonly known as

child bed fever, in new mothers. In his first month there, nearly one in five mothers died from the fever, which is most commonly caused by sepsis. He started insisting that all people working in the ward had to wash their hands on entering and that the room was kept clean. The death rate within two years had all but disappeared. Sadly though, at the time most medical professionals remained convinced that disease was spread through "miasma" or dirty air, and Semmelweis was dismissed from his post, widely ridiculed and eventually condemned to a mental asylum. His achievements were not recognised until around three decades after his death.

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## Putting ‘clean’ at the heart of healthcare

In most countries, the current approach towards infections in babies is focused on treatment with antibiotics, rather than preventing infections occurring in the first instance.

Recent efforts to improve maternal and newborn health have tended to overlook the importance of giving a baby a healthy start in life, focusing instead on increasing the number of skilled attendants or emergency obstetric care.

For example, in this year’s Every Newborn Action Plan<sup>22</sup> from WHO and UNICEF, which aims to end preventable deaths of newborns by 2035, there are no key action points for governments to ensure birth attendants and mothers have access to clean water, sanitation and hygiene during the birth.

In the plan, infections are named as a major contributor to neonatal mortality rates, but the target given is for at least half of babies with infections to be given antibiotics.

Current WHO recommendations on postnatal care for mothers and newborns include only one reference to water, sanitation or hygiene – namely talking to women about hygiene – while the guidelines for Standards for Maternal and Neonatal Care include no recommendations on the provision of water, sanitation and hygiene.

The WHO’s recommended practice of ‘six cleans’ mentioned above implies the importance of having clean water available, but is not explicit.

The Millennium Development Goal which included extending access to water and sanitation did not include healthcare facilities as a specific target – an omission that is highly likely to have held back progress on other MDGs such as reducing maternal mortality and child death.

### Giving birth in Tanzania

A recent study to assess the water and sanitation conditions during birth in Tanzania<sup>23</sup> showed that, on average 44% of healthcare facilities where women give birth had adequate water and sanitation facilities, but only a quarter of delivery rooms within those health centres had water and toilet provision.

The researchers estimated that even if every woman in Tanzania chose to give birth in a health centre, less than two thirds of those births (59%) would be in centres that could provide the mother and baby with a safe environment.



**“There wasn’t enough water at the health clinic when I gave birth. After delivery, I washed myself and my child was bathed from the water that my brother’s wife fetched for me from the river. At that time it was dry season, so they had to dig part of the river to get some water. He lived for seven days only.**

**If there could have been regular availability of enough safe water at the clinic, this situation could have been prevented.”**

**Aisha Mukde, Tanzania** (pictured above)

### Rwanda

After the genocide of 1994, the new Rwanda government committed to a development agenda focused on providing basic services to the population. As part of this, the government has set ambitious targets on water supply and sanitation, with the stated aim of universal access by 2020. The importance of these services is fully acknowledged by the government as a driver for social and economic development, poverty reduction and public health.

Since 2000, the share of the population with access to clean water has grown by 10% to 72%, while the share of the population with functioning toilets has grown by nearly half to 67%.<sup>24</sup>

Rwanda currently leads Africa with the speed at which it is reducing neonatal deaths from infection – the annual rate of reduction in sepsis/meningitis/tetanus is 6.8%, while the death rate from pneumonia is falling by 12% a year.<sup>25</sup> Over the past 14 years the mortality rate per 1,000 live births from the former group of infections has fallen from 9.95 to 3.94.

## What needs to be done

Access to clean water, safe sanitation and hygiene services is a basic human right. Together they constitute essential building blocks for good health and their absence has a particularly devastating impact on children. The absence of robust trial data makes it difficult to estimate what proportion of newborn deaths due to infection can be prevented by improving access to water, sanitation and hygiene in healthcare facilities. However, the causal link between unhygienic conditions and practices is sufficiently accepted to justify policy and programme measures that ensure that healthcare facilities meet basic standards of clean water, sanitation and hygiene.

WaterAid wants everyone, everywhere to have access to clean water, sanitation and hygiene by 2030. For the world to achieve this goal, WaterAid believes that all healthcare facilities must be equipped with water and sanitation facilities as a matter of urgency, and health systems must be held to account for ensuring these standards are met.

Everyone must work together to ensure that the most vulnerable members of society do not have their life expectancy reduced to mere weeks, just because there is no clean water in which to bathe them or soap to clean the hands of their carers.

At every level of the health service, from individual health workers through to hospital managers, Ministry of Health officials and ministers, and international health organisations, there must be individual and collective accountability for maintaining hygienic conditions in health centres. Efforts to prevent and control infections must be placed at the heart of efforts for overall provision of quality healthcare. WaterAid calls on organisations working on international health issues, national health ministries and donor governments to take the following urgent actions:

1. National governments ensure that water, sanitation and hygiene services (WASH) are embedded in all plans for reducing undernutrition, acute malnutrition, preventable childhood disease and newborn deaths, and/or in broader health systems plans that encompass any or all of these objectives. Ensure finances are made available and used accordingly.
2. International and national health and nutrition initiatives include WASH in their policies and ensure they are financed, monitored and delivered.
3. Every healthcare facility has clean running water, safe toilets for patients (separate for men and women, with locks and lights, child-friendly and accessible to people with disabilities), functional sinks and soap for health workers and patients in all treatment and birthing rooms.
4. No new healthcare facilities are built without adequate, sustainable water and sanitation services.
5. Health care workers are committed to including good hygiene practice and promotion in their professional training, plans and actions. Staff and patients are informed and empowered to practice adequate hygiene measures.
6. Every birthing centre<sup>26</sup> ensures basic hygiene and sterile conditions, particularly in delivery rooms and operating theatres – such as handwashing with soap, repeated cleaning and disinfection of facilities, and safe separation of human and medical waste from human contact.
7. Monitoring and assessment of progress towards universal health coverage include data on the availability of water, sanitation and hygiene services at health care facility and household levels to inform strategies and planning.
8. The Sustainable Development Goals should include a dedicated goal for Water and Sanitation with ambitious targets for universal WASH access by 2030. The framework should ensure integration between WASH targets and health targets such as Universal Health Coverage and prevention of under-five and maternal mortality.

## Case study

Esther Mongi is a midwife at the Mlali Health Centre, Tanzania.

“Previously, when the health centre had no water, we would advise relatives to bring three jerrycans of water when the mother came for delivery. One was for cleaning herself before going into the delivery room. The second was for cleaning the site after delivery. The third was for cleaning the mother’s clothes, which were used during the delivery.

Pregnant women [...] were complaining about getting water here from their homes for delivery. That caused a drop in the number of deliveries at the health facility.

The water that was brought by their relatives for delivery was not clean and safe.

We felt bad [...] and sometimes we felt demoralised because how can you work in a health facility without enough water?”



WaterAid/Eliza Deacon

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- 24 WaterAid Africa Water Map
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Healthy Start is WaterAid's four-year advocacy priority (2015-2019) focused on improving the health and nutrition of newborn babies and children. We will do this by advocating for access to water, sanitation, and hygiene promotion to be integrated into health policy and delivery locally, nationally and internationally.

[www.wateraid.org/healthystart](http://www.wateraid.org/healthystart)

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Cover image: Peggy and Sylvester Mpundu recently lost not just one baby, but a set of twins within four days of birth due to suspected infection. Mwashia Village, Lubwe, Zambia.

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