



The *CHILD HEALTH* Millennium Development Goal

What water, sanitation and hygiene can do

The Millennium Development Goals

In September 2000, the United Nations Millennium Summit agreed a set of time-bound and measurable goals aimed at combating poverty, hunger, illiteracy, environmental degradation and discrimination against women.

The fourth Millennium Development Goal (MDG) is to reduce child mortality. The target is to reduce by two thirds the mortality rate among children under five by the year 2015.



Headline facts

The MDGs are strongly inter-dependent and programme interventions must reflect this. *Water, sanitation and hygiene deliver outcomes across the MDGs.*

Why is water, sanitation and hygiene so important for child health?

- *Child Health*
Water, sanitation and hygiene interventions reduce the occurrence of diarrhoea and other diseases related to inadequate water and sanitation services.
- *Child Health and Education*
Health improvements in children resulting from improved water, sanitation and hygiene education lead to higher rates of school attendance and better performance.
- *Child Health and the Home*
Hygienic home environments, contributed to by easy access to safe water and adequate sanitation facilities, decrease children's exposure to infectious disease.
- *Child Health and the Community*
Community provision of environmental sanitation and water supply has major beneficial effects on child health.
- *Child Health and Quality of Life*
Improved water and sanitation services have a variety of important impacts on the quality of life enjoyed by children, not least of which is to be part of a household which has greater opportunity for economic productivity leading to the alleviation of poverty.



Child Health

The facts

- 1.7 million young children die each year from diarrhoea related to inadequate water supply, sanitation and hygiene. It is the largest *preventable killer* of children-under-five and is caused by ingesting certain bacteria, viruses or parasites that are spread through food, utensils, hands and flies.
- Worms infect more than one third of the world's population. Worm infection (helminths) is ranked as the main cause of disease in children aged 5-14 years old. These are spread through unhygienic environments (such as contaminated soil or water) and unhygienic behaviour.
- Other diseases related to inadequate water and sanitation services include skin and eye infections, (trachoma, preventable by hand and face washing), schistosomiasis (transmitted through infected water), and dengue (carried by mosquitoes in unhygienic domestic water vessels).
- Access to improved water and sanitation, especially in poor urban areas, is a crucial element in the reduction of under-five mortality and morbidity.
- Ease of access to water affects how much people use; consumption drops significantly when water is carried for more than a few minutes away from a source.

Why water, sanitation and hygiene?

Water supply and sanitation

Water, sanitation and hygiene interventions reduce diarrhoeal disease on average by one-quarter to one-third. Appropriate sanitation reduces the transmission of faecal-oral disease and helminth infection by preventing human faecal contamination of water and soil. This is as effective in preventing disease as improved water supply.

- More than 1,100 people in central Honduras have benefited from a CIDA-CARE Canada initiative to provide clean water and sanitation systems. It is reported that children who once suffered from diarrhoea and skin sores no longer do so.
- Kamanganjulu, one of 30 small rural settlements in Malawi developing safe water sources and upgrading sanitation facilities, saw a reduction in cholera and diarrhoea. Prior to the project, more than 70% of its inhabitants had no access to safe water or sanitation and one in four babies did not reach their fifth birthday.

- The Water and Sanitation Extension Programme (WASEP) in Pakistan 1997-2001 found that children not living in WASEP villages had a 33% higher chance of diarrhoea than those who did.
- About 6 million people are blind from trachoma. Adequate water supply can reduce the infection rate by 25%.
- About 200 million people are infected with schistosomiasis, of whom 20 million suffer severe consequences. Studies found that adequate water supply and sanitation could reduce the infection rate by 77%.

Hygiene behaviour

Of course safe drinking water quality is important for health, but there is reason to believe that even greater health benefits results from the improved hygiene behaviour which is made possible by a convenient water supply, and which hygiene education can promote.

- Hand washing with soap reduces diarrhoea by more than 40%, and cases of hospitalised diarrhoea, cholera and dysentery by more than 50%.

Child Health and Education

The facts

- Children who suffer from severe early childhood diarrhoea enter school later than their classmates, and perform worse in non-verbal intelligence tests.

Why water, sanitation and hygiene?

School attendance

- It is essential to teach children sanitation-related behaviours such as handwashing, as they can then become agents of change in their families and communities, leading to health improvements and higher school attendance.
- School attendance, especially amongst girls, has increased, following the construction of a borehole, handpump and separate pit latrines for boys and girls in the Nigerian village of Bashibo. An Environmental Health Club has increased hand washing by 95%, with a 90% increase in bathing and brushing teeth regularly.

School performance

- The impact of helminth reduction programs in schools is remarkable. A study in Jamaica found that children treated against a helminth infection perform much better in school than children who do not receive treatment.
- Children from a Brazilian shantytown community, who suffered serious and ongoing episodes of diarrhoea during the first two years of life, performed less well than other children in intelligence tests some 5-10 years later.



Child Health and the Home

The facts

- Unhygienic home environments can expose children to infectious diseases related to unsafe water, poor sanitation or a lack of hygiene.
- Access to water affects the quantity used for domestic and drinking purposes, which has an important impact on health.
- Access to safe water and sanitation enables women to maintain a more hygienic home environment and childcare. Less time is spent fetching water.

Why water, sanitation and hygiene?

- A study in Salvador, Brazil, showed that children in households with no toilet, had twice the incidence of diarrhoea than those with sanitary toilets.
- Households with a 10 per cent increase in water use for cleaning purposes enjoy a decrease in occurrence of diarrhoea by 1.3%.
- The existence of a yard tap nearly doubled the chances of a mother washing her hands after cleaning a child's anus, and doubled the chances of her washing faecally soiled linen immediately.
- Women save time not fetching water. This allows them to devote more time to child care, leading to improvements in children's nutritional status.

- Households with a distant water source cook very little, and only once a day because of a lack of water.
- In Madagascar, WaterAid projects have meant that diarrhoea, once the major child-killer, has now virtually disappeared. Having less stagnant water and a more hygienic domestic environment gives mosquitoes and fleas, the carriers of malaria and plague, less chance to thrive.
- Water and hygiene are contributing factors to malnutrition. A study among children under five in the Nuer community of Old Fangak, central Upper Nile, found that most of the malnourished children had been sick over an extended period, suffering from diarrhoea, respiratory infections and fever, or a combination of several illnesses.



Child Health and the Community

The facts

- In Tanzania, households below the poverty line are between twice and six times as likely to use unprotected water sources as those who are not.
- Within rural communities, not all households are equally served, with only 40% having reliable access in one community-managed programme.
- The greatest impact is when children's excreta is effectively and hygienically disposed of, especially in crowded urban areas. Children's excreta are more likely to contain diarrhoeal pathogens, although they are frequently perceived to be less dangerous than those of adults.



Why water, sanitation and hygiene?

- Children living in communities without sewers and drains had three times the rate of diarrhoea than those with sanitation infrastructure.
- A study in Brazil showed that improved sewerage and drainage has a significant effect on the prevalence and intensity of intestinal worm infection.
- Once community sewers are installed, the impact is to increase the effect of other interventions on child health, like safe water supply. There are therefore major benefits of installing sanitation for the wider community.

Child Health and Quality of Life

The facts

- Children in poor families suffer worse health conditions than those in families with higher incomes.
- Promoting better hygiene can greatly improve health for children in poor families, provided they also have access to affordable water and sanitation.
- Improved water supplies lead to opportunities for household poverty alleviation through increased economic productivity, especially by women.

Why water, sanitation and hygiene?

- Sudha is a master handpump mechanic in Tamil Nadu, India. This has allowed her to become economically self sufficient, with money to pay for her children's education.
- Women potters in Ghana had time to be able to increase their production and trade. Also, there was water now available for cola nut and palm oil processing and for distilling Akpeteshie, a local alcoholic drink.
- Tanzanian women devoted more time to economic activities such as working in shops and tea-rooms, and selling produce (ground nuts, potatoes, cassava, fruit).



- Households in Bobo-Dioulasso, Burkina Faso who adopted improved hygiene practices invested \$8 per household per year mainly on soap for hand washing. However, these households saved almost twice as much in medical care bills and benefitted from higher productivity.
- Illness from diarrhoeas, eye infection and skin diseases (all hygiene-related) results in an aggregated cost of US\$ 10-11 per person per year for rural households in Uttar Pradesh, India.

This Briefing Note presents evidence for the impact of water supply, sanitation and improved hygiene on child health and mortality.

Key references

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Full details of all the material used in support of this briefing note are available at www.lboro.ac.uk/well

There are six briefing notes in this series:

1. The Poverty Millennium Development Goal: What water, sanitation and hygiene can do
2. The Education Millennium Development Goal: What water, sanitation and hygiene can do
3. The Child Health Millennium Development Goal: What water, sanitation and hygiene can do
4. The Gender Millennium Development Goal: What water, sanitation and hygiene can do
5. The HIV/AIDS Millennium Development Goal: What water, sanitation and hygiene can do
6. The Environmental Sustainability Millennium Development Goal: What water, sanitation and hygiene can do

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