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Sanitation is vital for health

Readers of a prestigious medical journal were recently asked to name the greatest medical advance in the last century and a half. The result: better sanitation. In nineteenth-century Europe and North America, diarrhoea, cholera, and typhoid spread through poor sanitation was the leading cause of childhood illness and death; today, such deaths are rare in these regions. In developing countries, however, they are all too common, and recent research suggests that poor sanitation and hygiene are either the chief or the underlying cause in over half of the annual 10 million child deaths. Compelling, evidence-based analysis shows that hygiene and sanitation are among the most cost-effective public health interventions to reduce childhood mortality. Access to a toilet alone can reduce child diarrhoeal deaths by over 30 percent, and hand-washing by more than 40 percent.

Diarrhoeal diseases

Five thousand children die every day due to infectious diarrhoea, which is caused primarily by inadequate sanitation. Seventeen percent of under-five deaths are attributable to diarrhoeal diseases, making it the second largest killer of children, after pneumonia. Diarrhoea is also a major contributor to malnutrition and stunting.

Diarrhoeal diseases are often described as water-related, but more accurately should be known as excreta-related since the pathogens derive from faecal matter. The »faecal-oral cycle« describes the principal routes of transmission of infectious diarrhoeal disease. This cycle is fuelled by the »five f's«: fluid (drinking contaminated water); fields (the contamination of soil and crops with human faecal matter); fingers (unwashed hands

preparing food or going into the mouth); food (eating contaminated food); and flies (spreading disease from faeces to food and water or directly to people – particularly problematic where open-air defecation is the norm).

Breaking the faecal-oral cycle, which depends primarily upon hand-washing and use of toilets or latrines that contain and sanitise faecal matter, saves children's lives. In Salvador, Brazil, a recent city-wide sanitation drive has raised sanitation coverage rates from 26 percent to 80 percent. A study on diarrhoeal morbidity in children under three was conducted in high and low-risk areas of the city. The overall prevalence of diarrhoea fell by 22 percent, but in the poorer areas where sanitation coverage was lowest to start with, prevalence fell by 43 percent.

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→ **Worms**

Intestinal worms (helminths), which are transmitted when people ingest faecal matter or step in it with bare feet, are less life-threatening than diarrhoeal diseases, but seriously undermine children’s health. There are around 130 million annual cases worldwide of ascaris (roundworm), trichuris (whipworm), and hookworm infestation. A typical ascaris load diverts around a third of the food a child consumes, and malnutrition is at the root of half of all childhood illness. Hookworm is a frequent cause of anaemia. Trichuris leads to chronic colitis in toddlers, a condition which often persists for so long that mothers may think it normal and fail to seek medical help. Children in poor environments frequently carry 1,000 parasitic worms in their bodies at a time. When at school, such children may be listless, sleepy, and unable to concentrate.

Acute respiratory infections

There are also links between poor sanitation and acute respiratory infections (ARIs), such as pneumonia. ARIs are one of the largest causes of mortality in the world, with four million deaths, half of them among children. Evidence suggests that better hygiene practices

– washing hands with soap after defecation and before eating – could hugely reduce the infection rate. Combining the figures for ARIs and diarrhoeal diseases, poor sanitation and hygiene is a leading cause of childhood death.

Burden of caretaking

Although the physical disease toll is worst for children, there are other important health implications of lack of sanitation. When someone is sick with diarrhoea, especially if he or she is elderly or debilitated by AIDS or another serious illness, it is very difficult to nurse the patient when there is no toilet nearby. Disabled people suffer great difficulty and discomfort in dealing with their excretory need. Women caring for the sick or disabled lose time that could be spent on other domestic activities and income-earning.

Mental health

The loss of a much-loved child exacts a high toll on the mental health of surviving parents, siblings, and other relatives, creating a psychological burden that receives little attention.

Main sources: UN, UNICEF, WHO.

The F-diagram of disease transmission and control
(after Wagner & Lanoix)

