



Personal hygiene behaviour

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A number of diseases can be prevented by personal hygiene. This fact sheet first defines personal hygiene. It then explores which diseases can be prevented through improved personal hygiene as well as the hygiene behaviour itself. It intends to be supportive to hygiene promoters by looking into some issues of behavioural change and promotional aspects. Last but not least it takes a look at what USAID calls the Hygiene Improvement Framework and its implications for practising hygiene behaviour.

Introduction (Heading 1)

Hygiene behaviour plays an important role in the prevention of diseases related to water and sanitation. Water supply and sanitation make hygiene easier to practice, but the mere provision of facilities has proven to be less effective. In 1991, Esrey found that better hygiene through handwashing, food protection and domestic hygiene brought a reduction of 33% in diarrhoea incidence, whereas improved water supply led to an average reduction of only 15-20%.

Subsequent studies have also shown the health benefits of improved hygiene (Fewtrell et al. 2005). Although the quality of many of the studies is not optimal¹, the general consensus is that hygiene promotion to bring about improved hygiene behaviour and thus health is a worthwhile investment. This fact sheet focuses on personal hygiene as a sub-set of general hygiene behaviour. For more detailed information, see IFH (2002).

Defining the scope

Boot and Cairncross (1993) defined hygiene behaviour as the wide range of actions associated with the prevention of water and sanitation-related diseases. One of the five domains of hygiene behaviour which they identified is water and personal hygiene.

Box 1. Five behavioural domains

1. Disposal of human faeces
2. Use and protection of water sources
3. Water and personal hygiene
4. Food hygiene
5. Domestic and environmental hygiene

Boot and Cairncross do not really define personal hygiene, but describe it to include the following behaviours:

- Washing of hands / cleaning of nails
- Washing of face
- Body wash / bathing
- Hygiene after defecation
- Washing and use of clothes, towels and bedding

Separate mention is made of personal hygiene during natural events such as menstruation, birth, death and illness.

Benenson (1990) is more specific and describes personal hygiene measures to encompass

- washing hands in soap and water immediately after evacuating bowels or bladder and always before handling food or eating;
- keeping hands and unclean articles, or articles that have been used for toilet purposes by others, away from the mouth, nose eyes, ears, genitalia, and wounds;
- avoiding the use of common or unclean eating utensils, drinking cups, towels, handkerchiefs, combs, hairbrushes and pipes;
- avoiding exposure of other persons to spray from the nose and mouth as in coughing, sneezing, laughing or talking;
- washing hands thoroughly after handling a patient or his belongings; and
- keeping the body clean by sufficiently frequent soap and water baths.

In this fact sheet, the focus is on those hygiene behaviours that are generally considered to be associated with water and sanitation related diseases.

Relevance

Different aspects of personal hygiene are of interest to different potential users of this fact sheet.

For **policy makers**, statistics on the burden of disease are an important source of information when defining their policies. Some of these diseases are water and sanitation related. For defining a policy that seeks to contribute to the prevention of these diseases, they are best served with some general insight in the importance of hygiene promotion. This provides them with a justification for hygiene promotion in their policies.

Water and sanitation programme managers seek information on how hygiene education can increase the effectiveness of interventions such as the construction of water supply and sanitary facilities. This will help them to optimize the allocation of human and financial resources in their programmes.

Hygiene educators, who actually implement hygiene education, may additionally be helped with more details on hygiene behaviours. They need to be well informed about the nature of the behaviour required (e.g. whether it concerns behaviour related to personal or environmental hygiene) and how to address behavioural change in communities.

The story for policy makers (and programme managers and hygiene educators)

The pie-diagram below shows how diarrhoea and acute respiratory infections (ARI) make up half of the global burden of environmentally related diseases. Statistics such as these are also available for individual countries.

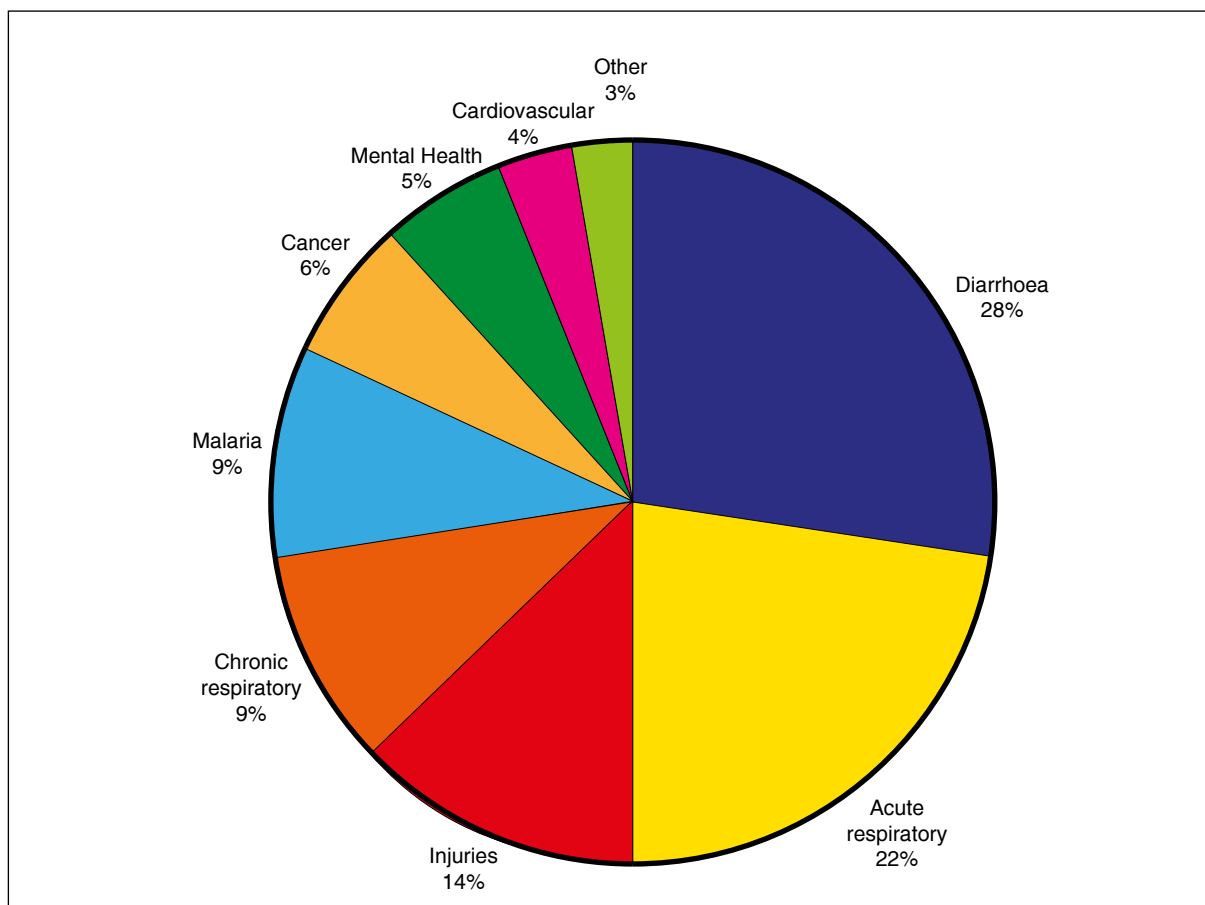


Figure 1. How diarrhoea and acute respiratory infections (ARI) make up half of the global burden of environmentally related diseases

Source: Cairncross et al. (2003a)

Much of the transmission of diarrhoea can be prevented by personal hygiene; there is also increasing evidence that hand washing can help to prevent ARI (Cairncross, 2003b).

The table below shows diseases which can be prevented by improving water and sanitation facilities and hygiene behaviours. It clearly shows the need for hygiene measures, given the role these measures play in cutting disease transmission routes. They can be divided into those that have a positive impact on the cleanliness of the environment and those having a positive impact on the cleanliness of people themselves: handwashing and washing clothes and body. The latter – personal hygiene behaviours – are the focus of this fact sheet.

Transmission patterns and preventive measures for water- and sanitation-related diseases common in emergency situations

Infection	Transmission pattern	Human excreta disposal	Solid waste disposal	Waste water disposal	Safe water chain	Hand-washing	Food hygiene	Washing clothes and body
Various types of diarrhoea, dysentery, poliomyelitis, typhoid and paratyphoid, hepatitis A	From human faeces to mouth (faecal-oral) via multiple routes of faecal contaminated water, fingers and hands, food, soil and surfaces. Animal faeces may also contain diarrhoeal disease organisms.	✓	✓		✓	✓	✓	
Roundworm (Ascariasis), Whipworm (Trichuriasis)	From faeces to mouth: Worm eggs in human faeces have to reach soil to develop into an infective stage before being ingested through raw food, dirty hands and playing with things that have been in contact with infected soil. Soil on feet and shoes can transport the eggs long distances. Animals eating human faeces pass on the eggs in their own faeces.	✓	✓			✓	✓	
Hookworm	From faeces to skin (especially feet): Worm eggs in the faeces have to reach moist soil, where they hatch into larvae which enter the skin of people's feet.	✓						
Schistosomiasis (Bilharzia)	From faeces to urine to skin: Worm eggs in human faeces or urine have to reach water where they hatch and enter snails. In the snails they develop and are passed on as free swimming 'cercariae' which penetrate the skin when people come into contact with infested waters.	✓			✓			
Scabies, Ringworm, Yaws	From skin to skin: Both through direct skin contact and through sharing of clothes, bedclothes and towels.							✓
Trachoma, Conjunctivitis	From eyes to eyes: Both direct contact with the discharge from an infected eye and through contact with articles soiled by a discharge, such as towels, bedding, clothing, wash basins, washing water. Flies may also act as transmission agents.							✓
Louse-borne typhus, Louse-borne relapsing fever	From person to person: Through bites of body lice which travel from person-to-person contact and through sharing clothes and bedclothes, particularly when underwear is not washed regularly.							✓
Malaria, Dengue fever, Yellow fever	From person to person through the bite of infected mosquitoes. The mosquito breeds in standing water.			✓				
Leishmaniasis	From person to person through the bite of infected phlebotomine sandflies. The sandflies breed in damp organic debris, including excreta and solid waste.	✓	✓					

Adapted from Boot, M. T. and Cairncross, A., 1993 and Ministry of Health, Uganda (1998a and b)

The story for programme managers (and hygiene educators)

Managers of water and sanitation programmes wish to improve people's living conditions by providing water and sanitation facilities. Reducing the distance to water points, improving the quality of water and the safe disposal of human excreta are indeed major improvements. However, they can be further optimized if they include hygiene promotion aimed at improving personal hygiene. Again, the table serves to demonstrate this, but figures comparing the impact of the various interventions are even more powerful. Frequent handwashing is the most important personal hygiene behaviour. Curtis and Cairncross (2002) did a literature review and found that

the single personal hygiene practice of washing hands with soap is alone able to reduce diarrhoea incidence by over 40%.

According to Curtis and Cairncross (2003), handwashing with soap and water after contact with faecal material can reduce diarrhoeal diseases by 42% or more. As indicated in the figure below, a more general review by Fewtrell et al (2004) found something similar.

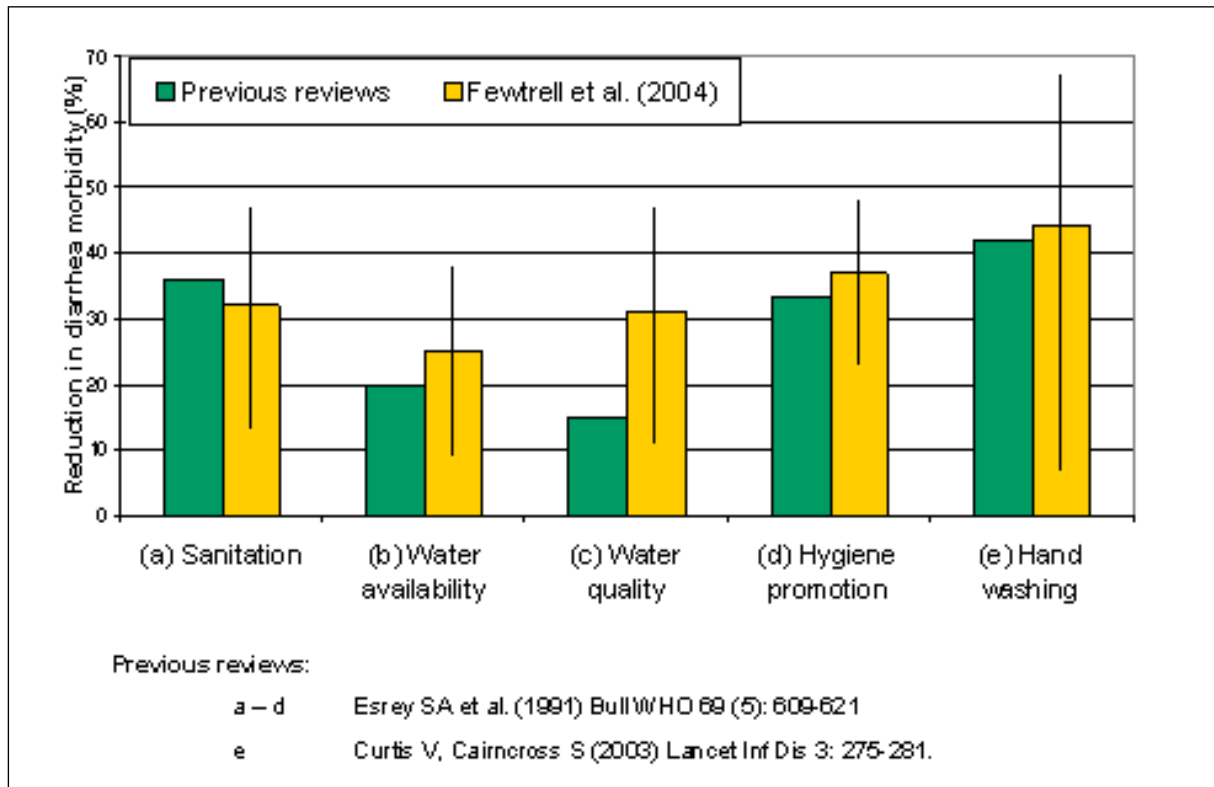


Figure 2.

The story for hygiene educators

As we can see from the table, personal hygiene as well as the safe disposal of excreta is important for preventing various types of diarrhoea, trachoma and also roundworm and whipworm,. However, for other diseases (scabies, ringworm, conjunctivitis and louse-borne typhus), personal hygiene is the single preventive measure to take.

Below we will take a closer look at the various personal hygiene behaviours by explaining their meaning for the prevention of disease transmission, their importance and the challenges hygiene promoters face when aiming at motivating people towards behavioural change.

The various personal hygiene behaviours discussed

Washing hands is the most effective behaviour for the prevention of diarrhoea as well as for the prevention of roundworm and whipworm. In fact handwashing is widely practised in one form or the other. However, it is rarely done at the most crucial times and done effectively, that is with soap.

Hands get most dangerously soiled through human faeces and earth (possibly containing worm eggs). Therefore crucial moments for handwashing to cut transmissions routes are:

- after defecation and after contact with children's faeces;
- before handling food and after handling high risk food such as raw meat;
- before eating and feeding children; and
- before handling water.

Effective handwashing requires thorough *rubbing of the hands* while using soap and *sufficient water* to rinse it off. If soap is not available, ash or earth is nearly as effective.

Cleaning fingernails is closely related to handwashing. Handwashing as such does not ensure that fingernails are cleaned also. Whereas clean fingernails have an aesthetic value, from a health point of view they are particularly important when food is consumed or fed to infants using fingers.

Handwashing and cleaning fingernails also play a role in the prevention of eye and skin infections, such as scabies. When wiping infected eyes or scratching itching infected skin, bacteria or mites can settle on fingers and hence be transmitted.

Keeping fingernails clean requires them to be kept short and brushed regularly.

Washing the body is another behaviour relevant for the prevention of skin infections like scabies (caused by small mites living under the skin), and ringworm (a fungal infection). Also louse-borne typhus and louse-borne relapsing fever do not persist with regular washing of the body and clothes. Washing is best done using running water and soap, whereby special attention needs to go to folds of the skin as well as to skin between fingers and toes.

Washing the face plays an important role in the prevention of eye-infections. Hygiene related eye infections include conjunctivitis and trachoma, an eye infection that may eventually cause blindness. Evidence from health research shows that a lower incidence of trachoma is associated with fewer flies sitting on eyes and more frequent washing of children's faces (Emerson et al 2000). When a person suffers from either of these two infections, washing the face regularly will remove the infectious discharge from the eyes. This prevents flies from being attracted to the infected eyes, thus becoming transmission agents. When the discharge is removed using bare fingers or a cloth, the bacteria can easily be picked up on the fingers or cloth and transmitted to anything else that they touch.

In Nepal and India for example women often use a corner of their sari to wipe a child's face. If one of the child's eyes is infected, transmission of the infection or re-infection easily occurs.

Washing clothes and bedding - like washing the body, washing clothes and bedding are major preventive measures for the transmission of scabies and louse-borne typhus and relapsing fever.

Someone can easily be infected with scabies or ringworm if s/he touches the clothes or bedclothes of a person with scabies. Lice, which may spread typhus or relapsing fever, hide in seams of clothes and bedclothes and these should therefore be thoroughly washed regularly. Communal use of clothes and bedclothes should be avoided.

Motivating for change

Given the health impact of personal hygiene behaviour, one could easily assume that motivating people to practise it would be quite simple. However, a multitude of factors make effective hygiene promotion rather challenging. In the WELL fact sheet on hygiene promotion, Curtis describes a number of fallacies (ideas which many people believe to be true, but which in fact are false) on which hygiene education programmes are built. One of these fallacies is that new knowledge leads automatically to new practice. Research has indeed shown that this is not necessarily true (Shordt and Cairncross, 2004).

The other fallacies are:

- Adults are 'clean slates' on which to write new ideas;
- Adults have time and motivation to learn new ideas;
- A whole variety of hygiene practices should be encouraged;
- Health education can be "added on" to an existing programme.

These fallacies indicate the need for an innovative approach to hygiene promotion. Building on field experiences, a number of key principles have been identified.

Box 2. Key principles for effective hygiene promotion

- Target a small number of risk practices.
- Target specific audiences.
- Identify the motives for changed behaviour.
- Hygiene messages need to be positive.
- Identify appropriate channels of communication.
- Decide on a cost-effective mix of channels.
- Hygiene promotion needs to be carefully planned, executed, monitored and evaluated.

Source: Curtis, WELL fact sheet on Hygiene Promotion

The enabling environment

However, for hygiene promotion to be effective, i.e. to lead to actual hygiene improvement, it should not be looked at in isolation. The USAID Environmental Health Project (www.ehproject.org) developed the Hygiene Improvement Framework. This offers a good framework that shows how the combination of hygiene promotion, access to hardware and a conducive enabling environment all contribute to hygiene improvement, including improvements in personal hygiene.

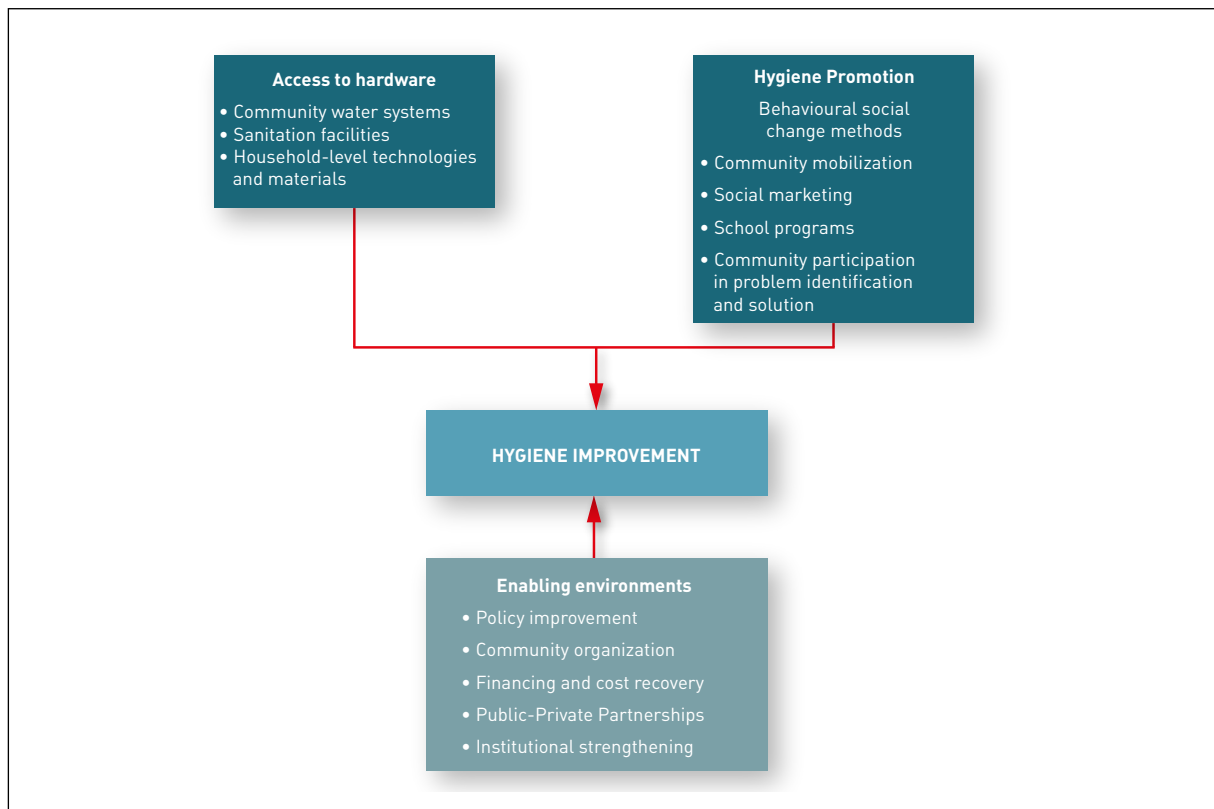


Figure 3. Hygiene improvement

For example: to wash a child's face one needs access to water and sustainable access to water requires community organizations and well functioning financing and cost-recovery strategies.

The most obvious enabling condition for personal hygiene is the availability of water. However, recent research has also shown that for behavioural change to occur and be sustained there is a need to continue the hygiene promotion until the new behaviour has become entrenched (Shordt and Cairncross, 2004).

More information on how to implement and evaluate hygiene promotion can be found in WELL fact sheets i) Hygiene Promotion, ii) Evaluation of Hygiene Promotion and iii) Social Marketing.

Key references

Esrey, S. et al (1991). Effects of improved water supply and sanitation on ascariasis, diarrhea, dracunculiasis, hookworm infection, schistosomiasis, and trachoma. *Bulletin of the World Health Organization* 69(5):609-621..

Boot, M. and Cairncross, S. (1993). *Actions Speak*. The study of hygiene behaviour in water and sanitation projects. Delft: IRC and LSHTM

Benenson, A. (1990). *Control of communicable diseases in man: an official report of the American Public Health Association*. 15th edition. Washington DC.

Cairncross, S. et al (2003a). Health, Environment and the burden of disease; a guidance note. London: Department for International Development.
<http://www.dfid.gov.uk/Pubs/files/DFID%20He1.pdf>

Cairncross, S. (2003b). Editorial: Handwashing with soap – a new way to prevent ARIs? *Tropical Medicine & International Health* 8 (8): 677-679

Cave, B. and Curtis, V. (1999). Effectiveness of promotional techniques in environmental health. WELL Study no. 165. London School of Hygiene & Tropical Medicine for DFID <http://www.lboro.ac.uk/well/resources/>

Curtis, V. and Cairncross, S. (2003). Effect of washing hands with soap on diarrhoea risk in the community: a systematic review. *Lancet Infectious Diseases* 3: 275-281.

Almedom, A. et al (1997). Hygiene evaluation procedures; approaches and methods for assessing water and sanitation related hygiene practices. International Nutrition Foundation for Developing Countries. Boston, USA.

Emerson, P. et al (2000). Review of the evidence base for the 'F' and 'E' components of the SAFE strategy for trachoma control. In: *Tropical Medicine and International Health*, vol. 5, no. 8, p. 515-27.

Curtis, V. WELL-fact sheet Hygiene promotion. <http://www.lboro.ac.uk/well/resources/fact-sheets/fact-sheets-htm/hp.htm>

Shordt, K. and Cairncross, S. (2004). Sustainability of hygiene behaviour and the effectiveness of change interventions; findings from a multi-country research and implications for water and sanitation programmes. IRC, The Hague. <http://www.ehproject.org/pubs/globalhealth/hif-bw.doc>

Fewtrell, L., Kay, D., Enanoria, W., Haller, L., Kaufmann, RB. and Colford, J.M. (2005). Water, sanitation and hygiene interventions to reduce diarrhoea in developing countries; a systematic review and meta-analysis. *Lancet Infectious Diseases* 5(1):42-52.

IFH (2002). Guidelines for prevention of infection and cross-infection in the domestic environment; focus on home hygiene issues in developing countries. Milan: International Scientific Forum on Home Hygiene. <http://www.ifh-homehygiene.org/2003/2public/2pub00.asp>

Loevinsohn, B.P. (1990). Health education interventions in developing countries; a methodological review of published articles. *International Journal of Epidemiology* 19 (4): 788-794.

¹ Cave and Curtis (1999) assessed health education studies against criteria developed by Loevinsohn (1990)

Regional Annex for East Africa

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The issue

To achieve the greatest health benefits from water supply and sanitation provision improvements in hygiene should be made concurrently. For people to utilize and benefit sustainably from water and sanitation facilities they must adopt the appropriate hygiene practices and therefore hygiene promotion should be an integral part of water supply and sanitation.

The grim global picture

1.1 billion people in the world do not have access to safe water, and 2.6 billion do not have access to adequate sanitation. It is estimated that 2.2 million people in developing countries, most of them children, die annually due to diarrhoea linked to lack of access to safe drinking water, inadequate sanitation and poor hygiene (WaterAid 2006).

Poor water quality continues to pose a major threat to human health. Diarrhoeal disease alone amounts to an estimated 4.1 % of the total DALY global burden of disease and is responsible for the deaths of 1.8 million people every year. It was estimated that 88% of that burden is attributable to unsafe water supply, sanitation and hygiene and is mostly concentrated on children in developing countries, (WHO, 2004).

The global challenge

Provision of safe water supply and sanitary conditions coupled with sustainable proper personal hygiene can drastically reduce this burden.

Hygiene behaviour plays an important role in the prevention of diseases related to water and sanitation, such as cholera, typhoid, dysentery, diarrhoea and intestinal worms. Providing water and sanitation facilities does not necessarily lead to a decrease in these diseases. For real impacts to be felt, provision of these facilities has to go hand in hand with their proper use and maintenance. This is achieved by persuading people to change their behaviour in order to reduce 'risk' practices that predispose them to hygiene and sanitation related diseases.

Campaigns to promote hand washing with soap, food protection, domestic hygiene and safe excreta disposal, in particular of infants' stools, have been shown to deliver big health gains. The simple habit of hand washing if widely adopted would save more than one million lives around the world annually, the majority of them children under the age of five in poorer countries. The simple act of washing hands with soap can reduce diarrhoea by over 40% (WaterAid 2006). Better hygiene

through hand washing and safe food handling reduces child diarrhoea by 35%, improved water quality by 15-20% and safe disposal of children's faeces by nearly 40%. In view of the current HIV/AIDS prevalence rates improved hygiene practices and access to safe water and sanitation facilities also reduce the chance of infection with opportunistic diseases (diseases which attack the body due to weakened immunity) such as diarrhoea and tuberculosis.

In addition, greater access to improved water and sanitation services and improvement in personal hygiene behaviour may confer other benefits. These include averted health-related costs, avoidance of time lost from daily activities as a result of illness, and time saved by having water and sanitation closer to home. Time saved may translate into higher productivity and higher school attendance.

The grim situation in East Africa

In Kenya, it is estimated that 38% of the population have no access to adequate and safe water supply and 52% lacks access to adequate and appropriate sanitation, (UNICEF 2006). A rapid applied research pilot study to determine the level of hygiene awareness conducted in Korogocho slums of Nairobi in Kenya by NETWAS Kenya and Water Supply and Sanitation Collaborative Council in 2003 indicated that knowledge on the key hygiene behaviours and practices by the slum residents was very low and only 29% of the respondents had ever attended any form of hygiene training (NETWAS 2003).

In Uganda, developments in hygiene and sanitation have dragged behind in the water sub sector which has blunted the impact of water and sanitation projects. The traditional approach has focused mainly on improving water supplies. Consequently, 80% of incidences of diseases in Uganda are linked to poor sanitation, (WaterAid, 2006).

Despite its importance in achieving better health, water and sanitation coverage has been low in East Africa especially in the rural areas. Major efforts to address this problem have been concentrated on urban slum dwellers and less to informal rural settlements.

The challenge in East Africa

Provision of water and sanitation facilities is necessary but not sufficient for sustainability of hygiene behaviour changes. A lot of emphasis in East Africa in the recent past has been placed on provision of the hardware component without necessarily providing the software. Case studies in Kenya and Uganda carried out by Water Aid have identified key determinants to sustainable adoption of hygiene behaviours such as:

- making hygiene and sanitation programmes an integral part of water supply interventions
- targeting children, using tailor-made hygiene promotion programmes, ideally in schools.

Therefore, there is need to shift the focus and integrate hygiene awareness and education programmes to influence behaviour change.

In an effort to address part of this challenge, school sanitation and hygiene education activities have been initiated in several parts of Kenya to influence hygiene practices among pupils, teachers and parents using child to child as well as child to parent approaches.

A Water, Sanitation and Hygiene (WASH) campaign was launched in Kenya in 2002 aiming at, among other things, promoting hygiene awareness. This targeted key behaviors such as hand washing after using toilets and before handling food as well as latrine use and maintenance at home and in schools.

Approaches applied

In Kenya, Uganda and Tanzania, the Participatory Hygiene and Sanitation Transformation (PHAST) approach to water and sanitation projects has been adopted to promote hygiene and sanitation improvements, and community management of water and sanitation facilities. PHAST was introduced in the understanding that hygiene behaviours are particularly difficult to change because they relate to daily activities, they are shared by the whole community and they form part of the culture and traditions of the community. This is addressed by involving community groups in discovering the routes of water-borne diseases, analyzing their own behaviours in light of this information and then planning how to block contamination routes. PHAST also facilitates communities in deciding what they want from hygiene and sanitation projects, how these should be set up and paid for and how to ensure sustainability.

Another approach adopted in East Africa (Kenya and Uganda) to promote safe hygiene practices is the Personal Hygiene and Sanitation Education (PHASE), which targets school children. It aims to reduce diarrhoeal diseases linked to poor hygiene and to improve children's overall health and wellbeing by providing guidance on the importance of hand washing and other hygiene practices.

A multi-country study on sustainability of hygiene behaviour involving selected countries in Asia and Africa including Kenya, indicates that intensive hygiene promotion interventions, such as working with small groups and through personal contact, will have tangible and sustained impact on people's behaviour, (Cairncross S., Shordt K. 2004). The study further concludes that sustainability of the desired behaviour is possible when hygiene is highly prioritized and adequate resources are committed to hygiene promotion.

Scaling up and increasing the effectiveness of investments in sanitation need to be accelerated to meet the ambitious Millennium Development Goals.

References

Key WaterAid Facts. Available at: http://www.wateraid.org/international/what_we_do/statistics/default.asp

WHO, Burden of Disease and cost-effectiveness estimates. Available at: http://www.who.int/water_sanitation_health/diseases/burden/en/index.html

(UNICEF 2006) issues facing children in Kenya http://www.unicef.org/infobycountry/kenya_262.html

Ghosh G. (WSSCC), Karanja B. (2003). Water, Sanitation and Hygiene for All, The WASH Campaign in Kenya, NETWAS. Available at: <http://www.netwas.org/newsletter/articles/2003/309/9>

Sustainable hygiene behaviour change, a study of key determinants. Available at: http://www.wateraid.org/documents/sustainable_hygiene_behaviour_change.pdf

GlaxoSmithKline (2006). PHASE - Helping children to help themselves and each other. Available at: <http://www.gsk.com/community/phase.htm>

Cairncoss S., Shordt K. (2004). It does last! Some findings from a multi-country study of hygiene sustainability. *Waterlines* 2004; 22:4-7

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