Prevention better than cure
by Richard G. Feachem

Treating diarrhoea effectively, and reducing the fatality rate among children who get diarrhoea, are the number one priority for most poorer countries. Effective treatment is, however, only a short-term priority. In the longer term, diarrhoea prevention is of greater significance to the well-being of children.

Diarrhoea prevention encompasses two types of activities. First are measures designed to reduce the transmission of the pathogens which cause diarrhoea and so to reduce the incidence rate and mortality rate. Since all major diarrhoea pathogens are transmitted by the faecal-oral route (that is from the faeces of an infected person or animal to the mouth of a susceptible child), measures to reduce transmission emphasise the traditional triad of improved water supply, improved excreta disposal and improved domestic and food hygiene. Second are measures which strengthen the ability of a child to cope with an infection and to reduce the risk of severe disease and death. In other words, these measures are designed to turn severe and fatal diarrhoeas into mild diarrhoeas or symptomless infections. These measures include breastfeeding, good weaning practices and certain vaccinations.

Until now, the list of possible interventions to prevent diarrhoea has been long, and it has been difficult for governments to select a few affordable and effective interventions to spearhead their activities in diarrhoea prevention. Careful analysis of the costs and effectiveness of a range of possible interventions to prevent diarrhoea has changed this situation and it is now possible to advocate a short list of interventions of known effectiveness.

Most people in the developing countries, in both urban and rural areas, do not have an adequate supply of clean water close to their homes. Without this basic facility, personal and domestic hygiene is made extremely difficult and family members may ingest pathogens contained in the faecally contaminated water. All countries are making great efforts to improve water supplies in both urban and rural areas and these efforts have been stimulated in some countries by the International Drinking Water Supply and Sanitation Decade (1981-1990).

What about you?
For your own culture, ask yourself the following questions.

1. In your own language are the words used to describe the faeces of infants different from the words used for adult faeces? If so, are the words for infant faeces "baby words" implying that the material is less offensive than adult faeces?

2. In your culture, do parents when cleaning their own infants appreciate the highly pathogenic nature of the infant stool or do they regard the infant stool as relatively harmless compared with the adult stool? The epidemiological truth is that the faeces of children under five years of age are more likely to contain diarrhoea pathogens than the faeces of older people. The faeces of the young child are a potent source of infection within the family and germs are easily transmitted to brothers and sisters and to the child minder (often the mother).

Many problems remain, however, perhaps the greatest of which is the failure both of government agencies and of communities to adopt viable arrangements for long-term maintenance and the financing of maintenance.

Because the pathogens that cause diarrhoea are shed in the faeces of an infected person, the hygienic disposal of excreta tackles the problem of transmission "at source". Every family needs good, preferably exclusive, access to a hygienic toilet or latrine. The toilet must be kept clean and must be used by all members of the family old enough to do so. Most families in developing countries lack such a facility and progress on this front is slow. In many countries the number of families without adequate sanitation is growing as population increases outstrip the modest sanitation programmes.

Considerable progress with appropriate technology has been made. The VIP latrine (ventilated improved pit latrine) is now well known in Africa, especially in Zimbabwe--its birthplace. In Asia, especially in the Indian subcontinent, the double-vault pour-flush latrine is being widely installed in urban areas.

Access to a water supply and a toilet will not improve the health of a family unless the facilities are correctly used and other related areas of hygienic behaviour are satisfactory. Studies in Bangladesh, Guatemala and the United States have shown that the promotion of hand-washing alone can have a marked impact on diarrhoea incidence. Epidemiological studies are required in many settings to define precisely the aspects of domestic and personal hygiene that are significant risk factors for diarrhoea. In addition to hand-washing, such matters as the hygienic disposal of the stools of young children, improved food hygiene, and the improved storage of water in the home may be important in many settings. Having defined the most important risk factors, pilot educational programmes can be mounted, followed up by vigorous local or national promotion of selected educational messages.

Current evidence tells us that improvements in water supplies, sanitation and hygiene may reduce the
incidence rate and mortality rate of diarrhoea by 20 to 40 per cent. These are very substantial results.

But mothers can also protect their children from diarrhoea by adopting appropriate child-feeding practices. Most importantly, mothers can breastfeed their children—exclusively for the first four to six months of life and partially thereafter up to 12 months or beyond. It is important that mothers realise that the breastfed child is at very much less risk of severe diarrhoea and diarrhoea death than the bottle-fed child. Recent data from Brazil and Iraq show that the difference in risk may be 20-fold or more.

Breastfeeding in the developing countries has declined rapidly in the past two decades, especially in the more wealthy countries and in urban areas. The situation is particularly serious for children being raised in urban slums, where diarrhoea remains a major cause of death and yet breastfeeding has become less popular. Vigorous programmes of breastfeeding promotion, education and facilitation are required. Promotion and education must be directed not only at mothers, but equally importantly at fathers, at young women, and at medical staff in maternity hospitals and elsewhere.

Some time after four months of age, breastfeeding alone will not satisfy the child’s nutritional requirements and weaning must start. Poor weaning practices are a major risk factor for diarrhoea and are partly responsible for the peak in age-specific diarrhoea incidence in the 6 to 18 months age group. Good weaning is a combination of ‘the when’, ‘the what’, and ‘the how’. Weaning foods should be introduced neither too soon nor too late (the when); they should be nourishing (the what); and they should be hygienically prepared and given (the how).

Weaning practices vary greatly from culture to culture and generalised statements of problems and solutions are not possible. So local or national programmes of weaning education need to be designed and put into effect. Social scientists have a key role to play in ensuring that weaning education programmes are not in conflict with deeply held convictions.

Parents can also protect their children from diarrhoea by making sure that they are vaccinated against measles. Reports from various countries show that diarrhoea accompanies between 20 and 60 per cent of measles episodes, and that 10 to 20 per cent of children will have a diarrhoea episode in the six months following a measles attack which they otherwise would not have had. This illness is exceptionally severe and is associated with a case fatality rate of between two and nine per cent. Because of this, a child immunised against measles is at reduced risk of death from diarrhoea.

No effective vaccine against any major enteric infection is currently available for widespread use, though much research is underway and prospects are good.

Breastfeeding, along with good weaning and certain vaccinations, sharply reduce the risk of severe disease and death.

Photo: WHO/ICDDR Bangladesh/A. Ansari

Tools to prevent diarrhoea are available today. While continuing to strengthen their oral rehydration activities, countries will be carefully examining the available preventive measures in order to select those which are locally appropriate.

Some of these preventive measures are already being vigorously pursued in most countries (for instance, water supply improvement). For these the challenge is to improve their effectiveness and accelerate the growth in coverage. Others (for instance, hygiene and weaning education) are being seriously carried out in only a small minority of countries, and much epidemiological and operational research is required. But public health professionals and social scientists are working with communities to introduce effective and affordable interventions, and it is safe to forecast that significant progress in diarrhoea prevention can be achieved in the next five years.