

Dialogue on Diarrhoea

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The international newsletter on the control of diarrhoeal diseases

Weaning breastfeeding, and diarrhoea

The two most recent *Dialogues* have looked at the associated topics of women, water, sanitation and family health in both rural and urban settings. It is clear that most of the direct work burden within households is borne by women as they try to make sure there is water, food and safe surroundings for their children.

Most valuable gift — breastmilk

Children are most at risk during infancy and early childhood before they develop their own immunity to dangerous infections in the environment. To grow up healthy, they must be fed adequately and safely; and they need to learn good health behaviour like use of toilets, and handwashing afterwards and before eating. Mothers work hard in most societies (see *DD30*). There is, however, nothing mothers can give to their babies which is as valuable as their own breastmilk. It is not only the perfect food for the first few months, but also provides protection against infectious diseases like measles, pneumonia and diarrhoea^{1,2}.

Weaning — time of extra danger

After the age of 4-6 months, babies need more than just breastmilk, and weaning towards the normal family diet must begin. Weaning makes extra work and is a time of extra danger from infection and malnutrition. 'Weanling diarrhoea' is a well recognized problem (see *DD6*). Breastfeeding protects against



Photo by Sonam Tobgy

Breastfeeding protects against the dangers of infection.

these dangers. It should be continued throughout weaning and always during oral rehydration therapy (ORT) for diarrhoea (see page 4).

The insert in this issue gives information about how to wean successfully and repeats some of the points made about domestic and environmental hygiene in *DDs 30* and *31*.

KME and WAMC

¹ Victoria C G et al. 1987. Evidence for protection by breastfeeding against infant death from infectious diseases in Brazil. *Lancet*, 2 pp 319-323.

² Briend A et al. 1988. Breastfeeding, nutritional state and child survival in rural Bangladesh. *BMJ*, Vol. 296, pp 879-881.

In this issue . . .

- Country reports from India, Jordan and Mozambique
- Weaning insert

AHRTAG

Appropriate Health Resources &
Technologies Action Group Ltd

ORS: flavouring and colouring

WHO and UNICEF have consistently recommended the use of ORS compositions containing only the four basic ingredients — sodium chloride, potassium chloride, glucose and sodium bicarbonate or trisodium citrate, dihydrate — for an effective solution. However, many commercially available products contain flavouring and some also a colouring agent.

Advantages

Theoretically, flavoured ORS may be more acceptable to children — they may drink it more readily — and it may therefore increase ORS use. Although flavour or colour do not increase or decrease ORS effectiveness in treating dehydration — its most important role — improved taste may help to achieve more widespread popular use of ORS particularly in the prevention of

dehydration and in post-rehydration maintenance therapy.

Disadvantages

The theoretical disadvantage of flavouring or colouring of greatest concern is the risk of overconsumption of ORS and consequent hypernatremia (too great an intake of sodium). However, there is no documented evidence to support this theory. Giving too little OR fluid is a much more common and serious error. Colouring of ORS has led to changes in stool or urine colour causing confusion in diagnosis in some cases. Adding flavour or colour also adds to the cost of ORS, but this may be more than offset by greater acceptability and hence more widespread use.

CDD Update, November 1987, WHO/CDD, 1211 Geneva 27, Switzerland.

WHO is supporting a study to investigate this issue and would welcome data from additional studies.

persistence.

• Treatment and control

Oral rehydration therapy has now been found to cure all but the most severe cases, and these can receive the oral solution by nasogastric tube if intravenous fluid is unavailable. But problems in cholera control still exist:

- The disease often occurs in areas where treatment facilities are unavailable.
- Recognised clinical cases are usually few. Very mild cases and asymptomatic infections, often unidentified, are more frequent and may play a very important role in spreading the disease.
- Though sensitive procedures for the laboratory diagnosis of cholera cases have been developed, rapid diagnosis of carriers is still difficult.
- The eltor biotype is more resistant to environmental factors than the classical type and survives longer in the environment.

• Chemoprophylaxis and vaccine

The ineffectiveness of currently available parenteral cholera vaccine is now common knowledge. This is for various reasons. Currently available vaccine efficacy is only around 50-60 per cent, lasting for 3-6 months; most vaccine producers do not test for potency and produce vaccines that do not have the required potency; vaccination does not alter the severity of the disease and does not reduce the rate of asymptomatic infections, thus it cannot prevent the introduction of cholera into a country or its spread; the vaccine takes 8-10 days to induce immunity and in children in endemic areas needs to be given in two doses at 10-28 days' interval.

Resources would be better used to improve water supplies and sanitation and hygienic practices. Only when these are at a certain level does faecal-oral transmission of *V. cholerae* become unlikely.

Mass chemoprophylaxis has been used extensively in the past by some countries, a number of which used sulfadoxine despite its known toxicity. The effectiveness of this strategy has never been demonstrated, not surprisingly since it is impossible to treat everybody in an affected community at a rapid enough pace to prevent re-infection from untreated persons. Also the effect of such drugs only lasts a few

Cholera update

The seventh pandemic of cholera continues, but a simple approach is now available to prevent deaths. Experience has shown that cholera is not a major public health problem in a country or a community that has a properly organised programme for the control of diarrhoeal disease.

• Cause

Cholera is an acute infection of the intestine caused by the bacterium called *Vibrio cholerae*. The vibrio that is responsible for the current, seventh pandemic was named after the El Tor Quarantine Camp (in Sinai) where it was first isolated. It is now called *V. cholerae*, biotype eltor.

• Symptoms

The incubation period for cholera is short, between less than one day to five days. The symptoms are profuse watery diarrhoea and vomiting, causing dehydration and acidosis. Most infected persons show no symptoms or have mild diarrhoea. A few may develop severe disease and die within a few hours from loss of water and electrolytes unless treated.

• Transmission

Cholera can spread very fast, mainly through water and food consumed by

persons living in overcrowded communities, where facilities for excreta disposal and drinking water supplies are poor. Studies have shown that *V. cholerae* biotype eltor may survive in water. In newly infected areas, adults are usually affected. In endemic situations, cholera is mainly seen in children (after infancy) and young adults.

• Geographic spread

The seventh pandemic began in 1961, when *V. cholerae*, biotype eltor spread from Celebes, Indonesia to other countries in East Asia, reaching Bangladesh in late 1963, India in 1964, (in India, but not in Bangladesh, the eltor type almost completely replaced the classical *V. cholerae*), and the Mediterranean in the late 1960s. In 1970, cholera invaded West Africa, which had been free from the disease. The disease spread either along the coast or rivers through fishermen or traders, and to other areas of the continent along land routes of travel. Funeral gatherings, with the ceremonial washing of dead bodies and feasting, also played an important role in its spread. Eventually the disease became endemic, particularly in coastal areas where temperature, humidity, rainfall and population density favoured its

days. Use of mass prophylaxis in several countries may also have contributed to the emergence of drug resistance by cholera vibrios to multiple drugs. Many health administrators nowadays correctly use anti-microbials that are safer and easy to administer (e.g. doxycycline), reserving them for cases and, when the attack rate is high, their immediate contacts. Doxycycline is less likely to produce adverse reactions than chloramphenicol and can be given as a single dose treatment, unlike tetracycline which must be given over a period of at least two days.

• **Be prepared**

Cholera in an unprepared community is generally associated with a high mortality rate (50 per cent or more), usually because treatment facilities are lacking. Panic often ensues and the sick, as well as their family members and friends, travel long distances to seek treatment, which spreads the disease. In contrast, mortality rates can be reduced to below 3 per cent in communities with a properly organised programme for diarrhoeal diseases control, where health staff and village health workers are trained to treat acute diarrhoeas (including cholera) and are provided with essential supplies, especially oral rehydration salts (ORS). They should also be trained to keep case records, enabling them to notice promptly any change in the pattern of disease (age group, number of cases, severity, etc.) that might indicate the possibility of an epidemic, which would need to be reported.

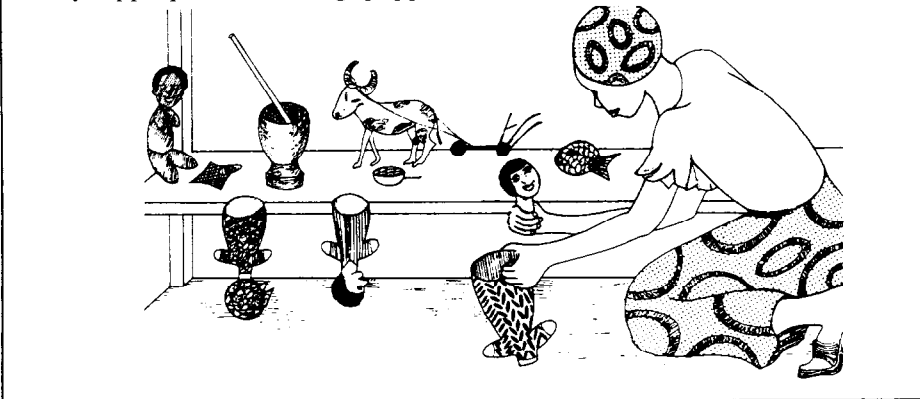
See also WHO/CDD/SER 80.4 REV. 1(1986) *Guidelines for Cholera Control*.

Communication guide

The WHO Diarrhoeal Diseases Control (CDD) Programme has produced a guide for national CDD programme managers with the aim of improving communication activities and assisting countries in designing, planning, implementing and evaluating the communication component of their CDD programme. It covers many important areas including, for example, the timing, appropriateness and sustainability

Puppets for Better Health — A Manual for Community Workers and Teachers by Gill Gordon, has recently been published by Macmillan. There are chapters on how puppets can be used for health education in a community, how to make up stories that are locally appropriate, making puppets

and other items needed for a show, preparing and putting on a puppet show, and how to follow up the messages used. Available from: **Macmillan Distribution Limited, Houndsmills, Basingstoke, Hampshire RG21 2XS, UK. Price: £7.50 plus p and p.**



of communication activities. *Communication: A Guide for Managers of National Control of Diarrhoeal Diseases Programmes*, produced in collaboration with UNICEF, is now available in English. It will soon be available in French and Spanish. From the **CDD Programme, WHO, 1211 Geneva 27, Switzerland.**

Intestinal worms

The latest issue of *Health Technology Directions*, Volume 7, Number 3, 1987, focuses on intestinal worms: diagnosis and treatment; prevention; and programme issues. Copies of *Directions* (a newsletter published three times a year), and a bibliography on intestinal worms are available free of charge to health programme managers in developing countries, from **PATH, 4 Nickerson Street, Seattle, WA 98109-1699, USA.**

Eye health bulletin

This is a new bulletin from the International Centre for Eye Health, Institute of Ophthalmology, London (WHO Collaborating Centre for the Prevention of Blindness) for all concerned with community eye health. The first edition will include articles on world blindness, malnutrition and the eye, surgical repair of the penetrating eye wound, and working with mothers for change. *Community Eye Health* will be sent on request by airmail (free of

charge). For copies please write to: **Dr Murray McGavin, Managing Editor, 'Community Eye Health', 27-29 Cayton Street, London EC1V 9EJ, U.K.**

Hospital 'friends'

Following the news item in issue 28, Dr Anne Savage has received over 80 letters from *DD* readers in overseas rural hospitals requesting equipment and medical supplies. Dr Savage is currently seeking support for these requests and has asked us to inform *DD* readers who wrote to her that she will contact them as soon as possible.

Poster competition

Over one thousand children worldwide have sent in entries for the *DD* poster competition. They are all excellent and choosing the winners is going to be very difficult! Posters will be judged in April by the Editors, UNICEF, Save the Children Fund and others. The results and the winning entries will be featured in a special insert in *DD 33* in June.

Change of address

AHRTAG will be moving to 1 London Bridge Street, London SE1 9SG, U.K. in April 1988. *DD* readers are requested to send all future correspondence to this address.

ORT in practice: India

CDD market research

The findings of a sample survey of rural areas of India have radically changed the strategy of the national diarrhoeal diseases control programme.

As part of the CDD programme a nationwide survey was recently carried out to gain a better understanding of beliefs and practices relating to diarrhoea. Included in the survey were village mothers, paramedical workers, chemists (pharmacists) and doctors in a representative sample of rural villages. Following this, a questionnaire was developed, field tested and revised, and given to 5,400 mothers whose children under five had recently suffered an episode of diarrhoea. The initial assumptions upon which the programme design had been based have been largely reversed or substantially revised as a result of the survey.

Results

- More than two-thirds of mothers recognised death as a possible outcome of diarrhoea and the great majority take diarrhoea quite seriously. However, there is a tendency to wait for three to five days before the illness is thought to be severe.
- All lactating mothers continued to breastfeed their children in spite of contrary advice from some medical professionals. In addition, 76 per cent of mothers gave extra water to drink and 42 per cent gave other fluids. In some 2,000 children who had been weaned, 91 per cent of mothers gave extra water to drink, 60 per cent another household fluid and 51 per cent gave both. Mothers gave fluid in response to thirst and in the hope of offsetting weakness which was the symptom most recognised as associated with diarrhoea.
- In contrast to popular belief and frequent medical advice, mothers did continue to give food in 74 per cent of cases. A majority of mothers, however, changed the child's diet, attributing the illness to dietary reasons. Some staple foods were dropped from the diet and almost half were given less food to eat than usual. Feeding was not stopped

because of the widespread belief that diarrhoea causes weakness and that energy must be provided to the child if it is to recover.

- Sixty-five per cent of mothers had consulted someone outside the home during the last episode of diarrhoea in their child; most of these consulted a 'doctor', qualified or otherwise, while only 7.5 per cent consulted a health centre or public health worker. Treatment in the great majority of cases was with:
 - tablets or capsules (70 per cent)
 - syrups (54 per cent)
 - intramuscular injections (40 per cent)
 - ORS (6.2 per cent).

Treatment costs averaged Rupees (Rs) 38 per episode (about \$3) and fewer than 5 per cent had paid less than 5 Rs. Respondents expressed the desire to pay for medical care which in their view was better than that obtained free.

Home available fluids and ingredients

All households had some available fluids that they would give a child with diarrhoea, but most did not contain salt, and many, like water or tea, were lacking in ingredients to promote absorption. Seventy-three per cent of households had refined sugar, or gur, available, 95 per cent had salt, and 83 per cent had rice. Only 8 per cent had neither rice, sugar nor gur. Thus the ingredients for a home-made solution are almost universally available, even in the poorest rural households.

As rice water was a widely accepted drink for children with diarrhoea, questions were asked about the frequency of cooking and lighting fires. Most respondents had fuel to make a fire, mostly wood or dung. While preparation of acceptable home solutions is possible, only 17 per cent were aware of sugar-salt solution, in spite of years of promotion through health education messages. In some southern areas, there was a higher level of awareness about sugar-salt solution



Asem Ansari

Surveys are a useful method of finding out whether mothers can correctly prepare oral rehydration solution.

(almost 50 per cent) but less than half of those questioned had ever used these solutions due to confusion about the correct formula.

ORS use and awareness

Nationwide, just over a third of all respondents had seen a packet of ORS and knew it is used for diarrhoea. Seventy-two per cent of those who were aware of ORS had used it (about a quarter of all respondents). Most solutions were made in one glassful amounts, using a teaspoon or plastic scoop to measure the ORS into a glass of water. Fewer than 10 per cent of users had ever mixed the entire packet at a time, in spite of directions to use in one litre of water. Tests of proper mixing showed widespread overdilution; a tendency to use 'less salts' and 'more water' was almost universal. People expect ORS to stop loose motions, an expectation that was widely viewed as fulfilled. Quenching thirst, prevention of weakness and cooling were other expectations felt generally to be satisfied by ORS users.

ORT in practice: Mozambique

Health workers

Finally, questions were asked about accessibility of village based workers and their knowledge of health matters. School teachers were known in three-quarters of the villages, dais in half and volunteer village workers in a quarter to a third. Government paramedical workers were known by only 15 per cent and in some areas of the country by fewer than 5 per cent. Credibility of all these was equally high, making teachers by far the best potential route for communication of information about diarrhoea.

Rethinking the strategy

These results have led to a major rethinking of the national diarrhoeal disease control strategy. Efforts will now be intensified to reach health professionals, particularly those who call themselves 'doctors', through commercial drugs salesmen, chemists and professional literature. Reorientation seminars, to be attended by all members of the Indian Medical Association, in the modern use of ORS are already underway. The medical professionals are being mobilised to carry the message, first to their colleagues and then to the public to assure them that the use of an ORS packet is the correct procedure at whatever level of health worker consulted.

Public media are building upon the existing tendency to use appropriate fluids available in the home rather than a specially prepared sugar-salt solution and to continue feeding, to encourage and promote what mothers have already been doing; emphasising giving more fluid, earlier, and more frequent feeding of the child. If public and professional perceptions now reinforce the practice of continued fluids and feeding and the expectation that curative services will provide ORS packets, then drinking will indeed become the norm for the treatment of diarrhoea in India. The importance of this type of pre-programme market research to the design and implementation of national programmes in diarrhoea management cannot be over-emphasised.

This study was conducted by the Indian Market Research Bureau for the Government of India, Ministry of Health and Family Welfare, funded by UNICEF.

Evaluating effective use

Oral rehydration therapy has been promoted in Mozambique since treatment guidelines were first drawn up in 1977. DD reports on a recent evaluation.

Before revising Mozambique's diarrhoeal disease control strategy, studies were carried out to evaluate: health centre management of diarrhoea; the practicability of advice given to mothers; and effective use of ORT in the home.

A simple study design was used. Medical students or paramedical workers observed the case management of diarrhoea in the health centre using a standard checklist, and interviewed the parent or guardian immediately after the consultation. Children were then followed up in the home the next day and the parent interviewed again.

Problems found

In the health centres observed, 77 per cent of mothers were either given oral rehydration salts (ORS) for their children or advised on home therapy with alternative solutions. Thirty-six per cent were prescribed antibiotics but none antimotility drugs. Despite the high prescription rate of ORS, instructions on its preparation and use were brief, incomplete and rarely accompanied by demonstration or commencement of oral rehydration in the health centre. All this was reflected in the follow-up findings. Although 84 per cent of mothers who said they had given ORS could state how to prepare it, only 42 per cent had prepared it correctly, mainly due to lack of litre bottles. The quantity was in most cases insufficient. Of the 88 per cent of mothers who said they had given ORS, 60 per cent had given less than half a litre during the previous 24 hours, and many had only given one teaspoonful three times a day, similarly to the other medicines prescribed.

Although in the capital city 93 per cent of homes had a litre bottle and all had salt and sugar, in other areas availability of litre bottles varied from 7 per cent to 47 per cent and of salt and sugar from 0 to 60 per cent of homes. Traditional remedies included cereal-based solutions and ground leaves or roots boiled in water, but they were given in small quantities, as medicines

rather than as a means of liquid replacement.

Revising the strategy

The studies showed many positive points — health workers did prescribe ORS and not anti-motility drugs; mothers knew how to make up ORS and continued breastfeeding and giving the normal diet to the child. However, OR solution was often given in insufficient quantities: the challenge for the CDD programme is to ensure its effective use.

To help achieve this, diarrhoea treatment norms have been revised and made more flexible. The previous emphasis on salt and sugar solution as the alternative to ORS has been changed to take into account the widespread shortages of these substances. New health education messages and materials emphasise the importance of giving a sufficient quantity of liquid as well as the correct preparation of ORS. Home solutions are recommended for early treatment, the type of solution varying in different parts of the country.

The results have also prompted a review of health worker training and supervision, incorporating the need for health workers to find out from families what home-based ORS is feasible and to demonstrate the preparation of ORS using locally available utensils.

We believe that this simple method of evaluation may be useful for other programmes, both to identify problems in case management, especially health education, and to evaluate improvements after appropriately designed training has been carried out.

Ministry of Health and Eduardo Mondlane Faculty of Medicine, Maputo Mozambique.

Readers who would like a copy of the protocol used for this evaluation study should write to Dr FT Cutts, SCF, CP 1882, Maputo, Mozambique. A similar protocol for use in evaluating diarrhoea case management in health facilities is available from the CDD programme, WHO, Geneva.

Country report

Jordan: diarrhoea and the urban poor

Even in modern cities of the Middle East such as Amman and Damascus where infant mortality is relatively low, diarrhoeal disease is still a part of life for children in low-income households. Leila Bisharat reports.

Two surveys carried out in 1980 and 1985 among low-income squatter communities in Amman, showed that while infant mortality was close to the national average, some children in these settlements were twice as likely to die during the first three years of life as others. The most important factors affecting child survival were the educational status of the mother and the child's environment, including the type of water source used by the family, quality of housing and so on.

Diarrhoea incidence

Both surveys took place in the winter when diarrhoeal episodes are more commonly associated with viruses, especially rotavirus. In the 1980 survey, 17 per cent of infants and children under three had had acute diarrhoea during the two weeks before the interview. In 1985, following upgrading interventions (water, improved sewers, building footpaths), the figure was 11 per cent*. The children were also weighed, and stool samples taken to investigate the level of infection with intestinal parasites.

Giardia infection rates were found to be high for all children over six months of age. In 1980, giardia was observed in the stools of 36 per cent of all children under the age of three and in 42 per cent of those aged 30 to 35 months. (A recent survey in a squatter area of Damascus has shown similar giardia infection rates (35 per cent in under threes. Only 3 per cent of households in the Damascus squatter area are connected to the public water system). In Amman, in 1985, five years after infrastructural improvements, testing among new groups of under threes living in the same households as the previous groups found that only 17 per cent showed evidence of giardia in their stools. These findings encouraged policy makers to take action to improve

water supply and sewerage systems. Stool sample results can be used to draw political attention to the link between contaminated living conditions and health, and encourage quick action for physical improvements.

Handwashing

The importance of handwashing after defaecation to prevent the spread of diarrhoeal diseases is well recognised. In 1980, despite a level of household incomes which meant that almost all families could easily afford to buy soap, only 17 per cent of households surveyed were seen to have soap available for handwashing near the toilet. Availability of water was an important, but not exclusive factor — 26 per cent of households with a watermains connection had soap as compared to only seven per cent of houses without mains water supply. When all houses had been connected to mains water, 60 per cent of the households had soap. Although hygienic practices had changed for the better, the second survey showed that 40 per cent of households still did not have soap available for handwashing near the toilet even when they had a functioning water tap inside each latrine. Further improvements such as increasing access to clean water need to be accompanied by health education in order to maximise health benefits.

Sex differences in care during diarrhoea

In addition to maternal education and surrounding environment, whether a child is male or female can determine survival rates. Within the same household, child care practices during diarrhoea vary according to the sex of the child. Among those children under three who had had severe diarrhoea during the two weeks preceding the survey, males were more likely to be taken to a doctor than females (44 per cent of



Photo by Leila Bisharat (UNICEF)

Child being weighed.

the males and 34 per cent of the females). Male children were also brought to the diarrhoea treatment centre at the nearest major hospital more often than female children, and female children were significantly more ill when they were brought for treatment. Thirty-three per cent of the females had to be hospitalised while only 26 per cent of the males were; of those hospitalised, 55 per cent of female children were severely malnourished compared to only 26 per cent of the males.

Dr Leila Bisharat, PhD, Regional Adviser, Urban Development, UNICEF, Middle East and North Africa.

1. *Urban Development Department. Baseline Health and Population Assessment for the Upgrading of Areas of Amman (Amman 1982)*
2. *Bisharat and Zagha. Health and Population in Squatter Areas of Amman: A Reassessment after Four Years of Upgrading. (Amman 1986)*

***Editors' note:** The change from 17 per cent before the intervention to 11 per cent after the intervention does not necessarily mean that the intervention had an impact. To substantiate an impact, the investigators need to show first that 11 per cent is significantly lower than 17 per cent, and, second that the two surveys were conducted using identical methods, on the same population, and at the same time of year to allow for seasonal fluctuations.

Mother-child interaction and stimulation

I have become increasingly aware that mothers interact differently with their babies when they have diarrhoea and malnutrition to when they have other conditions such as pneumonia or fractures.

Despite the lack of proper toys, most mothers on the ward play with their children, with the exception of those mothers whose children are admitted with diarrhoea and malnutrition. These tend to sit quietly, or talk with other mothers leaving the child to sit in the cot or bed. I am sure that the listlessness and lack of response due to diarrhoeal illness and malnutrition can lead to a change in the normal interaction between mother and child.

Children admitted to hospital with diarrhoea have often stopped growing well. Most hospitals and clinics try to teach mothers about nutrition and hygiene, as well as providing a high energy diet. Some children, particularly those who are under-nourished may also lack sufficient stimulation for mental development. Reasons for this are many. In poor families, mothers usually work for



Child to child Macmillan

Toys can be made from simple everyday objects

many hours a day and consequently have little time to play with their children or may be physically separated from them. The malnourished or dehydrated child can be apathetic and quiet and does not demand or get attention from the mother or the rest of the family. Some will be miserable and cry often; they may be difficult to look after and feed, and may anger or exasperate their mothers.

Health workers or nurses can talk to

mothers about ways in which they could stimulate their child: by far the most important form of stimulation is talking to the baby, even when it is sick. Give mothers practical suggestions that use resources they already have. Stimulate the sense of hearing by talking, singing, the radio, musical instruments, shaking jars or gourds filled with beans, and pots beaten with sticks. Stimulate the senses of smell and taste with fruit, flowers, vegetables and cooking smells. African mothers commonly massage their children with vaseline or oils. This is also important stimulation.

Improving the hospital ward

Let the baby feel objects with different textures such as cloth, paper, plastic, wood and metal. Bright colours, shiny objects, patterns and pictures, especially faces, all stimulate the sense of sight. As babies become more mobile they need to spend more time free to explore. They should not spend all day restrained, for example, on their mother's back.

Show mothers on the ward by example. Make it bright and interesting. Make toys for the ward from simple everyday objects. Make pictures or paint on the walls. Involve all the staff — making pictures for children is fun and raises morale.

Wendy Holmes, Chinhoyi Hospital, PO Box 17, Chinhoyi, Zimbabwe.

DD for schools

I am a teacher at one of the primary schools in Bo, Sierra Leone and head of the School Health Education Committee. I am teaching about personal and environmental hygiene and they have started to keep their surroundings cleaner than before. I would like to request regular copies of *Dialogue on Diarrhoea* issues to help me spread the knowledge as a teacher.

Dominic Gortor-Musa, 100 Dambara Road, Bo, Sierra Leone, West Africa.

The right soaking solution

DD issue 27 about amoebiasis mentioned soaking vegetables to be eaten raw in vinegar or dilute hypochlorite solution for 30 minutes. Here we use potassium permanganate in our community kitchen. How effective is this? How long should the

raw salads be soaked? I would be very happy if you could give me precise information on this point.

We do use oral rehydration therapy here and are convinced of its value. We teach mothers to prepare a home-made solution, as ready-made packets are quite expensive for our patients and also most of the brands have up to 40g of glucose per litre!

Dr Anne Morejee, Meher Health Centre, Meher Free Dispensary, Avatar Meher Baba Perpetual Charitable Trust, Meherabad, Ahmednagar, Maharashtra, India.

Dr Sandy Cairncross, London School of Hygiene and Tropical Medicine replies:

Unfortunately, potassium permanganate is of little or no use at all. The best measures to use are those recommended in DD27 — soaking for 30 minutes in dilute hypochlorite solution or vinegar followed by rinsing in boiled water.



Photo by Stephen Homer (IDRC)

Vegetables eaten raw can be a source of amoebic cysts.

ORT and vomiting

I am a registered nurse working with one of the general hospitals in Sokoto State, Nigeria where we have had a great deal of success with ORT. One question I have is this: if the fluid is given to the child and the child vomits, is it right to give anti-emetics like largactil (chlorpromazine) and, when the vomiting stops, should the administration of ORT follow up?

M A D Tambawal, General Nurse, General Hospital, Koko, Sokoto State, Nigeria.

Dr N Pierce, CDD/WHO Research Coordinator replies:

Oral rehydration therapy (ORT) can be considered as both curative and preventive with regard to dehydration due to diarrhoea. When given to a dehydrated patient, usually in the form of ORS (Oral Rehydration Salts), its purpose is to correct (cure) the dehydration by restoring normal amounts of water and salts to the body. However, when given soon after the onset of diarrhoea, before dehydration develops, usually as a home-made solution, its purpose is to prevent the reoccurrence of dehydration.

Vomiting happens frequently during diarrhoea, especially when the illness is caused by rotavirus or cholera. Vomiting can occur, or continue, during the first hour or two of ORT, after which it will usually diminish or stop. When vomiting occurs during ORT, fluid administration should be continued after waiting 10 minutes but given more slowly in sips at short intervals. Although it may appear that a large amount of rehydration fluid has been vomited, most of what is given is actually retained, benefiting the patient. Antiemetics, such as chlorpromazine should not be given because (i) they have undesirable side effects, such as drowsiness, which can interfere with the continuation of ORT, and (ii) the vomiting will usually subside as ORT is continued.

Promoting ORT at the university level

While Oral Rehydration Therapy has been proven to be effective in combatting dehydrating diarrhoea, in some areas it is not routinely applied. We have now treated more than 10,000 cases of gastroenteritis at our ORT centre at Mama Yemo Hospital in Kinshasa, Zaire and the results have been excellent. There is now a vast body of information on the usefulness, simplicity and life saving benefits of ORT. There is also new and important physiological and pharmacological data in favour of using ORT as a primary and often exclusive mode of treatment for diarrhoeal disease.

In order to reach colleagues at the university and paediatricians at large, discussions and conferences were organised at our monthly meetings of the Zairian Society of Paediatrics, in which the encouraging results of ORT from our centre were presented. Research data was presented at the Zairian National Paediatric Congress. Regular scientific presentations, on physiology, and the newer concepts of the mechanism of gastroenteritis, have led to a dramatic change in the attitude of practitioners.

We believe that well-planned scientific conferences at the universities and metropolitan hospitals, coupled with documentation of positive results from well-organised ORT centres, will have a great impact on health professionals, enabling them to recognise the value of ORT as the therapy of choice over the traditional methods of IV and antibiotics. Once the faculty is convinced of the superior efficacy of this therapy, a change in curriculum will be forthcoming.

Dr F Davachi, Professor and Chairman, Department of Paediatrics, Mama Yemo Hospital, Kinshasa, Zaire.

Wrong idea about ORS

ORT has given excellent results, preventing dehydration, electrolyte imbalance and mortality from

diarrhoea in a large number of Pakistani children suffering from diarrhoea. I want to ask a question about the use of ORT. Please can you tell me if it is safe to use ORS in newborns?

Dr S M Inkisar Ali, Assistant Professor of Paediatrics, Dow Medical College, Karachi, Pakistan.

Editors' note: Data from Dr Daniel Pizarro in Costa Rica on the use of ORS in more than 200 neonates has shown that it is safe. (Pizarro D. 1983. *J. Paed.* Vol 102. pp 153-6.) See also *DD* issue 22.

Points about diarrhoea management

Regarding chronic diarrhoea, I am convinced that the number of cases falls when antibiotics are not given routinely. This is logical since the gut flora is allowed to recover. In the 10 per cent of children in whom diarrhoea persists, a diet such as porridge made from the local starchy staple or mashed bananas, containing 'bound water' is often beneficial. This also helps to replace the lost elements K^+ (potassium) and Mg^{++} (magnesium). In Uganda the custom of cooking beans in the ash from burnt leaves would replenish K^+ and Mg^{++} — are there any studies on the effectiveness of this practice?

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Editors' note: We know of no study which has specifically examined this question. There are different factors which contribute to chronic diarrhoea. Pathogenic bacteria is probably not common. Nor is sensitivity to the gluten protein of wheat. Undernutrition is more common in many communities. Therefore Professor Harland's suggestions — avoiding antibiotics and using local foods — are appropriate.

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