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The status of ORT in Bangladesh: how widely is it used?

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During 1980–1990 BRAC, a Bangladeshi non-governmental organization, taught over 12 million mothers how to prepare oral rehydration therapy (ORT) at home with lobon (common salt) and gur (unrefined brown sugar). This was followed by a strong promotion and distribution of prepackaged ORS by various agencies including the government.

In 1993 we assessed knowledge of ORT preparation, its local availability and its use for the management of diarrhoea. Over 9000 households in 90 villages were revisited; 306 government outreach health workers, 296 drug sellers, and 237 village doctors were interviewed; 152 government facilities and 495 pharmacies/shops were visited. ORT prepared by mothers in a sub-sample of the households was analyzed for chloride content and interviewers collected information on use of ORT for diarrhoeal episodes occurring in the preceding two weeks. The data quality was assessed through a resurvey of sample respondents within two weeks of the first interview.

Over 70% of the mothers could prepare a chemically 'safe and effective' ORS. A significant proportion of these mothers were very young at the time of the mass campaigns using house to house teaching, implying an intergenerational transfer of the knowledge on ORT. ORT was found to be used in 60% of all diarrhoeal episodes, but the rate varied with the type of diarrhoea, being highest for *daeria* (severe watery diarrhoea) and lowest for *amasha* (dysentery). Drug sellers and village doctors now recommend ORT much more frequently than before. Members of the medical profession (qualified and unqualified) still lag behind in prescribing the use of ORT. The availability of pre-packaged ORS in rural pharmacies has improved enormously.

There is convincing evidence that the widescale promotion in the past of ORS for dehydration in diarrhoea has led to this marked improvement today. Nevertheless the use of rice-based ORS, culturally appropriate messages and the promotion of ORS with food offer opportunities to further improve the utilization of ORT.

Introduction

In 1994, the world celebrated the 25th anniversary of the discovery of the clinical application of Oral Rehydration Therapy (ORT). Since the early 1980s ORT has been promoted in developing countries for treating dehydrating diarrhoea, and estimates suggest that ORT now saves about a million lives every year. Unfortunately approximately three million others, mostly children, still die from diarrhoeal diseases worldwide (Grant 1994).

Bangladesh is one of the countries where ORT has been widely promoted by government and non-governmental organizations (NGOs) alike. BRAC, a national NGO, carried the message about ORT to over 12 million households through house-to-house health education programmes and in its ten years (1980–90) has also taught mothers how to prepare and use a home-made form of ORT.

Studies carried out over the years in Bangladesh have documented mixed results on the retention of knowledge over time and also about the safety of ORT solutions prepared by mothers. Studies done within one month of teaching consistently documented high retention of knowledge; with around

90% of mothers preparing a 'safe and effective' solution (defined as solutions having a sodium concentration between 30 and 99 mmol/L). When evaluated one to two years later the proportion dropped to around 70% (Chowdhury et al. 1988a). When some programme reinforcement was implemented the situation improved (Chowdhury et al. 1988b). However, a recent study, using a different methodology, found that not more than 25% of mothers were producing a 'correct' solution (Government of Bangladesh 1992).

Studies on the use of ORT have documented sustained increases in the use of ORT since it was first introduced. The 'overall' use rate was found to be around 25–30% of all diarrhoea episodes (Chowdhury et al. 1988a), but some studies have reported up to 80% (Amin et al. 1989). Such differences between studies in respect of mothers' retention of knowledge and the use of ORT has much to do with how indicators were defined by the individual studies (Larson et al. 1992). The BRAC studies used a laboratory analysis of electrolyte content of sample ORT solutions prepared by mothers, whereas a Government of Bangladesh study, which used a WHO recommended methodology, allowed the interviewers to pass a subjective judgement on the 'correctness' of the preparation. To estimate use some studies used a broad scientific definition of diarrhoea (three or more watery stools in 24 hours) in the denominator; others tried to differentiate between different types of diarrhoea (severe watery, mild to moderate, infantile and dysenteric) using people's cultural perceptions and their estimated usage for the different types (Chowdhury and Vaughan 1988).

It is now almost 15 years since BRAC started promoting ORT in Bangladesh and there is little doubt about its beneficial effects. However, there remains a need to monitor and review the national situation on a regular basis. This study was undertaken in 1993 to explore the questions of retention of knowledge and reported use. To do this we revisited the villages covered by the BRAC programme at various times in the past. We also examined the availability of ORS packets in these villages and the practices of different health care providers. This paper reports the findings of this study.

Promotion of ORT in Bangladesh

The National Oral Rehydration Programme (NORP) of the government was initiated in 1979. Initially four ORS production units were set up on a cottage industry basis. Staff and volunteers were trained and ORS packets were distributed through static health centres at sub-district level. The programme faced several problems and had limited success (Woodall 1991). The government had geared up its programme with the launching of a national Control of Diarrhoeal Disease (CDD) programme in 1989. Recently, a National Steering Committee, chaired by the Executive Director of BRAC, has been formed to formulate a national strategy to universalize ORT use.

In 1979, BRAC initiated a project to teach mothers how to make ORT at home with *lobon* (salt), *gur* (unrefined brown sugar) and water. The programme covered all of Bangladesh except the Hill Tracts district and the ICDDR,B's (International Centre for Diarrhoeal Disease Research, Bangladesh) study villages in Matlab. BRAC's field staff taught 2.5 million mothers in the first phase of the project (1980–83), and 5 million each in the second (1983–86) and third phases (1986–90). By practical demonstration female health workers taught mothers at home how to make ORT solutions. The workers were paid on the basis of mothers' level of performance, evaluated by an independent group of monitors (Abed 1983). In order to increase the confidence of the people in ORT, men were motivated by male workers through meetings at bazaars, mosques and schools (see Box 1). In terms of spreading the message, the programme was considered a success and in recognition of the achievement, the ICDDR,B awarded BRAC its 'ORS Award' in February 1994, marking the 25 years of discovery of ORS.[1]

The Social Marketing Company (SMC), with funds from USAID, is involved in a mass media campaign to popularize its own brand of ORS. The SMC sales, which were only 42 880 packets in 1983, reached 16 million in 1992. As a result of the government programme, together with the SMC intervention and commercial production, the availability of ORS in the rural areas has improved tremendously since 1979. Bangladesh now produces 52 million packets of ORS per year. While the government provides it free, the SMC and other pharmaceutical companies sell it through retail outlets.

Methodology

Thirty rural villages were randomly chosen from each of the village clusters covered by the BRAC

Box 1. Salient features of the ORT programme of BRAC

House-to-house teaching: The core of the programme was house-to-house teaching of a diarrhoea message called the *Seven Points to Remember* (Chowdhury and Vaughan 1988) which contained all the information that a villager needs to know to treat diarrhoea at home including the preparation and administration of an ORS with home ingredients. Female health workers, called oral replacement workers (ORWs), were trained to teach mothers the seven points. One mother from each household was taught and then supervised while she was making the LGS herself through a face-to-face session which took 20–30 minutes. ORWs coming across any diarrhoea patient during their home visits treated them with lobon-gur solution (LGS), which proved helpful in creating demonstration effects.

Monitoring and the incentive salary for ORWs: Another group of workers monitored the work of ORWs. They visited 10% of the households visited by ORWs to evaluate (a) the information on the women visited, (b) how well the village women had remembered the seven points, and (c) the skill and accuracy of these women in preparing the LGS. The monitors took a sample of the LGS prepared by mothers for electrolyte and glucose analyses. Such monitoring results were used in determining the monthly remuneration of ORWs (Chowdhury et al. 1988a).

Male contact: Taking the male community into confidence was a major challenge in the early stage of the programme. As the males are the decision makers in Bangladeshi families, their perception and views about LGS were thought crucial for the success of the programme and they were reached through meetings at mosques and weekly markets.

School meeting: There are about two primary schools in every three villages in rural Bangladesh and also secondary schools. BRAC took advantage of this and taught the seven points to the students and teachers of these schools.

Village healer meeting: Bangladesh has a large number of quacks and village doctors who are popular among villagers. BRAC workers arranged meetings with them to communicate the message on ORT.

Print materials: BRAC also produced a number of print materials which included posters, leaflets, flip charts. The latter were used by ORWs in their teaching sessions with mothers while the others were distributed in villages.

Radio–TV: Even though a negligible proportion of rural households in Bangladesh have access to radio and television, BRAC included these in their drive to popularize ORT in Bangladesh. Studies found that radio had a tremendous impact on disseminating information on LGS even in areas not covered by BRAC. TV is an urban luxury but televising of messages on LGS popularized it amongst urban middle and lower-middle classes, who in turn communicated it to their respective rural kins. The most important benefit of this drive was that it gave credibility to what the ORWs had been trying to tell the villagers through house-to-house visits.

programme during its first, second and third phases. From each village, 100 households were randomly selected for interview. Thus 3000 households in each phase and 9000 households in all were selected. In 3% of the sample households, mothers were requested to prepare oral rehydration solution with *lobon* and *gur* and samples were saved in screw-cap vials, properly labelled, and sent to the laboratories of ICDDR,B in Dhaka for electrolyte analysis. A total of 269 solutions were finally analyzed. Earlier studies had shown a one-to-one correspondence between the amounts of sodium and chloride in lobon-gur solution (LGS) (Ali and Wahed 1984). Since sodium analysis was more expensive, the chloride analysis was done as a proxy for sodium.

A pre-tested questionnaire was administered by female interviewers to mothers and asked about the occurrence of the four types of diarrhoea commonly understood by mothers (see Box 2) during the two-weeks preceding the interview. For each reported episode, information on the type of treatment used and selected background characteristics of the patient were collected. In addition, 237 village doctors and 296 pharmacy-attendants in the sample villages were interviewed to find out their practicing behaviour. A total of 495 pharmacies/grocery shops, 306 government outreach workers, and 152 government facilities were visited to determine the stock of ORS packets. Data were collected during the months of April–May (1993), a peak diarrhoea season.

Box 2. The four types of diarrhoeas perceived by people

1. *Dud-haga:* This is a type of loose motion which is attributed exclusively to breast-feeding: *dud* is milk and *haga* is purging in Bangla. The stool colour resembles what the mother had eaten.
2. *Ajirno:* The literal meaning of this term is indigestion and may also be called *bod hajam*. This diarrhoea may be experienced by people of any age. 'Rest the stomach' is often suggested as the treatment for ajirno.
3. *Amasha:* This type of loose motions is experienced by people of all ages. Most amasha stool is not watery but it contains mucous. It may or may not be accompanied by blood and if it is bloody it is called *rokto amasha* (blood dysentery).
4. *Daeria* or Cholera: This is considered to be a serious disease which takes lives when it comes in epidemic form. Dud haga and ajirno are not considered to be daeria, but severe ajirno or dud haga when accompanied by vomiting may turn out to be daeria.

Source: Chowdhury and Vaughan (1988)

Table 1. Chloride concentration in lobon-gur solutions prepared by mothers in the study areas

Chloride (mmol/L)	Villages taught during 1980–83	Villages taught during 1983–86	Villages taught during 1986–90
<30	8.9	7.8	11.2
30-99	71.1	64.4	77.6
100–119	10.0	8.9	6.7
120+	10.0	18.9	4.5
n	90	90	89
Mean (mmol/L)	71.6	89.7	65.4
S.D.	42.2	76.1	31.8

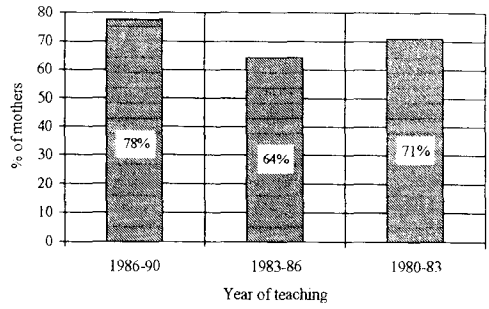

Figure 1. Proportion of mothers preparing 'safe and effective' solution (chloride concentration of 30–99 mmol/L)

To assess the quality of the data, a re-survey was done on a 5% sub-sample one to two weeks after the first data collection. This indicated that the data from the two rounds had more than an 80% agreement.

Results

Quality of oral rehydration solutions

Table 1 shows the quality of the lobon-gur solution (LGS) prepared by mothers as assessed by analyzing the amount of chloride in the solution. Over 70% of mothers prepared a 'safe and effective' solution, even 12 years after being taught the method (Figure 1). The average age of mothers preparing the solution was around 35 years. Better educated mothers appeared to prepare better quality solutions.

Types of diarrhoea

From the question on the occurrence of the four types of diarrhoea (Box 2) in the two weeks preceding the interview, it was found that *dud haga* was the most frequently occurring type (37%), followed closely by *ajirno* (26%) and *amasha* (24%). *Daeria*, which is severe watery diarrhoea, composed 13% of the episodes.

About 5% of all diarrhoeas occurred amongst children under 5 years old, and a quarter among adults (15 years or older). Nearly 55% occurred amongst males and 45% amongst females.

Treatment of diarrhoea

Over three-quarters of diarrhoeal episodes were given some treatment, rising to 85% among *daeria* cases. It was found that the proportion of cases not given any treatment was inversely related to the economic status of the patient as measured by the value of household assets.

Table 2 shows the use of ORT in the treatment of diarrhoea episodes. Use of LGS, pre-packaged ORS or any other type of home fluids is considered an indication of the actual use of such solutions. The table shows that the use of ORT varied with the type of diarrhoea, it being used most widely in *daeria* and least in *amasha*. When all types of diarrhoeas are considered together, some form of ORT was used in more than half of the episodes. For *daeria*, 83% of episodes were treated with ORT alone or with other methods. Figure 2 shows the use of ORT in all cases and types, and separately among the severe watery diarrhoea cases. The share of LGS was low, but was higher in the villages covered more recently by the BRAC programme.

A low share for LGS use meant a higher share for other types of ORT, and interestingly it was the pre-packaged ORS which dominated the 'other types'. The share of packaged ORS was consistently higher than that of LGS.

The reasons for not giving ORT to diarrhoea patients were investigated. Table 3 gives the major reasons in case of *dud haga* and *daeria*. It appears that a major reason was discouragement by health providers (qualified and unqualified practitioners). For *dud haga*, the young age of the baby seemed to have restrained the mother from giving ORT in over one-sixth of the cases. Although small in proportion, the other reasons are noteworthy: mothers said that 'ORT

Table 2. Proportion of episodes of diarrhoea treated with ORT (total and LGS only), either alone or in combination, by programme year and type of diarrhoea

Type of diarrhoea	% using ORT					
	Villages taught during 1980–83		Villages taught during 1983–86		Villages taught during 1986–90	
	ORT[1]	LGS only	ORT	LGS only	ORT	LGS only
Dud haga	54.4	12.5	56.4	24.1	56.3	28.8
(No. episodes)		(502)		(369)	(503)	
Ajirno	51.7	15.6	54.2	21.7	45.2	17.6
(No. episodes)		(441)		(212)	(261)	
Amasha	34.9	7.8	37.3	12.0	37.1	20.8
(No. episodes)		(370)		(332)	(221)	
Daeria	75.5	17.9	79.6	35.3	82.9	41.1
(No. episodes)		(212)		(201)	(129)	
All diarrhoea	51.8	13.0	54.5	22.1	53.0	24.7
(No. episodes)	(1525)		(1114)		(1114)	

[1] ORT includes packaged ORS, LGS, and any home-based fluid.

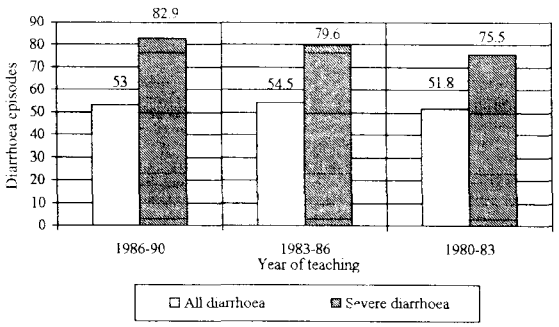

Figure 2. Use of ORT among diarrhoea caes and severe diarrhoea cases by year of teaching

is neither useful nor effective', 'ORT was not necessary because the episode was not serious enough', and 'it is unaffordable'.

Food during diarrhoea

Over 95% of the respondents allowed normal food, including breast milk in case of breastfeeding babies, during diarrhoea episodes.

Prescribing behaviour:

Survey of drug sellers

A total of 76 allopathic drug sellers were identified in the sample villages or nearby *haat* (village marketplace). The interviewers posed as customers and presented the following problem to the drug sellers:

> *'Doctor, my six month old child has been suffering from diarrhoea since yesterday. In the meantime, he has already experienced 4/5 episodes of watery loose motions ('Panir moto patla paikhana'). But his stool did not contain mucous or blood, and he has no fever or flatulence ('Pet phapa'). Could you please suggest a cure?'*

Fourteen of them (18%) recommended ORS only and another 10, allopathic drugs only. However, 84% of drug sellers suggested ORS only or ORS in combination with other drugs.

Of the allopathic drugs recommended, metronidazole was the most common, being recommended by over half of the drug sellers, followed by furazolidone by a quarter of the drug sellers. None recommended intravenous fluids.

Survey of village doctors

The above hypothetical problem was also posed to different village doctors dealing in allopathic medicines. Of the 237 such doctors, 56% recommended pre-packaged ORS alone or in combination with other drugs such as antibiotics, antimicrobials or intravenous fluids. Nearly 10% prescribed antidiarrhoeals, and only 3% mentioned LGS.

Table 3. Reasons mentioned by mothers for not using ORT in 'dud haga' and 'daeria' episodes (in % of episodes), all study areas

Reasons	Dud haga	Daeria
'Baby too little to drink'	16.9	9.9
'Don't think useful'	9.2	12.4
'Doctor restrained'	37.3	45.5
'Unaffordable'	7.4	8.3
'Not necessary (diarrhoea not serious)'	9.2	7.4
Others	19.9	16.5
All	100	100
Number of reasons	608	121

Availability of packaged ORS

Users of ORS packets were asked about the source of such packets and nearly 80% indicated that they purchase them from a local grocery shop or pharmacy (drug seller).

Interviewers also visited all grocery stores in the villages where household interviews took place. This revealed that ORS packets were on sale in 5–32% of stores, whereas over 80% of pharmacies stored ORS packets for sale. The price did not vary much, around Taka 3 per packet (US$1 = Taka 40).

Interviewers spoke to the government health assistants (HAs) and visited the different static health centres which distribute ORS packets to clients free of cost. The Family Welfare Centres, managed by the Family Planning Wing of the government, had little activity except in Phase 2 areas. The Rural Dispensaries, managed by the Health Wing of the government, appeared quite busy. The Thana Health Complexes, which serve a population of about 220 000 and distributes ORS to HAs and local facilities, had a good stock of ORS packets.

Discussion

Oral rehydration therapy (ORT) for treating dehydrating diarrhoeas has been described as the 'most important medical advance of this century' (*Lancet* 1978). Through its promotion in the developing world over the last 15 years or so, about a million lives are now being saved annually world-wide. Many more, however, still die from diarrhoeal diseases. In Bangladesh, the yearly epidemic takes a toll, particularly in the coastal districts.

ORT was discovered in Bangladesh and it was here that the world's largest ORT programme was carried out. Between 1980 and 1990, BRAC taught home-based ORT preparation to over 12 million mothers. The government, a social marketing company and several pharmaceutical companies have each promoted pre-packaged ORS through static health centres and retail outlets.

Another significant aspect of ORT promotion in Bangladesh has been the successful use of social science research in programme development and improvement. Most of the research concentrated on two aspects: safety of the solutions produced by mothers and the actual use of ORT. It was found that safety partly depended on the time lag between teaching and assessment, and use depended on how families perceived the severity of the episodes of diarrhoea.

In 1993, about 13 years since BRAC first taught mothers, a sample of the same villages were revisited. Apart from examining the safety and use of ORT, this study also explored the availability of ORS packets and the attitudes of health care providers towards ORT.

Safety

In the villages previously visited by the BRAC programme, the capacity of mothers to prepare a 'safe and effective' solution, defined as solution with a sodium concentration of 30–99 mmol/L (Ellerbrock 1981), was overwhelming. Mothers did remember or know what they or their mothers were taught by health workers through face-to-face sessions. The house-to-house visit by BRAC workers and the instructions for LGS preparation, including how to measure half a litre of water, went a long way in transmitting the message and remembering it. This shows the important role that inter-personal communication played in getting across a seemingly simple message.

These results, however, contrast with what was found by a Government of Bangladesh study done in 1991. This study found that only 25% of mothers were capable of preparing a 'correct' solution. However,

this study did not rely on electrolyte analysis but allowed the interviewers to pass a subjective judgement on the 'correctness' of the solution by observing 'how much' salt, sugar and water was added. The disadvantage of this method is that only a small deviation in the volume of water may have led the interviewers to discard a solution whose sodium concentration may well have been within acceptable safety limits. The amount of glucose/sucrose in the solution was not analyzed due to cost considerations but earlier studies had indicated that this was not a problem in lobon-gur solutions (Ellerbrock 1981).

An indicator of success of any such health education programme is how well the message becomes incorporated into the local household culture. In a recent study, 70% of 2100 children (aged 11 and 12 years) interviewed mentioned ORT as the effective treatment for diarrhoea (Chowdhury and Cash 1993). This clearly shows that the message the mothers received is being passed on to their children, many of whom were not born when their mothers were originally taught by the BRAC programme.

Episodes of diarrhoea and their treatment

Among the four types of diarrhoea (*dud haga*, *ajirno*, *amasha* and *daeria*), more than a third were *dud haga*. The proportion of *daeria* (severe watery diarrhoea) was 13%, which is higher than that found previously in 1984 or 1986. The timing of the 1993 survey coincided with a peak diarrhoea season (premonsoon) and this may have caused increased reporting of severe diarrhoeas.

The BRAC programme specifically asked the mothers to treat all episodes of diarrhoea, irrespective of whether they are mild, moderate or severe. Earlier studies found that only about a half of the episodes were treated (Chowdhury et al. 1988a); this has now risen to three-quarters. More importantly, the increase was greater for *dud haga*, which is diarrhoea in breastfed children. From the mid-1980s, BRAC emphasized the use of ORT for all types of diarrhoea, including *dud haga*. The current result probably reflects the effects of change in the programme strategy.

Use of ORT

This study shows an increase in the use rate of ORT. Although the overall use rate in the past never exceeded 30%, this study found a rate of over 50% in all three study areas. The improvement occurred across all four types of diarrhoea and the pattern of use found in previous studies still persists, with *daeria* still having highest use rate; over 80% of such episodes are now treated with ORT (previously 50% or less).

The 50% overall use rate is interesting. The denominator in this case includes all types of loose motions – mild, moderate, and severe. A quarter of the episodes were *amasha* (dysenteric diarrhoea) which does not cause much loss of body fluids. If the *amasha* cases are taken out of the denominator (and numerator), the use rate rises to over 60%. This is probably closer to the real use rate of ORT in Bangladesh.

An important and significant development is the sharp rise in the use of pre-packaged ORS. Compared to the mid-1980s when packet ORS was used in only about 1% of episodes, it is now the most popular form of ORT to be used. Obviously, the availability of packets has increased enormously since the early 1980s and they are now available in most rural pharmacies. ORS availability in static health centres and with outreach workers has also increased enormously. Although the price of ORS is low and does not vary much, 'affordability' remains an important consideration. The government must ensure that the price does not go beyond the reach of the people, particularly the poorest sections of society.

The rise in the use of ORS packets did not lead to a concurrent increase in the use of LGS. ORS packets are much more convenient to use and are more widely available. Previous experience with the use of rice-based ORS indicated that the convenience factor always outweighed other factors (Chowdhury et al. 1991). Thus the ORS packet, when it finally reached the village, found a receptive population, created by BRAC's decade-long campaign.

Is ORT use influenced by seasonality or epidemics? Unfortunately we do not have any firm evidence to reject this. The present study was done in a peak diarrhoea season. Studies done immediately after the 1991 cyclone recorded a high use rate of ORT (Bennish et al. 1993; Helen Keller International 1991). Another study done in the same area by a local research agency sometime after the cyclone recorded a drop in use rate.

Why was ORT not used by some people?
The factor which altered little was the attitude of health care providers. They still appear to be the major impediment in universalizing the use of ORT in rural Bangladesh. Demand on mothers' time in preparing and feeding ORT to their children may be another important impediment; this is an issue that has unfortunately remained overlooked in ORT research and promotion.

Much of the health care in rural Bangladesh is provided by inadequately trained or untrained people working through pharmacies, and collecting information from them is a useful way of understanding current practices (Tomson and Angunawela 1990). Over 80% of pharmacy attendants recommended ORS (exclusively or in combination with other drugs) for watery diarrhoea. This is a major improvement since 1983 when the proportion was much lower. While drug sellers did not suggest intravenous fluids, over half of the unqualified 'doctors' still recommended intravenous therapy exclusively or in combination with others drugs. Use of anti-diarrhoeal drugs and antibiotics is still common.

The way ahead

Bangladesh has come a long way since the 1970s in its struggle against diarrhoeal diseases, dehydration and death. Knowledge of ORT is now almost universal and there is evidence that it has become a part of the local culture with mothers transmitting its use to their children. Pre-packaged ORS is now widely distributed throughout Bangladesh, being available through groceries, pharmacies and static health centres. This situation was difficult to imagine in the 1970s when BRAC started popularizing the use of home-made lobon-gur solution.

The gap between knowledge of ORT and its use has narrowed considerably. If the dysenteric diarrhoea (*amasha*) are excluded, the overall use rate is over 60%. The government has set a target of 80% use rate, and has also formulated a 14 point strategy, aimed mainly at the poorest 50% of the population. While the long-term solution lies in social development through education, increased economic well-being and improved women's lives, the national strategy, if implemented effectively, will go a long way towards reaching the goal.

For the future three important points need to receive attention. Firstly, the ORS presently being marketed in Bangladesh is glucose-based, but rice-based ORS has been shown to be much more effective in reducing both stool output and the duration of diarrhoea episodes.[2] Rice-based ORS in pre-packaged form is now being marketed in many countries, including India (personal communication, J Rohde). It is certain that popularity of ORS will be further enhanced if rice-based salts are also promoted alongside the existing ones. With rice, the price may increase but people will have an additional choice, and the question of affordability can be addressed by providing state subsidy. Fresh campaigns among health practitioners, and among the communities where there is more diarrhoea in peak seasons, may also yield quick results.

Second is the packaging of the message. Most ORT programmes convince mothers by focusing on the 'rehydration property' of ORT. The concept of rehydration is 'foreign' in many cultures and in some cultures there is a belief that diarrhoea 'cleanses' the body of harmful substances. Such cultural factors should be considered while promoting ORT.

Thirdly, ORT needs to be recast as 'oral therapy', meaning ORT plus food (Ellerbrock 1981). Unfortunately, this was forgotten when the production of ORT was first begun. Since diarrhoea interacts with the nutritional status of the child, it is also important that nutritional messages be further reinforced.

Endnotes

[1] A recent book documents the decade-long BRAC experience with ORT (Chowdhury and Cash 1996).

[2] A recent analysis questioned this claim, particularly the one on the reduction of stool output in non-cholera diarrhoea in children (Gore et al. 1996). Earlier studies, however, had documented other benefits of rice-based ORS such as enhanced acceptability due to cultural reasons (Chowdhury et al. 1991; Rahman et al. 1986).

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