

The Oral Rehydration Debate: ORS Packets or Home Fluids

“A terrific polemic with ideological color has been raging over whether ORT should be delivered as WHO ‘full formula’ packets or by teaching mothers to make salt and sucrose solutions at home.”⁶² So wrote Dr. Norbert Hirschhorn in a chapter on ORT he contributed to a 1987 book titled *Child Health and Survival: The UNICEF GOBI-FFF Program*.⁶³ On the surface, the differences between packets and home-made rehydration solutions may not seem to warrant such heated debate. And many experts claim that it is a debate that has been resolved. But as we shall see, the key issues are still at stake. This chapter will examine the divergent forms of oral rehydration therapy, and consider the pros and cons of manufactured ORS packets and of homemade solutions.

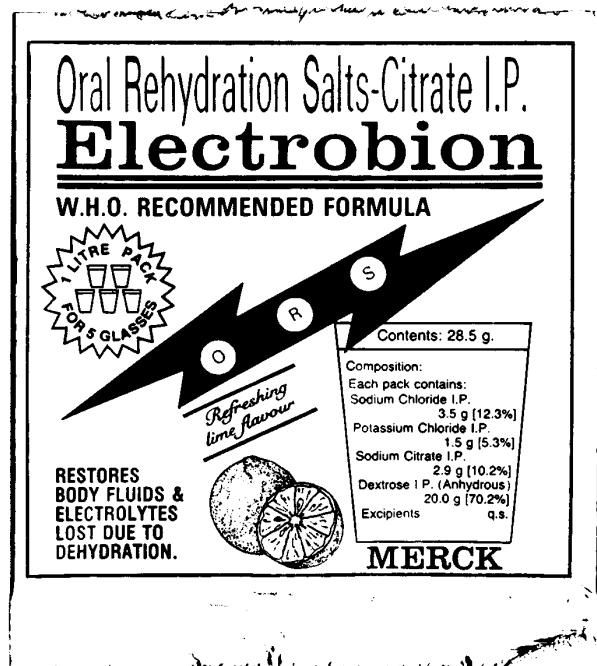
Oral Rehydration Salts (WHO’s full formula ORS) usually come in factory-produced aluminum-foil packets, or *sachets* containing exact measurements of salts and a simple sugar. The current standard WHO/UNICEF ORS formula, designed to be mixed with one liter of water, consists of:

Glucose (a simple sugar)	20.0 grams
Sodium chloride (table salt)	3.5 grams
Potassium chloride	1.5 grams
Trisodium citrate, dihydrate	2.9 grams
(formerly sodium bicarbonate, 2.5 grams) ⁶⁴	

Although the standard WHO/ UNICEF ORS formula is mixed with one liter of water, commercial products exist which require different amounts of water, from 200 or 350 milliliters to one liter. Formula also vary, and some products add flavoring. Apart from ORS in packets, in some countries a corresponding formula is fabricated as tablets to be dissolved in a glass of water. Ready-mixed ORS and similar drinks also come in bottles or in cans as a costly commercial product. However, this discussion will be limited to the packet form of ORS, which—with strong promotion and investment by major institutions like UNICEF and USAID—has by far the widest distribution.

In the early years of ORT campaigns, packets of ORS were manufactured in industrialized countries and shipped to the Third World. They were delivered to health ministries, distributed to clinics and health posts, and mostly given to mothers free of charge. But with

passing years and cutbacks in health budgets, production and distribution have increasingly become commercialized. Currently, about 400 million ORS packets are produced annually, 2/3 of which are locally produced in 60 developing countries.⁶⁵ UNICEF still provides about 80 million packets annually, most of which are produced in industrialized countries and exported, primarily to Africa.

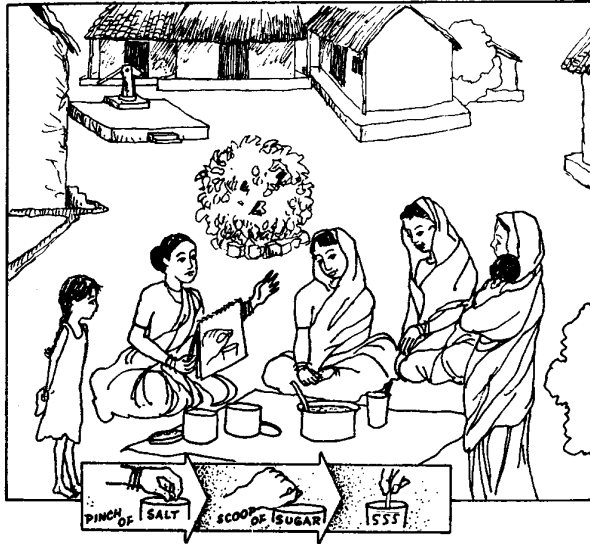


Commercial ORS packets often use medicalized and mystifying terminology and flashy promotional gimmicks.

Home-made ORT drinks, unlike ORS packets, are prepared in the home using ingredients that most poor families already have on hand. Less standardized than the factory-produced ORS packets, they can be adapted to utilize local low-cost staples and traditional methods of measuring foodstuffs.

One of the first, still widely used home mix formulas—called SSS (sugar & salt solution)—consists of ordinary sugar (sucrose) and table salt, in roughly the proportions of the WHO formula. Although the formula recommended varies considerably, a safe and effective ORT drink can be made by mixing 8 teaspoons of sugar and half a teaspoon of salt in a liter of water.⁶⁶

Raw sugar, molasses, or honey can be used instead of refined sugar. Where locally available, baking soda (sodium bicarbonate) is sometimes added, but not considered essential. To provide flavor and potassium (both of which may help restore the sick child's appetite), citrus, tomato, and other fruit juices may be added, or the child can be encouraged to eat bananas. When fruits are unavailable, ashes (potash) from the cooking fire can provide potassium. Water poured through ash in a cloth can be added to the home mix.⁶⁷



Food as a part of ORT. Before continuing our debate, it is essential to stress the importance of *continuing to feed a child who is suffering from diarrhea*. Food is now considered a key part of any method of oral rehydration. Not only does the food help to maintain the child's nutritional level and ability to fight the infection, but foods help to transport water from the gut into the bloodstream, hastening rehydration. Frequent feeding should be encouraged as soon as the sick child is able to take food. *Breast milk* is an excellent rehydration drink; women who breastfeed their babies should always try to breastfeed prior to administering an ORT drink.

Now recognized as an effective form of home-made ORT, *food-based* or *cereal-based* rehydration drinks are increasingly encouraged, especially by community-based programs. They can be made as a thin gruel of rice, maize, potato, or whatever staple low-cost grain or root crop the family has in the home. Studies show that drinks made with rice powder (and a little salt) not only rehydrate effectively, but in some cases (mainly cholera) reduce both diarrhea and vomiting better than either standard ORS packets or homemade sugar-salt solutions.⁶⁸ The role of food and food-based drinks in oral rehydration is discussed more fully in chapters 9 and 10.

Which Groups Favor Packets and Which Favor Home-made Drinks?

The debate over what approach to ORT is best, and why, has evolved during the last decade. Controversy is growing about the relative precision or simplicity of home fluids, the content of full formula ORS, and home-preparation versus commercialization of food-based drinks. But the core debate continues to rage between those who continue to promote ORS packets for home use, and those who champion home-made solutions.

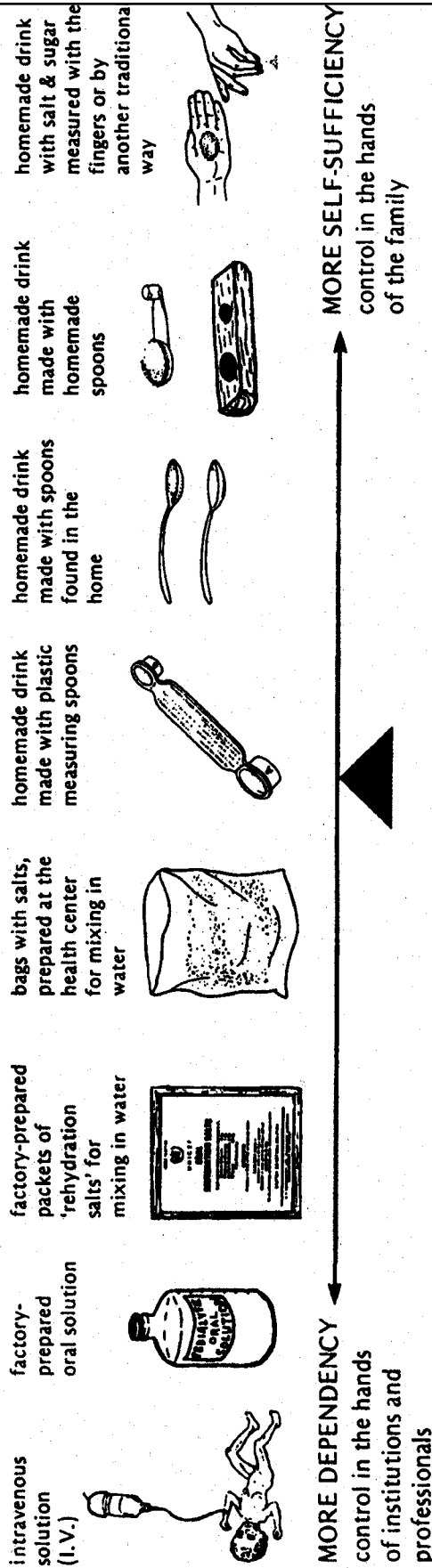
The packet promoters. With few exceptions, the strongest proponents of ORS packets, including for formulated for home use, tend to be large national and international institutions. These include WHO and UNICEF, and most ministries of health. USAID has been one of the most consistent and aggressive champions of packets and has strongly promoted their commercial production and distribution. Following USAID's lead are the hundreds of government programs, university extension projects, and nongovernment organizations (NGOs) financed by USAID's deep pocket.

In general, the institutions which strongly favor ORS packets over home-made solutions are those which promote health and development more from a technological than a social perspective: from the top down rather than the bottom up. They argue that the packets are safer because their scientifically formulated contents are precisely measured and controlled. They quote studies showing that mothers often prepare home-made ORT incorrectly.

From the perspective of policy-makers and bureaucrats, ORS packets are more sharply defined and fit more easily into centrally packaged plans than do fuzzier and more adaptable home-made solutions. However, even among the packeteers, there may be different rationales for their choice. A long time veteran in the international promotion of ORT comments on divergent reasons for promoting ORS packets comments:

It is interesting to consider why UNICEF and USAID have put nearly all their emphasis on packets, and I think the motivations are different. UNICEF needs to be able to say that it has made progress over the short term, to maintain its financial support; and progress, they believe, depends on having an intervention based on a simple discrete countable item, such as vaccines, vitamin A, or packets. USAID, on the other hand, has a social policy based on willingness to pay. Paying for things is what life is all about for them.⁶⁹

A RANGE OF REHYDRATION METHODS FOR CHILDREN WITH DIARRHEA



ADVANTAGES AND DISADVANTAGES

Control and responsibility mainly in the hands of professionals, institutions, and drug companies

Measurements more precise and 'controlled' (at least in theory)

More magical; acceptance may be quicker but with less understanding

More dependency—on high technology, on outside resources, on centralized services, and on local and international politics

More expensive

Easier to gather data on, and prepare statistics about

Reaches fewer people; supply often uncertain and inadequate

Sometimes causes delay in treatment, because special materials have to be obtained; effect is more curative than preventive

Focus is on materials and supply (so cost goes up each year)

May give better (safer) results for individuals treated in time, but has worse results overall since many children never receive the liquid, or are given it too late

ADVANTAGES AND DISADVANTAGES

Control and responsibility mostly in the hands of the family

Measurements less precise, less 'controlled'

More practical and easier to understand

More self-sufficiency; uses local resources (whatever is available in the home or in stores)

Cheaper

Harder to gather data on, and prepare statistics about

Reaches more people; supply is local and almost always available

Treatment can begin at the first sign of diarrhea; more preventive than curative

Focus is on people and on education, so the people's capacity for self-care increases over the years (cost goes down)

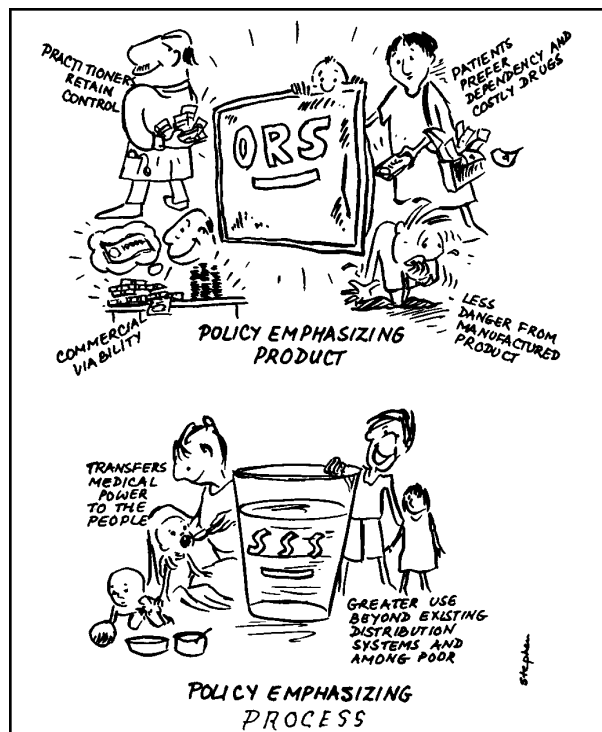
May be less safe in individual cases due to the possibility of errors in preparing or giving it, but it probably saves many more lives—since it reaches more children more quickly

This chart comparing ORT methods which are more dependency creating and which are more promoting of self reliance is from *Helping Health Workers* Learn by David Werner and Bill Bower. It was compiled before the importance of cereal-based home drinks was fully realized.

The home mixers. In marked contrast to the packet promoters, the most vocal proponents of home-prepared rehydration drinks tend to be small community organizations. These groups typically take a comprehensive approach to primary health care that includes working for social change. Instead of implementing ORT programs in isolation, they try to integrate them into broader initiatives that encompass health care, education, and empowerment.

Proponents of home-solutions argue that it is safer for children if families learn to make a reliable drink from ingredients they have on hand. This fosters self-reliance in the family and the community and avoids unnecessary dependence on products whose supply may be outside the consumer's control. They point out that when a mother learns to manage diarrhea with home staples, she does not have to delay treatment while she goes to the village store. Nor does she spend family food money on something she can prepare more cheaply and quickly at home.

These organizations are often highly critical of the packet-centered approach. They quote studies showing that people often mix ORS with too little water, which can be dangerous. In addition, the cost of ORS and its presentation as a medicine frequently results in mothers (and even health workers) giving the sick child too little ORS to be effective. They insist that more emphasis is needed on communication of basic principles, and less on product marketing.



Top-down and bottom-up policies for ORT

Spokespersons for WHO and UNICEF tell us that the polarized debate over ORS versus home fluids now has little substance: that they have been unfairly accused of promoting commercial ORS packets over local alternatives. WHO public statements for several years have recommended “home fluids” as the first-line of home management for diarrhea. For example, the 1990 “WHO Guidelines: Selection of Home Fluid” states that, “Where ORS is not available, other fluids should be used to prevent dehydration.”⁷⁰ However, it places ORS at the top of its list of recommended forms of rehydration for the early home treatment of diarrhea. More recently, in its 1993 booklet, *The Management and Prevention of Diarrhoea, Practical Guidelines*⁷¹ WHO promotes both “home fluids” and ORS, as follows:

How to treat diarrhoea at home (mother's card)

1. AS SOON AS DIARRHOEA STARTS, GIVE YOUR CHILD MORE FLUIDS THAN USUAL:

GIVE:

- ORS solution
- Food-based fluids, such as soup, rice water and yoghurt drink
- Plain water
- If the child is under 6 months old and taking only breast milk, give only ORS solution or plain water, in addition to breast milk.

GIVE AS MUCH OF THESE FLUIDS AS YOUR CHILD WANTS.



Thus, in their formal recommendations, WHO and UNICEF support the use of home fluids for the early home treatment of diarrhea. But do they practice what they preach? If we look at where they have invested the bulk of their money, personnel, and research, these agencies have clearly placed their primary emphasis on packets. This bias is reflected in both their national programs and their official documents.

As we shall discuss in Chapter 10, the above prioritization of ORS as a 'home fluid' must be questioned. Sometimes food-based drinks and even sugar-salt solutions may, *in community settings*, be as effective or more effective than ORS—partly because packets are often unavailable (or unaffordable) where and when needed. The choice is often *not* between home-made drink or ORS, but between home-made drink or *nothing*.

One critic has suggested that the recent laxity about home fluids—the list of which now includes “plain water”—reflects a need to ‘massage the statistics’ of ORT use rates in order to hit some arbitrary target (such as UNICEF’s goal of 80% accessibility to ORS).⁷²

Although WHO has modified some of the details in the last few years, its basic recommendations have changed little. In its 1993 “The Selection of Fluids and Food for Home Therapy to Prevent Dehydration from Diarrhoea: Guidelines for Developing a National Policy,” WHO has eliminated sugar-salt solution from its RHF (recommended home fluids) list. But it still favors ORS:

“When possible, a fluid should be promoted that contains salt. The possibilities include:

- ORS solution
- a salted drink
- a salted soup

ORS solution is very effective for home therapy to prevent dehydration. It should be promoted if ORS packets are readily available and affordable, and mothers know, or will be taught, how to mix and give ORS solution.”⁷³

These 1993 guidelines wisely stress the importance of giving *increased quantities of fluids, together with foods*. They also place even stronger emphasis on home fluids. But the fact that the list of RHFs is still headed with ORS continues to give this commercial product top priority in the minds of both health planners and consumers. The mild admonition to promote them “if ORS packets are readily available and affordable” may be sound advice, but is scarcely strong enough to reverse the decade of social marketing which promoted ORS as a wonder drug that poor families should procure irrespective of distance and cost. The bias in favor of packets is deeply entrenched, both at national and community levels. In Jamaica, for example, anthropologists found that nurses explicitly warned guardians of children with diarrhea never to use traditional home drinks, and that they “must only use the packets mixed with water.”^{xiii}

“Irrational use of ORS.” In an article in the March, 1995 issue of *Lancet* entitled “Rational Home Management of Diarrhea,” Almroth and Latham chal-

lenge the rationale for strongly promoting ORS packets for home use, comparing it with irrational drug use:

Irrational use of drugs for treatment of diarrhea, according to WHO, is associated with problems such as diversion of attention from appropriate treatment, unnecessarily high treatment costs, and adverse reactions. Would this list not be an equally appropriate description of the consequences of the promotion of irrational use of ORS at home?

As failures of ORS at home have become apparent, more rational guidelines for the use of ORS have emerged. However, a programme for home management of diarrhoea will remain fundamentally irrational if built on the premise that ORS is the ideal therapy that should be used if at all possible. ORS is not needed for most cases of diarrhoea at home. Home-based fluids and foods may be at least as effective, and are simpler and cheaper. Rational use of ORS at home implies that it should be limited.⁷⁵

We agree. Unfortunately, throughout most of the Third World, commercial ORS continues to be aggressively marketed to poor families, not only for the treatment of dehydration but as “the first medical response” to diarrhea. This is partly explained by USAID’s funding of packet-centered ORT programs.

In the early 1980s, UNICEF India’s “Health and Nutrition” program participated with the Health Ministry and nongovernment organizations in launching a nation-wide ORT program based on home fluids (mainly SSS). The main ingredient was the traditional raw sugar (jaggery) found in most Indian households. The national campaign, perhaps the world’s largest, achieved a modest degree of success and deserved wide attention. Yet at the Second International Conference on Oral Rehydration Therapy (sponsored by WHO, UNICEF, and USAID) there was no opportunity to report on India’s exceptional (but nonconforming) program. The UNICEF India team (and many of us present) felt that the conference was loaded in favor of ORS, and that its organizers deliberately excluded from the platform any reports that might question the appropriateness of packet-based programs.⁷⁶

Subsequently, in the late 1980s, the India program changed radically. SSS was discredited, ostensibly as a result of mothers’ inability to retain the accurate formula, as well as due to problems with access to sugar and salt. Rather than addressing these issues, for example by improving health education, the program shifted to an emphasis on ORS promotion. Justification for this

decision was published in 1990 by UNICEF in a book entitled *Diarrhoea in Rural India*.⁷⁷ Based on a study of difficulties and misconceptions of the National Diarrhea Control Program, it set out recommendations for a revised plan. These gave credit to the importance of using home fluids and breast milk in diarrhea treatment.⁷⁸ But far greater emphasis was placed on the need for aggressive promotion of ORS packets, even at the household level:

A major strategic effort is needed to promote the ORS packet as the most important and first medical response to think of for a child with diarrhoea. While widely recognized by medical practitioners, paramedical workers, and to some extent mothers, as a treatment for advanced diarrhoea with signs of dehydration, ORS is not yet widely viewed as a first response for all cases of diarrhoea requiring treatment. The draft National Diarrhoea Management Plan now envisions a major social marketing effort with the recent deregulation of ORS packets making it available as an over-the-counter ... product, available in any retail outlet reaching far beyond the current network of chemists and drugstores. Coupled with wide scale aggressive distribution of the packet should be a major public marketing effort conducted along the lines of other private sector products reaching far into the rural areas.⁷⁹

The same packet-based, social marketing approach can be found in many other national diarrhea control programs that have received the Midas touch of USAID. For example, Egypt's national diarrhea control program, at first heavily funded by USAID, has focused almost exclusively on the large-scale, aggressive distribution of ORS packets. Once USAID withdrew its funding for ORS packets, their price skyrocketed and their use rate plummeted (See page 49).⁸⁰

The Problem of Not Getting ORS Packets When They Are Needed

In its Ninth Programme Report (1992-1993), WHO's PCDD reports that ORS packets are now available to 75% of Third World communities worldwide. This figure may be exaggerated. For millions of people in rural areas, packets remain hard to come by, either because of distance, cost, or because the supply has run out.

The tragic losses that can result from dependency on ORS packets are described in this true account from rural Africa:

An instructor of health workers in a community health program in Kenya told one of us (David Werner) how she became convinced that it was better to teach people about home mix ORT rather than to encourage the use of packets. One day when she was visiting a rural health post, a young mother arrived, exhausted from the long walk in the scorching sun. On her back she carried a thin baby wrapped in a shawl. She had come on foot from an isolated hut in the savannah, nearly five miles away. She explained to the health worker that she had come as fast as she could, because her baby had 'running stomach' and was very ill. She begged the health worker for the lifesaving medicine in the silver envelope that her radio said was available at the nearest health post.

When the mother unwrapped her baby from the shawl, she discovered her child was dead. His shriveled body made it clear he had died of dehydration. The long trip in the hot sun had been too much for him.

'I felt partly responsible,' said the instructor. 'If we had only taught that mother about making a rehydration drink at home, instead of telling her she needed to go to the health post for a magic drug, her baby might still be alive.'

'All this talk about packets being safer and more effective is nonsense,' grumbled the aging instructor. '*What is safest is what will save most lives. And what will save most lives is what mothers can do easiest and without delay, in their own homes.* In our circumstances a homemade drink is safer. If you ask me, *ORS packets are downright dangerous!*'



She looked at me piercingly. ‘What I mean is that making folks believe that ORS packets are somehow better than or superior to what they can provide in their own homes is dangerous. And that’s exactly what the big government programs are doing. We used to do it ourselves, until we learned the hard way. Do you understand what I mean?’

We do. Our communications with scores of small community programs in many poor countries indicate that a majority have reached a similar conclusion and have chosen to promote homemade drinks while discouraging the use of packets. But with the international Child Survival network churning out 400 million packets a year, it is an uphill battle. We cite another example, from South Africa:

In the 1980s, in the urban black townships of South Africa, the government launched an ORT program based on ORS packets made available through health centers and hospitals. In April 1988, one of us (David Werner) visited a ‘day clinic’ in a black township on the outskirts of Durban. Hundreds of people were waiting for consultation. The average waiting time was from three to five hours. The pediatrician, who told me he saw more than 100 children a day, acknowledged that—although the staff had a *triage* system to try to spot and provide earlier care for severely ill children—several children had died of dehydration while waiting in line to be seen.

Had mothers been encouraged to prepare a rehydration drink at home, many deaths might have been prevented. In addition, the lines at the health center would have been shorter, and the few children who failed to respond to home management could thus have received treatment more quickly.

Even in some areas where ORS is aggressively marketed, the lack of availability of ORS packets is a major problem. A USAID-funded study confirmed that shortages of packets are common even in countries where it supports large-scale programs.⁸¹ A study in Honduras, for instance, revealed that while the country’s central warehouse was overstocked with packets, irregular deliveries led to widespread shortages at the community level.⁸² Similar shortages were reported by mothers in Afghan refugee camps in Pakistan.⁸³ A study in rural Bangladesh showed that diarrheal mortality was directly related to the distance from children’s homes to the nearest clinic; children living over 5 miles from the clin-

ic were 3 times more likely to die than those within this radius. The authors concluded that diarrheal mortality rate could be reduced in one of two ways: by building treatment centers every 4 miles throughout Bangladesh or, more feasibly, by making ORT available at the household level.⁸⁴

Economic Perspectives in the ORS-ORT Debate

USAID’s big push for “...promoting private sector production and distribution of ORS packets” is no surprise.⁸⁵ Former USAID Director Alan Woods stated at the Third International Conference on Oral Rehydration Therapy that “The goal for sustainability of ORT is private-public sector collaboration, and that such collaboration ‘is not happening fast enough.’” For better or worse, it has now happened. Today the vast majority of ORS packets are produced and distributed commercially.

The economic impact of ORT is a concern to representatives from both sides of the debate. Home-drink advocates worry about the costs to poor families which can decrease ORS use and increase poor nutrition. These costs include the expense of the packets and of traveling to the nearest point of distribution, as well as time lost and wages foregone.*⁸⁶

By contrast, the packet promoters worry more about costs of packet production and distribution. These costs particularly affect Third World governments obliged to cut spending as part of structural adjustment (see page 83). High-level planners have thus opted for commercialization of packets and *cost recovery schemes*. Such measures are criticized by home ORT advocates (and even some promoters of packets) because user charges for packets both decrease ORS use rates and increase the economic and nutritional toll to families of high risk children. In many countries privatization of ORS has pushed prices out of reach of the poorest families. As WHO cautiously notes, “The price of locally produced ORS is often viewed as excessive in comparison with the world market price or that of UNICEF-supplied ORS.”⁸⁷

*In a recent case study in Jamaica, “63% (165) of guardians spent between 1 and 10 Jamaican dollars in transport to come to the clinic, 57% (149) spent between 1 and 10 dollars on snack food as they traveled and waited, and others lost their wage for the day or had to pay for a minder to look after other children left at home. Given these costs there was quite a good economic reason for the guardian to nip into a nearby shop and buy a look-alike packet of Epsom Salts instead.”

The impact of commercial ORS on the poor

How does involving the private sector in marketing ORS affect the poorest families? Cost of commercial ORS packets in different countries ranges from about 5 to 40 US cents per liter; the average is 15 to 20 US cents.⁸⁸ While to some of us 15 cents is not much, we must remember that over one billion people earn less than one dollar a day. These are, of course, the people whose children die from diarrhea. In Bangladesh during times of floods and famine—when diarrhea is most prevalent—landless peasants may earn as little as 7 to 13 US cents a day.⁸⁹ Not surprisingly, many families surveyed in a nationwide study in Bangladesh said that ORS was too expensive for them.⁹⁰

In several countries for which we have information, the low wages paid to farmworkers and ‘unskilled’ laborers mean that many poor families—who already earn too little to adequately feed their children—have to spend from 1/4 to 3/4 or more of their day’s wages for a single ORS packet.⁹¹ In India ORS packets cost as much as 7–8 rupees (50 US cents), and the minimum wage is 10 rupees a day. Many workers earn as little as 4 rupees daily, when they can find work.

Even in the United States, the high prices of oral rehydration products place them out of reach of low-income people. The *Journal of the American Medical Association* reports on an infant who died because its mother could not afford to spend 5 to 6 dollars a liter for the bottled ORS solution prescribed by the child’s pediatrician.⁹²

The problem of the cost of ORS to families is compounded by the fact that diarrhea strikes children so often. Diarrhea is not only a leading killer of children, but also *the illness that children in poor families have most often*. According to some estimates, Third World children under five years experience from 2 to 5 diarrhea episodes annually.⁹³ Those under three living in areas where sanitary and hygienic conditions are poor may have from 4 to 8 episodes a year, each lasting an average of a week.⁹⁴ It has been estimated that Third World children under age three have diarrhea over 10% of the time.⁹⁵ In some areas this figure is higher. According to the Pan American Health Organization, Bolivian children under 5 years old have “9 to 12 diarrheal episodes each year.”⁹⁶ A study in rural Bangladesh found that children under two years old may have diarrhea 16% to 17% of the time—or up to 60 days a year.⁹⁷ This means a family with three young children may be treating a child with diarrhea half the days of a year. A five year old with severe watery diarrhea may need two liters or more of rehydration fluid a day. To try to meet this enormous need with ORS packets would be exorbitant. If a poor family were to spend one-tenth of its daily wages on each ORS packet, it would create a staggering economic burden.

Poor families are damned if they do and damned if they don’t.

The high price of commercial ORS means they often simply cannot afford to buy packets for their children, at least not in sufficient quantities to make a life-saving difference. And if they *do* buy packets, the cost may adversely affect their children’s nutrition and even survival.

Certainly, for the poorest families, the cost of ORS may be a contributing cause of under-utilization. Yet UNICEF seems blind to this point. In its 1994 *State of the World’s Children* report it comments:

Progress on promoting ORT has also been too slow. A quarter of a century has now passed since its discovery.... *The technique is virtually cost free*. Yet it is still known to only about one third of the developing world’s families.” (italics added)

Far from being virtually cost-free, for poor families ORS packets can be prohibitively expensive. A study in Bangladesh found that the cost of a commercially produced ORS packet was seven times greater than that of a liter of a home ORT solution made with unrefined cane sugar and table salt.⁹⁸ If the energy and funds that UNICEF and WHO have invested over the years in promoting ORS packets had been put into popular education about effective home solutions, nearly every Third World family could truly have access to ORT. Once information becomes “common knowledge,” shared and passed on from family to family, the technology and its transfer could become virtually cost free.

Is Egypt’s Costly Success Story Sustainable?

Egypt’s National Control of Diarrheal Disease Program (NCDDP), which ran from 1981 to 1991, has often been cited as the world’s most successful large scale ORT initiative. Indeed, the results were remarkable. Before the program began, diarrhea was the leading killer of Egypt’s children. Within a 5 year period (1983–1988) diarrhea mortality dropped by 58% for infants and 53% for children aged 1–4.⁹⁹ During this same period (1982–1987) overall infant and child mortality rates also dropped substantially (by 36% and 43% respectively). Most of this drop reportedly was due to the fall in diarrheal deaths, which were said to account for 82% of the overall decline in infant deaths and 62% of the overall decline in young children’s deaths.¹⁰⁰ A recent monograph of the program provides detailed evidence that (1) the mortality decline—and in particular the diarrheal mortality decline—were actual events, (2) case management improved sufficiently to account for most of the diarrheal mortality decline, and (3) changes in other factors that might contribute to mortality decline, such as host resistance or diarrheal incidence, do not plausibly account for the magnitude of the reductions seen.¹⁰¹

Although the results of Egypt's NCDDP are impressive by any measure, a large study published in 1994 questions the extent of the claimed project impact on mortality, pointing out that "deaths from other causes have declined almost as much as those from diarrhoea, and most importantly, diarrhoea remains the main cause of death among children."¹⁰²

The Egyptian program was funded by a ten year \$32 million grant from USAID, which collaborated with the Egyptian Ministry of Health in designing the project. Central to the project was the use of ORS packets, including for home treatments of diarrhea. The program received a blitz of media attention: posters, megaphones, radio, and TVspots hammered home basic messages to a wide sector of the population. In addition, for 10 years USAID heavily subsidized the price of the ORS packets; a 'ten-pack' of mini-packets (theoretically enough to manage the average case of child diarrhea) cost a family less than half an Egyptian pound (EP) (up to one quarter of a day's wages for some families).

However, the subsidy ended when USAID withdrew its support in September 1991, a time when the Egyptian Health Ministry was already having difficulties in shouldering the program's costs. The shortfall resulted partly because Egypt—in spite of being a middle income country and the recipient of the second highest amount of US foreign aid—is saddled with a huge foreign debt. Consequently it has been subjected to structural adjustment programs (SAPs) which include cutbacks of the health budget. So the Health Ministry (in compliance with the World Bank's call for cost recovery) decided to make its diarrhea control program 'sustainable' by selling ORS packets at cost.

Shortly before USAID withdrew, one of us (David Werner) visited Egypt and discussed the situation with the programs directors. They conceded that ending the subsidy on ORS packets and selling them at cost posed a dilemma. Some of them questioned whether promoting the packets might not have been a mistake, which led to the difficulties with cost, sustainability, and dependence on a product that may not always be available.¹⁰³

Predictably, when USAID cut back its funding from the program in 1991, the price of the ORS ten-pack jumped to 1.50 EP, an unrealistic cost for Egyptian families earning as little as 2 EPs per day.¹⁰⁴ As expected, the use rate of ORS packets dropped from over 50% to 23% and the use rate for ORT of any kind (ORS or home fluids) fell to 34%.¹⁰⁵ From 1992 to 1994, the percentage of children receiving inappropriate drug treatment for diarrhea jumped from 54.2% to 76%.¹⁰⁶

Maintenance of supply also became a problem. In the province of Beni Suef, for example, it was reported that ORS packets had not been available for a year because the local health officer had not reordered them. This leads us to ask, "how sustainable is a selective health intervention within a deteriorating socioeconomic environment?" Hirschhorn argues that, although the use of ORS has declined sharply, the educational component of the program—which reached virtually the entire population, including health professionals—will have long-lasting effects. However, might not the long-term effects have been even greater if the investment had been put into teaching people a more self-reliance-building alternative, as part of a comprehensive effort to combat poverty and undernutrition?

The sad state of children's nutrition in Egypt brings into focus another stumbling block to sustaining the success of its ORT program. Although child mortality from diarrhea dropped significantly during the years of the program, the high rates of malnutrition and growth stunting in children remained almost unchanged, as they had for the last decade. (Hirschhorn cites a modest improvement in growth stunting during the program period, and suggests this may be due to better management of child diarrhea—including continued feeding.)¹⁰⁷ Since adequate nutrition is a key factor in eliminating diarrhea as a major cause of child death, can it be expected that Egypt's diarrhea control program, which had focused so selectively (and expensively) on ORS, will have a lasting impact?

A report delivered at a conference sponsored by the World Bank and USAID¹⁰⁸ contends that the claims of success even at the height of Egypt's ORT program may have been overstated. Most importantly, perhaps, the study notes that the lowering of child mortality has not been accompanied by substantial improvements in children's health, nutritional status, or quality of life. It concludes that "the utilization of infant or child mortality as outcome measures, biases the conclusions drawn. Measures of health must be brought to the forefront."¹⁰⁹

Dr. Norbert Hirschhorn, who headed the John Snow advisory team to the program, does not refute observations of an overall deterioration of support services and the economy as a whole during the program period. Indeed, he points out that from 1984–85 onward, public spending by government (including food subsidies) declined, real wages decreased, and families living in absolute poverty rose from 23% to 34%.¹¹⁰ Some critics have argued that the success of the program is questionable because child mortality had been falling steeply during the previous 30 years. However, the economic setbacks in the 1980s might well have interrupted that

positive trend (as they did in many countries). Given the deepening poverty in Egypt during the 1980s, the success of the program is even more remarkable.

To put the relative success or failure of Egypt's diarrheal control program into perspective, it is important to draw comparisons with countries such as Cuba and China, both of which have much lower diarrhea mortality rates in children (and lower child mortality in general). There seems little doubt that the most effective program for reducing deaths from diarrhea is not to focus selectively on ORT, but to meet all children's nutritional and other basic needs. Whether this is possible in a poor country in the absence of an over-all commitment to equity, is doubtful. Approaches based on a commitment to equity will be discussed in Part 4.

The Need for Studies Correlating Family ORS Expenditures with Child Malnutrition

We have seen how the cost of ORS packets—whether borne by governments or by families—can compromise both the effectiveness and sustainability of ORT initiatives. We have discussed the possibility that strong promotion of commercial packets for home use may be indirectly contributing to children's deaths by leading families to spend on packets what they might otherwise spend on food. The question of whether—and to what extent—this is happening merits serious investigation. This is particularly important given that packets are increasingly being commercially marketed and 'user financed.'

However, at all three International Conferences on ORT, to our knowledge, the main speakers made no reference to the impact of family ORS expenditures on children's nutrition and, ultimately, their survival. By contrast, numerous studies have been done showing the negative impact on children's health and survival due to family expenditures on infant formula, junk food, cigarettes, vitamin tonics, unnecessary medicines, and even antidiarrheal drugs (see page 92).¹¹¹ But, of more than 1,000 papers published on ORT,¹¹² not one (that we know of) compares prices of ORS packets to minimum wages in different countries, or researches the ways in which the aggressive marketing of ORS packets may in fact contribute to child malnutrition and death. There is a need for such studies.

Does the End Justify the Means?

Despite its gradual drift toward home fluids, WHO still

encourages home use of ORS packets. It recognizes, however, how hard it can be for families to obtain ORS quickly enough to prevent dehydration. So WHO now stresses that when health centers give mothers ORS packets, in addition to teaching them how to use them, they should also teach them about the use of home fluids. (It would be helpful if WHO would insist, and governments require, that ORS manufacturers print instructions for use of home fluids on every packet.)¹¹³

Studies in several countries confirm that mothers often give their children ORS in quantities that are inadequate to prevent dehydration.¹¹⁴ A common problem is that health centers tend to give mothers only a single packet of ORS at a time. This is a mere token, since the average case of diarrhea lasts 5 to 7 days¹¹⁵ and a child with severe diarrhea may require one or more liters of rehydration per day. This practice of one packet per visit, along with the pharmaceutical image of ORS (in slick aluminum-foil packets) helps explain why mothers often give it like medicinal tonic: in small doses a few times a day.¹¹⁶ In such situations, ORS packets may sometimes cause more dehydration than they prevent.

There is some indication—from within WHO's Program for the Control of Diarrheal Disease—that the weakness of a packet-centered approach was not entirely unanticipated. In a private discussion at the Second International Conference on Oral Rehydration Therapy (ICORT 2), a senior officer of the WHO program criticized one of us (David Werner) for overstating the differences between WHO's approach and that of community-based programs. He conceded that planners of ORT strategy were aware of the financial, practical, and sustainable advantages of home-based rehydration over ORS packets. But, he argued, in order to win the medical establishment's support for ORT, it would first have to be promoted in a way that left the professionals a certain amount of power and control. As the problems of a packet-based approach became evident, home-based therapy would gain precedence.

This official's startling argument comes down to saying that *the end justifies the means*. The strategy he laid out—whereby ORS packets pave the way for home-made ORT, and dependency-creation becomes a stepping stone to self-reliance—is not only ethically problematic, but doomed to backfire.

And backfire it did. What the strategy overlooked was the fact that diarrheal disease control programs (including WHO's) would develop a major stake in the packet approach. Over the years these programs have invested large amounts of money in the infrastructure of packeting; careers and reputations are wedded to it.

Moreover, the privatization of ORS marketing has transformed a “simple solution” into a multi-million dollar business.

One fallout from the over-zealous promotion of ORS packets has been to undermine people’s confidence in home solutions. Now that WHO and UNICEF are trying to place more emphasis on home fluids and health-workers are trying to promote them, people complain about “a second-rate solution for second-class citizens.” Poor people want the best for their sick children and are prepared to make sacrifices. So they continue to walk long distances and spend their food money to obtain the magic packets with the silver lining. And their children continue to die.

The “Success” of Marketing

Most health planners agree that the main objective of ORT should be to stop dehydration before it starts. So mothers should begin oral hydration before dehydration sets in. They should start by giving their children home fluids and food, and turn to ORS packets only when children show signs of dehydration. By logical conclusion, the real measure of an ORT program’s success, i.e., prevention of dehydration in the home, would be seen in a reduced demand for ORS packets. Hence the more successful the program, the more the production and distribution of ORS packets would decline. In practice, this contradicts the market perspective held by WHO; in this view, the more packets are produced, the more



Social Marketing: Using people’s religious and cultural beliefs to promote the use of ORS packets

effective the program. And as long as commercial interests have their say, they will flood the market with as many packets as poverty can bear.

Unfortunately, successful marketing strategies and successful health initiatives are founded on very different principles. For example, as a result of India’s “Revised National Diarrhea Management Plan,” marketing consultants appear to have designed the plan based on consumption.¹¹⁷ So a study showing mothers’ demand for medicines for diarrhea and health workers’ zealous promotion of anti-diarrheal drugs was interpreted as a need for more ORS promotion, rather than a need for more effective education of mothers and health workers about sensible and limited use of medicines. In a classically opportunistic approach, the authors of the study suggested making use of these misguided popular beliefs by promoting ORS as a medicine. As part of this ploy, the authors recommended reinforcing the incorrect belief held by many mothers that ORS stops diarrhea. After all, they argue, “Wider promotion of ... [ORS]’ healing properties could be expected to lead to not only wider use, but also wider satisfaction.”¹¹⁸ Instead of correcting poor people’s misconceptions, this strategy takes advantage of them. Rather than correcting the notion that medicines and commercial products are always needed to cure their children, this approach reinforces and profits from harmful ideas.

Handwashing Campaign Opens New Market for Soap Producers

BASICS and the Environmental Health Project (EHP) have been catalysts for creation of an alliance among soap manufacturers in Central America. At a meeting convened in Guatemala in March, these competing firms agreed on a broad strategy and common objectives for a joint campaign throughout Central America to promote handwashing with soap to prevent disease.

in children un-
America.

Most of these
their prod
toilet/cosmeti
enthusiastic ab
to expand the
their products
and reducing
cholera.

“This is a good
public and pri
to reach com
explains Cam
Technical Offi
Social Market
benefits corp

This announcement in USAID’s Basics newsletter promoting its social marketing campaign captures the essence of its marketing approach to health care.

The latest argument in defense of the aggressive promotion of ORS points to the “success” of marketing efforts; studies now show that mothers of sick children want *medicine* and are not satisfied until they get it. Mothers tend to regard other treatment options (especially home remedies) as second-rate, and are more likely to accept ORS—presented as a medicine—than home-based rehydration drinks. Though ORS costs more, the marketers argue, it is better that mothers spend a little on ORS than spend a lot on ineffective or dangerous antidiarrheal drugs.

This argument, however, suffers from the same flaws as the one advanced by the authors of *Diarrhoea in Rural India*. It tries to justify a strategy that capitalizes on poor peoples’ misconceptions rather than helping to dispel them. Instead of helping break the habit of wasting food money on unnecessary products, it encourages it.

If, however, poor people were helped to understand the real needs of children with acute diarrhea, they would be more able to meet those needs with their own resources at almost no cost. The knowledge and confidence they would gain by doing so might empower them to grapple with other issues and, ultimately, to attack the root causes of their poverty and poor health. As part of a larger process of standing up for their rights, people need to demand that health officials and other authorities stop misleading them and start telling them the truth. In the long run, this sort of assertive action is more effective in promoting the health and well-being of their children than ORT alone can ever be. Health workers (and institutions) can either help this process or hold it back.


Unless social marketing strategists radically alter their mind-sets, health planners should think twice before recruiting them. One of the drawbacks of commercial marketing tactics is that they often sacrifice or distort the truth. We believe that the goals of enhancing child survival and quality of life cannot be advanced through deception; awareness-raising is ultimately more effective than brainwashing.

Zimbabwe’s Lone Stand for Self-reliance

Zimbabwe is one of the few poor countries that has refused to follow the WHO/ UNICEF guidelines for ORS packets. Planners in the new Health Ministry, committed to greater equity of services, foresaw some of the difficulties we have already discussed, and refused to promote the use of factory produced ORS packets, even in health facilities. They argued that *if mothers are to become self-reliant in home management of diarrhea, one of the best places for them to learn to*

KANA Mwana ane Manyoka
ZACH, BOX 1556, HARARE.

– ISAI CHIDIMU CHECHIDIMU
CHECHIDZIWO CHEMUNYU

1/4 Munyu
(kusvikira pamutsetse uyu) 
MUBHODHORO REMAZOWE rine
mvura yakaviriswa.

– SANGANISA, RAIDZA.
Zvinofanira kuvavira kudarika
misodzi.



– ISAI ZVIDZIWO ZVITATU
ZVESHUKA MUBHODHORO

3 Shuka

MUSANGANISE
Ipa mwana kunwa
uko kusvikira
manyoka apera
Shandisa tiisipunu
kana mwana achi-
rutsa. Ramba
uchiyamwisa mwana.




750ml

The current formula used in Zimbabwe is 6 level teaspoons of sugar and a half a level teaspoon of salt in a 750 ml bottle.

prepare and give a home mix solution is in the health facility. More lives can be saved if health facilities use the same home mix methods that mothers are encouraged to use in the home. Thus the mother’s visit to a health post becomes a teaching opportunity for home methods, rather than undermining the mother’s confidence in home methods by exposing her to a medicalized, more costly, less accessible alternative.

WHO and UNICEF have pressured Zimbabwe to bring its policy into line with their pro-packet stance.¹¹⁹ The agencies have even sent unsolicited shipments of ORS to several community hospitals. Fortunately, the hospitals refused them. Accepting them would not only have undermined Zimbabwe’s more effective approach, it might also have endangered children’s lives with solutions that were too salty, since the packets were meant to be mixed with one liter while the standard container used to mix ORT in Zimbabwe is a 750 ml. bottle.

Even WHO has had to admit that Zimbabwe’s diarrhea control program has been unusually successful; its 1992 evaluation found the program had achieved “unusually high ORT use rates.”¹²⁰ The evaluation attributed this success in large part to Zimbabwe’s emphasis on home mix.¹²¹ However, the debate continues, and it appears Zimbabwe is giving in to the pressure. A recent review by the Zimbabwe CDD Programme recommends full-formula—made up as a liquid by the hospital pharmacy—for ORS for hospitalized dehydrated persons.¹²²