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INTRODUCING ZINC THROUGH THE PRIVATE SECTOR IN NEPAL FOR THE TREATMENT OF CHILDHOOD DIARRHEA

RESULTS AND LESSONS LEARNED

PROGRAM CONTEXT

Nepal is one of the poorest countries in the world with a per capita income of $240 per year and a population of 25 million. Forty percent of the population lives below the poverty line. Nepal is known for some significant child health achievements including its vitamin A supplementation program that reaches 90 percent of children twice annually and a national de-worming program with a similar level of coverage. However, according to the 2006 Nepal Demographic and Health Survey (NDHS), diarrhea continues to be a major cause of childhood morbidity and mortality, with 12 percent of children under five year of age experiencing diarrhea. The incidence of diarrhea varies with the season, April to August being the high diarrhea incidence period. Prevalence of diarrhea is highest among children 6-11 months (22.6 percent) and 12-23 months (19.6 percent).

The 2006 NDHS reported that nearly all mothers of children under five (97.8 percent) knew about oral rehydration salts (ORS). Of those who treated their children, 61 percent administered either ORS, increased fluids or sugar/salt solution. Zinc was virtually unheard of in Nepal with only 0.4 percent of caregivers providing zinc during any bout of diarrhea in the previous two weeks. Ineffective or inappropriate pills and syrups were widely provided for infant/childhood diarrhea (used by 68 percent of those who treated), with or without ORS. Thirty-four percent of caregivers provided no treatment at all. As shown in Table 1, 19 percent of diarrhea cases were treated in the public sector, and 35 percent in the private sector (excluding traditional providers), with pharmacies/chemist shops being the most important providers of treatment.

Both the public and private sector played a role in the high use of pills and syrups; however, private sector pharmacies were much more likely to recommend pills/syrups alone (56 percent) than other private health providers (35 percent) or the public sector (37 percent). Conversely, the public sector

POUZN
POINT-OF-USE SAFE WATER & ZINC SAVING CHILDREN'S LIVES

CountryBrief

TABLE 1. NEPAL DIARRHEA TREATMENT PRACTICES (NDHS 2006)

Treatment	Home 50%	Public Sector 19%	Pharmacy 29%	Private Provider 6%	Traditional Provider 2%
Pills/syrups only	3%	37%	56%	35%	11%
ORS only	13%	21%	2%	15%	11%
Pills, syrups, and ORS	3%	28%	35%	35%	0%
Nothing	72%	5%	2%	3%	67%

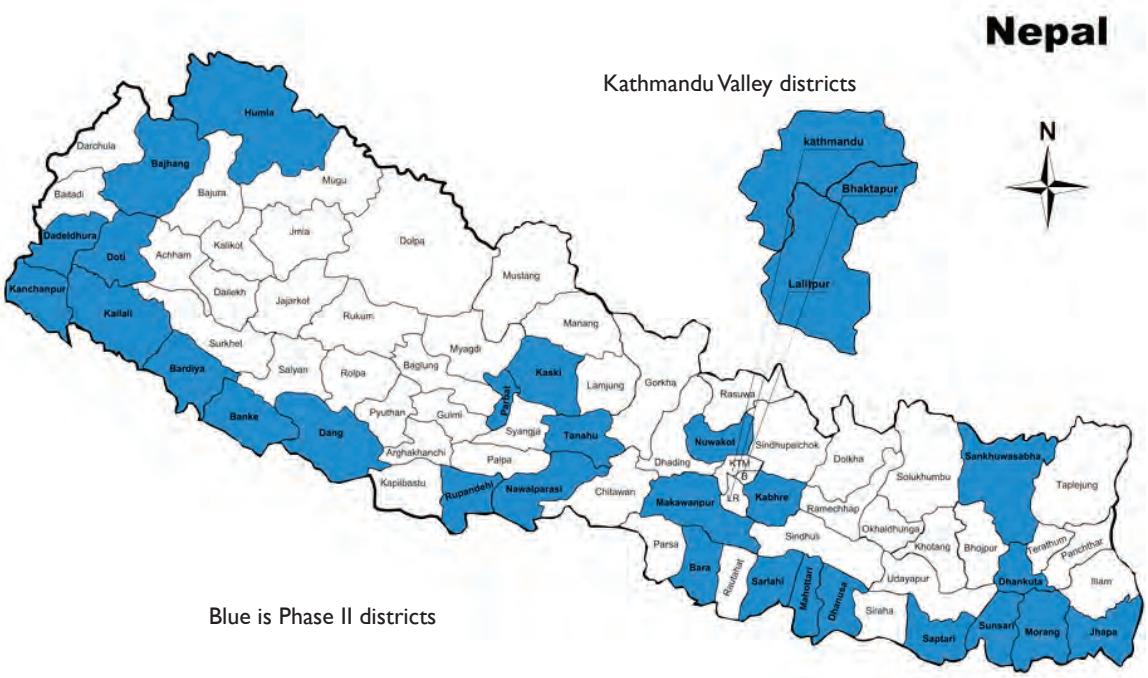
Source: Secondary analysis of NDHS 2006 data, Dr. Kathy Banke, Abt Associates Inc.

was much more likely to recommend ORS alone (21 percent) than the private sector pharmacies (2 percent).

The Government of Nepal, through the Ministry of Health and Population's (MoHP) Child Health Division, took steps to address the issue of high pill/syrup use by heavily promoting the use of both pre-packaged ORS and oral rehydration therapy (ORT)—homemade sugar/salt solutions or other recommended home fluids—to reduce the severity of symptoms from dehydration and in 2004 became one of the first health ministries in the world to create a Zinc Task Force and prepare stakeholders for the introduction of zinc in line with the new World Health Organization (WHO)/ UNICEF recommendations for standard management of childhood diarrhea, which includes ORS/ORT along with a 10-14 day regimen of pediatric zinc.

In 2005, the MoHP requested financial and technical assistance to support the integration of zinc into the government's diarrhea management program. In response, the United States Agency for International Development's (USAID) *Nepal Family Health Project* and UNICEF took the lead in providing commodities, training and technical assistance to strengthen the skills of public sector health care providers in treating childhood diarrheas with both ORS/ ORT and zinc. At the same time, USAID/ Nepal funded the global *Social Marketing for Diarrheal Disease Control Plus: Point-of-Use Water Disinfection and Zinc Treatment (POUZN) Project*, implemented by Abt Associates in partnership with Population Services International, to introduce pediatric zinc in Nepal through the private sector as a companion piece to the introduction of zinc as the standard pediatric diarrhea treatment at public sector health facilities. Both public and private sector programs have now been implemented in 30 targeted districts encompassing 65 percent of the population, as shown in Figure 1. This brief will describe the private sector program including results and lessons learned to date.

FIGURE 1. MAP OF NEPAL WITH 30 POUZN (AND IMCI) FOCUS DISTRICTS



PROGRAM GOALS

The POUZN project included four goals:

- To create a sustainable commercial supply of pediatric zinc tablets with Nepalese pharmaceutical firms manufacturing and marketing their own brands.
- To increase access to pediatric zinc among caregivers of children under five in Nepal, ensuring that multiple, high-quality, affordable zinc tablets were available nationally in private sector urban and peri-urban outlets.
- To improve caregiver knowledge and treatment of childhood diarrhea so that caregivers provide ORS/ORT together with zinc as the first-line treatment for uncomplicated diarrhea.
- To improve private provider knowledge and treatment of childhood diarrhea so that providers promote pediatric zinc, along with ORS/ORT as the first-line treatment for uncomplicated diarrhea in under-five children.

TIMELINE

The POUZN program was implemented in two phases. Phase I, which began in December 2006 and ended September 2007, focused exclusively on the three districts in the capital area of the Kathmandu Valley. Because the public sector program had not yet been initiated in Kathmandu Valley and this area was key to initiating a private sector program, the POUZN project supported the introduction of zinc in both sectors. The project procured product for the public sector program, trained both public and private sector staff, and supported behavior change communications for both sectors. The POUZN team worked closely with the Ministry of Health's Child Health Division throughout to jointly plan implementation activities and to monitor the first phase prior to national scale-up. Phase II spanned six months from April through September 2008, extending the private sector program to an additional 27 public sector IMCI focus

districts throughout Nepal (see Figure 1), with the MoHP taking the lead in ensuring training and product supply in the public sector, and POUZN training private sector chemists and ensuring commercial product distribution in those districts. POUZN implemented generic behavior change communications campaigns during each phase promoting the use of zinc along with ORS to all potential consumers.

CREATING A SUSTAINABLE PRODUCT SUPPLY

At the inception of the POUZN program in Nepal, no zinc products were available in either the public or private sectors from external sources or local manufacturers. The public sector program planned to distribute zinc tablets, manufactured by Nutriset in France and approved by USAID and UNICEF for zinc treatment programs worldwide. POUZN likewise intended to procure the Nutriset product and introduce it commercially with the aim of encouraging local market manufacturers to develop and introduce products that would replace the Nutriset product over the medium term. However, meetings with local manufacturers and the Department of Drug Administration (DDA) during the initial program assessment in December 2005 found that there was already a commitment to and an interest by local firms in manufacturing a dispersible tablet in Nepal. As a result, the POUZN team stepped up its efforts to encourage local firms to manufacture the product locally, and in 2007 signed Memoranda of Understanding with three major pharmaceutical firms: Deurali-Janti Pharmaceuticals Pvt. Ltd. (DJPL), CTL Pharmaceuticals Pvt. Ltd (CTL), and Nepal Pharmaceuticals Laboratory Pvt. Ltd. (NPL). By August 2007, all three firms had produced, registered, and begun distribution of five sulphate-based zinc products: DJPL was first in the market, in May 2007, with

Locally manufactured zinc tablets

two pediatric zinc products—10 mg and 20 mg dispersible tablets packaged in a blister of 10 tablets and marketed under the brand name ZINC DT. By August 2007, the other two firms had their products on the market. NPL is marketing both 10 mg and 20 mg tablets under the brand name Z-DIS 10 and Z-DIS 20. CTL is marketing a 20 mg tablet under the brand name ZINCOVA. One other firm, SR Pharmaceuticals, is marketing a gluconate-based zinc product.

While there was some initial discussion of co-packaging ORS and zinc, it was felt that would be costly and unnecessary, particularly given the already high use of ORS and ORT.

The POUZN project team in Nepal not only continued to encourage these firms to participate in the program but was able to provide technical assistance through a USAID contract with U.S. Pharmacopeia (USP), the U.S. drug standards organization. USP laboratories tested and ensured the quality of all five zinc sulfate products and then provided technical assistance to the Nepalese firms by visiting their facilities and reviewing their production processes in preparation for a UNICEF Pharmaceutical Good Manufacturing Practices audit that would qualify them to compete in international tenders for provision of zinc. POUZN supported the marketing efforts of these firms by promoting zinc in trade journals (reaching approximately 6000 members of pharmaceutical and medical associations), supporting initial marketing efforts, and co-sponsoring Continuing Medical Education (CME) programs that focused on introducing the new treatment protocols with zinc to doctors and other medical professionals. In addition to the support provided by POUZN, these firms have written and published articles on zinc in their quarterly trade publications; developed, printed, and distributed their own detailing materials and informational leaflets on zinc for chemists; and are planning additional CME programs.

These manufacturers saw the long-term potential market for pediatric zinc and realized that the MoHP was committed to promoting zinc (and ORS) as the preferred treatment for pediatric diarrhea. With the encouragement of both the MoHP and the Government of Nepal's DDA these firms made the decision to enter the market and a commitment to provide a quality product at an affordable price. Approximately 263,000 treatments were sold through the private sector during the period May 2007 to August 2008. Access to the products has been extended beyond the reach of the 30 POUZN target program districts through the additional marketing efforts of these firms.

ENSURING ACCESS TO AND AVAILABILITY OF AFFORDABLE PRODUCTS

Given that the private sector is the primary source of diarrhea treatments, the project sought to ensure that pediatric zinc was available everywhere ORS and other diarrhea treatments were sold. The program worked closely with the three local manufacturers to ensure the 30 program districts (27 CB-IMCI and three Kathmandu valley districts designated by the MoHP as target areas for the zinc program), were well covered. The combination of a competitive market and high visibility communications campaign led to a desire for manufacturers to ensure product availability.

An informal survey, conducted in 2008, found that zinc products were available in 75 percent of the outlets in the target districts. All three firms have expanded access to their products beyond the 30 POUZN program districts. While maintaining the desired quality standard, these manufacturers are marketing their products and exploiting their own competitive advantage.

In August and September 2008, POUZN funded a population-based survey among 3550 households in all 30 target districts. Research findings indicated that 15.4 percent of children with diarrhea in the past two weeks were treated with zinc. Zinc tablets were obtained from private chemist shops (32 percent), private clinics (26 percent), public sector health posts (29 percent), hospitals (18 percent), and/or a female community health volunteer (15 percent). The reasons for choice of location were easy access (53 percent), quality of service (19 percent), nearby with free home delivery (17 percent), price (6 percent), available only at this source (4 percent), and obtained for free (1 percent).

Exposure to mass media messages significantly increased consumers' knowledge of sources where they could obtain zinc, as shown in Table 2.

TABLE 2. AWARENESS OF SOURCE OF ZINC BY EXPOSURE TO RELEVANT MESSAGES THROUGH TV/RADIO

	Exposed	Unexposed
Any source below***	77.2%	2.2%
Hospital***	20.6%	0.8%
Health post***	28.0%	0.6%
Private clinic/***	21.7%	0.4%
Private pharmacy (chemist shop)***	57.8%	1.2%

***Note: p values <001.

All three manufacturers set prices at what both they and consumers consider very affordable rates that ranged from US$0.19 to US$0.52 for a treatment course (Table 3).

TABLE 3: LOCAL ZINC PRODUCT PRICING STRUCTURES

Product	Retail Price
DJPL 20 mg.	NPR. 40
DJPL 10 mg.	NPR. 20
NPL 20 mg.	NPR. 30
NPL 10 mg.	NPR. 15
CTL 20 mg.	NPR. 25

Note: US$1.00 = Nepal rupees (NPR) 77

POUZN-sponsored formative research, conducted in July 2006 by the Central Department of Population Studies, Centre for Population Research and Training of Tribhuvan University, found that the average cost of a diarrhea treatment (antidiarrheal plus ORS) ranged from 30-50 NPR to 200 NPR for more severe cases. Thus the prices set by manufacturers are well within this range. The POUZN household survey also confirmed that most consumers (69 percent) found the price either inexpensive or affordable.

IMPROVING CAREGIVERS KNOWLEDGE AND PRACTICE

An important step to increasing demand for pediatric zinc is consumer education. The POUZN program aimed to create awareness of pediatric zinc treatment, together with ORS, for diarrhea in children under five and convert that awareness into purchase and use behavior. Consumers were also made aware of incorrect treatment for uncomplicated diarrhea and encouraged not to purchase and use other pills or syrups, including antibiotic or anti-diarrheal treatments.

POUZN target consumers of zinc and ORS products
Courtesy of Vicki MacDonald

Findings from initial formative research, gathered through focus group discussions with caregivers of children under five, indicated that caregivers understood the causes of diarrhea and the symptoms of severe dehydration for which care outside the home should be sought. Caregivers also understood and practiced appropriate home-based treatments, including increased liquid and food intake, and sought medical attention from the local medical shop if the child had continuing diarrhea or diarrhea with a fever.

The Project's communication objectives for consumers were to ensure that caregivers of children under five understand that zinc is an appropriate treatment for diarrhea, know that dispersible zinc tablets are available from either public or private sector clinics/pharmacies, understand that unnecessary diarrhea treatments (antidiarrheals and antibiotics) may be harmful to their children and not the most effective treatment, and correctly treat their child by providing both zinc and ORS/ORT for the recommended period of time. Given that the zinc and ORS were to be purchased separately, the POUZN team was concerned that consumers not substitute zinc for ORS or ORT, but understand that these products need to be taken together and zinc, particularly, for the full 10 days in order to maximize its effectiveness. Given consumers' propensity for treating diarrhea with pills and syrups, the POUZN team emphasized shifting consumer behavior away from antidiarrheals and toward zinc, as the most appropriate diarrhea treatment.

A communication plan was developed that outlined the development of the following print and campaign materials:

Generic campaign logo: Based on the experience of Abt's ORS campaign in India whereby the total market (commercial, nongovernmental, and public) was supported by a campaign that included a generic logo, the POUZN team developed a similar generic logo to be used to support the zinc market in Nepal. A number of prospective designs were tested with caregivers and the current logo selected, ensuring that a happy, healthy child was featured. The logo was used on all communication materials produced for the public and private sectors.

Logo used on all campaign materials

Outdoor materials: POUZN developed large 3x5 foot flex boards—a job aid printed on flexible, longer-lasting fabric-based materials for use in out patient department/clinic waiting rooms. Three copies of the flex board were provided to each district hospital in the target districts, including the four hospitals in the Kathmandu Valley. In addition, billboards (shown below) containing the logo and the key message "Zinc tablets along with ORS/ORT—the most effective diarrhea treatment for children under 5" were prepared and installed near the four hospitals in the Kathmandu Valley and affixed to the side of every district hospital in the 27 other target IMCI districts.

Translation of billboard message: "Zinc tablets along with ORS/ORT—the most effective diarrhea treatment method for children under 5 years"

Radio and television spots: Four radio spots and one television commercial were developed to convey the major messages through discussions featuring a physician, chemist, mother, and health worker. Careful research was conducted to determine the most popular stations and programs around which to place the spots. Based on this information, POUZN's communications team negotiated contracts with four Kathmandu FM radio stations (one of which is Radio Nepal, which broadcasts on AM and FM channels heard throughout the country) during Phase I. During Phase II POUZN contracted with two of the Kathmandu stations, an additional 19 regional FM radio stations outside the valley, and four television stations with national range to broadcast the spots and commercial during the diarrhea season.

Changes in consumer knowledge: The television and radio spots were by far the most effective means of transmitting key messages to the population. Sixty-eight percent of respondents had been exposed to at least one message about diarrhea treatment. Fifty three percent of respondents reported that they had heard or seen a message about a zinc product. Of these, 50 percent had heard a message about zinc on the radio, 85 percent via the

television commercial, and four percent from friends or relatives. Only minimal exposure to zinc messages was received via education sessions, clinic or village health talks, sales agents, posters, newspapers, doctors, chemists, etc. (3 percent or less have heard a zinc message from each of these channels). Fifty two percent of all respondents knew that they should give zinc to children experiencing bouts of diarrhea. Table 4, below, outlines specific message retention by media source:

Table 5 shows the impact of exposure to zinc messaging on the caregiver's knowledge of zinc for the treatment of diarrhea. Those exposed to communications messages were more than twice as likely to know that zinc was an appropriate treatment for acute and persistent diarrhea and/or dehydration and four times as likely to know that zinc should be used for 10 days.

Changes in consumer practices: Zinc use increased from 0.4 percent to 15.4 percent over the three year period from 2005 to 2008. Table 6 shows the percentage of children with diarrhea who were given zinc, given zinc along with ORS and given zinc for the full 10 days. This data shows that 79% of children who were treated with zinc were also given ORS/ORT and 66% of zinc users correctly used zinc for the full 10 days. Fifty four percent of caregivers treating with zinc correctly provided ORS and gave zinc for the full 10 days.

Key determinants of zinc use were caregiver education levels, wealth, and exposure to messages (knowing that zinc is an effective treatment for diarrhea, where to purchase zinc products and price). Those with higher education (secondary or above) were more likely to use zinc and use it correctly for the full 10 days along with ORS/ORT

TABLE 4: EXPOSURE TO AND RETENTION OF MASS MEDIA COMMUNICATION MESSAGES

Specific message	Heard on radio	Heard on television	Heard on radio/ television
Zinc cures diarrhea faster	10.0%	9.2%	15.1%
Zinc along with ORS is the most effective solution	10.9%	13.9%	19.8%
Zinc reduces the duration of the diarrheal episode	10.8%	7.9%	14.6%
Zinc helps build the immune system	4.5%	3.2%	6.3%
Zinc should be used for a full 10 days	6.8%	7.4%	11.7%
Zinc reduces the risk of future bouts of diarrhea	9.9%	19.9%	23.5%
Any zinc-related message	26.5%	45.0%	51.5%

TABLE 5. KNOWLEDGE OF ZINC BY EXPOSURE TO RELEVANT MESSAGES THROUGH TV/RADIO

	Exposed	Unexposed
Would use zinc for acute and persistent diarrhea and dehydration***	98.7%	37.3%
Knows that zinc should be used for 10 days***	85.8%	20.7%

***Note: p values < .0005

when compared to those with primary or no education. While only 2.4 percent of caregivers from the poorest quintile used zinc to treat diarrhea, 27 and 38 percent of caregivers in the top two wealth quintiles used zinc.

Table 7 illustrates the significant impact of exposure to a specific communication message on a specific correct use behavior.

In addition to the POUZN-led communication campaign, the Ministry of Health has spent considerable effort promoting the use of ORS and/or ORT for treatment of childhood diarrhea. The POUZN-led survey found promising results with respect to ORS//ORT use. Eighty percent of caregivers mentioned that they would use ORS for persistent diarrhea; 33 percent mentioned they would use ORS for acute diarrhea; while only 15 percent mentioned ORS as a treatment for dehydration. ORS use was widespread among all income/socioeconomic categories ranging from 58 percent among the poorest quintile to 74 percent among the richest segment of respondents. Eighty-five percent thought ORS was a "good medicine" and 67.5 percent actually provided ORS to their child during the bout of diarrhea. In addition, 56.5 percent gave their child a recommended home fluid.

TABLE 6. CORRECT ZINC USE

	% all children with diarrhea	% of zinc users
Treated with zinc	15.4%	
Treated with zinc and ORS/ORT	12.1%	79%
Treated with zinc for 10 days or more	10.1%	66%
Treated with zinc for 10 days and ORS/ORT	8.3%	54%

TABLE 7. CORRECT ZINC USE BEHAVIOR BY EXPOSURE TO RELEVANT MESSAGES THROUGH TV/RADIO (AMONG CHILDREN WITH DIARRHEA IN THE LAST TWO WEEKS)

	Exposed	Unexposed
Use zinc (children with diarrhea in last 2 weeks)***	25.6%	8.0%
Use zinc along with ORS/ORT***	38.5%	9.2%
Use zinc for 10 days (correct use)***	33.3%	7.1%

***Note: p values < .0005
*This correlation measures a specific behavior with a specific retained message. For example, the caregiver who heard the message that zinc should be used for 10 days actually did give her child zinc for 10 days.

IMPROVING PROVIDER KNOWLEDGE AND PRACTICE

Provider education is another important key to successfully achieving the behavior change objectives of the program. Chemists and other drug sellers are important conduits of information and source of treatments for diarrhea. Because zinc treatments are new, it will take a considerable time before mothers routinely stock at home and administer zinc to treat their children's diarrhea episodes on their own. In the short to medium term, mothers rely on whatever treatment is "prescribed" by providers when they seek consultation for their child's diarrhea illness. Therefore, training and detailing of the various provider groups in the private sector was required.

Findings from the formative research study in 2006 indicated that chemists and other drug sellers were acquainted with remedies for diarrhea and dysentery, generally prescribing increased fluids, ORS, and antidiarrheals. For dysentery and other complicated cases of diarrhea, they also prescribed antibiotics. At that time, chemists in Nepal had no knowledge of zinc as a treatment for diarrhea; rather they associated it with a range of nutritional supplements and multivitamins and consistently confused zinc with iron, mentioning zinc as a treatment for anemia and for increasing hemoglobin levels.

The communication objective for public and private health care providers was to ensure these individuals were aware of and understood the new WHO/UNICEF guidelines for diarrhea case management that recommend the use of zinc and ORS/ORT; were encouraged to carry zinc products within their retail outlets; recommended zinc along with ORS/ORT as the first-line treatment for diarrhea before antibiotics or antidiarrheals; and would not prescribe or sell antiprotozoal, antidiarrheal, or antibiotic pills or syrups unless complications were confirmed.

Development of training-related information, education and communication (IEC) materials and provider training: Using the zinc program training curriculum developed by the MoHP, the POUZN team printed and provided to all training participants a manual and a range of informational materials. POUZN-sponsored training was conducted in two major phases for a range of clinicians: During Phase I (July 2007), 2,243 public sector personnel (physicians, nurses, and village health workers) and 1,660 private sector chemists from the Kathmandu Valley districts were trained. During Phase II, 4,147 private sector chemists from the 27 other IMCI focus districts were trained.

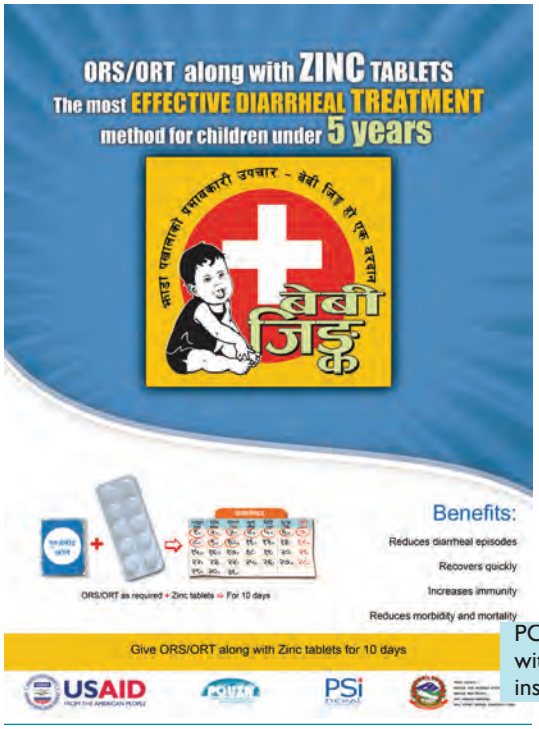
Training included an overview covering the correct use of zinc, products available from local manufacturers, behavior change communication materials, and media campaigns; information on the formulation of zinc and the new low-osmolarity ORS products, government policies and programs to decrease mortality from diarrheal disease, and zinc and its nutritional contribution to the body; information on current zinc research; MoHP strategies to address high diarrhea prevalence; advantages of zinc use; product safety; and potential side effects. Participants also engaged in role playing sessions on how to counsel a mother requesting assistance in treating acute diarrhea. All job aids and media materials were presented for the information of participants during the

training session. Local zinc manufacturers were also invited to make presentations at the end of the training on their products, distribute samples, and take initial orders.

Local zinc manufacturers also provided training to their own detailing and sales staff that regularly meet and engage with both providers and chemists. These detailing and sales forces were trained in the zinc program approach and correct messages (including correct dispensing and incorrect dispensing practices) and in encouraging other positive provider behaviors.

Seventy four percent of respondents in the POUZN household survey sought advice outside the home for treatment of diarrhea—47 percent from public sector sources, 44 percent from private sector sources, and nine percent from both. Sixty-eight percent of providers/ chemists suggested giving ORS, 63 percent suggested providing increased fluids, only 15 percent recommended the use of zinc, while 29 percent recommended giving an antidiarrheal.

Two other surveys provide information on the impact of both training and the media campaign on appropriate provider behaviors relative to counseling on and selling zinc and ORS. In September 2008, POUZN commissioned a mystery client survey that was conducted at 114 chemist counters in Kathmandu. During the same month, POUZN partner NPL conducted its own survey at 152 pharmacy counters in Kathmandu, Pokhara, Dumre and Besi Sahar. Of these, 141 chemists agreed to be interviewed. The mystery client survey reported that 97 percent of chemists provided counseling before recommending treatment. In terms of treatments, 82 percent recommended an antidiarrheal, 63 percent prescribed ORS, 31 percent recommended zinc, 10 percent provided another pill/syrup, and 3 percent gave an antibiotic. The majority of chemists prescribed multiple treatments (antidiarrheals and zinc and ORS). Only 10 percent recommended either zinc or zinc and ORS alone. The NPL study looked at knowledge and perceptions of zinc, finding that 65 percent of chemists knew about zinc either from the media (45 percent), training programs (37 percent), or medical detailing visits (12 percent). Both studies found that only a few doctors prescribe antibiotics. The major concern, voiced by chemists in both studies, was the belief that zinc was not as effective as an antidiarrheal because it did not immediately stop the diarrhea and required 10 days for benefit to accrue.



POUZN poster with dosing instructions

PROGRAM RESULTS AND CONCLUSIONS

The POUZN program in Nepal, although active nationwide for only six months, successfully contributed to an increase in zinc use from 0.4 percent in 2005 to 15.4 percent in 2008. Of users, 79 percent correctly took zinc and ORS together, 66 percent correctly took zinc for the full 10 days, and 54 percent correctly used zinc for the full 10 days along with ORS, demonstrating the impact of the communications messages.

An increasingly larger number of private sector chemists are prescribing zinc/ORS as the first-line treatment for childhood diarrheas; however, many chemists still sell antidiarrheals. According to the recent POUZN household survey antibiotic, antidiarrheal, and "other" pill/syrup use for childhood diarrhea is still high. Local chemists claimed that mothers who return with a child with more severe or persistent diarrhea are provided an antidiarrheal as the second-line treatment; severe diarrhea cases are referred to the hospital or health center for a doctor's prescription.

Both the mystery client and other local chemist surveys indicated that it is difficult for zinc to compete with antidiarrheals, which continue to have more lucrative margins and are promoted by their companies. All three local manufacturers kept the price of zinc low to encourage consumer trial. However, this means that sales margins are low and chemists often prefer to sell antidiarrheals, which may have a higher sales margin. Over time, sales margins will need to increase to make zinc a more profitable product to promote, and continued education of both providers and caregivers will be critical to successfully changing behaviors.

Three local manufacturers successfully produced, distributed, and marketed high-quality, affordable pediatric zinc products that are now available in private sector chemist shops in more than 30 districts covering all major urban and peri-urban areas, providing easy access for 65 percent of the Nepalese population.

Pharmacist providing counseling to mother with ill child.
Courtesy of K.P. Upadhyay

USP certification of the local zinc products and having the companies included on the international list of zinc manufacturers enhanced their own image as well as strengthened the confidence of the government in the quality of the locally-produced zinc. The MoHP intends to purchase its future supplies of zinc tablets from these local firms.

LESSONS LEARNED

Lesson 1: Continuity of leadership is essential to program success. Having the recognized commitment of the Director of the Child Health Division, who has championed zinc and taken the necessary steps to implement the program in the public sector as well as support the implementation of the private sector program over the three years of program implementation, has made the difference in success. The POUZN program has worked closely with the Director of the Child Health Division, Dr. Y.V. Pradhan, who has provided outstanding leadership for both public and private sectors programs. This strong collaborative public-private partnership has proven the foundation for the successes realized by this program.

Lesson 2: Local pharmaceutical manufacturers will independently produce high-quality, affordable zinc products and promote them through detailing and development and dissemination of promotional and IEC materials when they see the market potential and government commitment.

Lesson 3: Zinc promotion through mass media has been essential in not only creating demand but in providing consumers with information about zinc, its correct use, and access points. Those who had heard POUZN's radio or television messages were two times more likely to use zinc during the diarrhea episode, provide the child with ORS along with the zinc and provide the zinc for the full 10 days. Several chemists reported having also seen and heard the media spots, motivating them to obtain stocks of the products.

Lesson 4: Zinc can be successfully marketed as an accompaniment to ORS/ORT, without being co-packaged, in countries with relatively high ORS/ORT use. MoHP emphasis on and promotion of ORS/ORT as the primary treatment for childhood diarrhea over the past three years has successfully increased use, which was readily apparent from the POUZN survey as 67.5 percent administered ORS to their child during the recent bout of diarrhea and 56.6 percent used a recommended home fluid. POUZN messages have reinforced this correct behavior by instructing caregivers to "use ORS and Zinc tablets—the most effective diarrhea treatment for children under 5."

Lesson 5: Behavior change communication messages need to stress the reasons for taking zinc for the entire 10 days: important minerals are lost to the body during the diarrhea and it takes 10 days to build the child's body's immunity both back to initial levels and to strengthen beyond the initial level to protect against further bouts.

Lesson 6: The combination of training and media reinforcement has been only partially effective in changing chemists' and providers' behaviors, motivating their sale and promotion of zinc to accompany ORS. Retraining to reinforce the messages and rationale will be essential to long-term program success—particularly given the results of the mystery client survey conducted in Kathmandu in September 2008, which found the majority of chemists prescribing antidiarrheals and not fully conversant in the rationale for use of zinc.

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ABOUT POUZN

Social Marketing Plus for Diarrheal Disease Control: Point-of-Use Water Disinfection and Zinc Treatment (POUZN) Project

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POUZN is led by Abt Associates Inc.
in collaboration with
Population Services International

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