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PARTNERING WITH THE PHARMACEUTICAL INDUSTRY TO ENSURE ACCESS TO PEDIATRIC ZINC FOR DIARRHEA TREATMENT IN PAKISTAN: RESULTS AND LESSONS LEARNED

PROGRAM CONTEXT

Nearly one child in ten in Pakistan does not live to see his or her fifth birthday. There are more than two million reported cases of diarrhea in children under five each year with 14 percent of deaths among children under five due to diarrhea-related causes.¹ Diarrhea prevalence, according to the Pakistan Demographic and Health Survey (PDHS 2007), was 21.8 percent for all children under five with 26.3 percent prevalence among children under 6 months of age, 39.6 percent among children in the 6-11 month age range, and 30.7 percent among children 12-23 months. These are unacceptably high levels of diarrhea prevalence that surpass many of the lowest income countries.

The private sector plays an important role in diarrhea care and management for children under five in Pakistan where the majority of caregivers seek care from a trained provider in their community. According to the Pakistan

¹ CHERG Countdown to 2015 Maternal Newborn and Child Health. 2010 Report

Social and Living Standards Measurement Survey (PSLM 2008-09), in 94 percent of diarrhea cases a practitioner of some kind was consulted. This rate of consultation was fairly similar in rural areas (93%) and urban areas (95%). In cases of diarrhea, the most likely type of practitioner consulted is a private practitioner (73-81% urban and 69% rural) with a few consulting a pharmacist or chemist (4%).²

The underlying causes of diarrheal diseases include inadequate access to safe water, poor household and environmental sanitation, and poor hygienic practices. Access to sanitary latrines at household levels is very low throughout the country—only 50 percent of households throughout Pakistan (78% urban and 36% rural) (PDHS 2007). DHS data indicate that although 93 percent of the population has access to improved drinking water sources, 90 percent of the population does nothing to treat drinking water.

² Pakistan Social and Living Standards Measurement Survey (PSLM) – 2008-09, Federal Bureau of Statistics, Statistics Division, Government of Pakistan, Islamabad, February, 2010.



Country Brief

Both public and private sectors are working to address diarrhea related needs via their own distribution and promotion channels. In 2009, the Ministry of Health (MOH), working through its own Zinc Technical Advisory Committee, began to focus greater attention on diarrhea through its Lady Health Worker (LHW) Program. The LHW National Directorate purchased 4.5 million bottles of zinc syrup from local pharmaceutical manufacturers for the 2009 diarrhea season (primarily May through August) providing each LHW with a supply of 5-6 bottles/month for free distribution. In 2010 the MOH's LHW Program again procured 5 million bottles of zinc syrup in order to provide each of their 103,000 LHWs with 8-10 bottles/month (or more as individually required). All LHWs have been trained in management of diarrhea using zinc and it is included in the training curriculum. The MOH also featured oral rehydration salts (ORS) and zinc during its spring 2010 Child Health Week and placed diarrhea management with zinc as one of its two priority best practices (along with birth spacing). At the same time several firms from the Pakistani pharmaceutical industry were developing pediatric zinc products, registering them with regulatory authorities and distributing them through their normal distribution channels.

In January 2009, the USAID Mission to Pakistan invited the Social Marketing Plus for Diarrheal Disease Control: Point-of-Use Disinfection and Zinc Treatment (POUZN) Project, implemented by Abt Associates, to conduct an assessment of the role of the private sector in diarrhea treatment and to present options for supporting private sector firms in their efforts to market and distribute pediatric zinc for diarrhea treatment through

both commercial channels and community distribution systems. Based on that assessment, the POUZN project developed a program in Pakistan to support local manufacture of pediatric zinc products with mass media generic advertising and training for providers, as described in detail below.

PROGRAM GOALS

To reduce incidence of diarrhea among children under five by:

- ▶ **Creating a sustainable commercial supply** of pediatric zinc products with Pakistani pharmaceutical firms manufacturing, distributing, and marketing their own brands.
- ▶ **Increasing access** to pediatric zinc among caregivers of children under five in Pakistan, ensuring that multiple, high-quality, affordable zinc products were available in private sector urban and peri-urban outlets.
- ▶ **Improving caregiver knowledge and treatment** of childhood diarrhea so that caregivers provide ORS together with zinc as the first-line treatment for uncomplicated diarrhea.
- ▶ **Improving private provider knowledge and treatment** of childhood diarrhea so that providers recommend pediatric zinc along with ORS as the first-line treatment for uncomplicated diarrhea in under-five children.



Zinc Program Logo

TIMELINE

In November 2009, the POUZN project developed a workplan for implementing a set of activities to promote the use of zinc for diarrhea treatment in seven pilot districts: Sindh districts of Karachi (3 districts), Sukkur and Hyderabad, and central Punjab districts of Multan and Faisalabad. These pilot districts represent 11 percent of the total population.

Between November 2009 and April 2010, Memoranda of Understanding were signed with four pharmaceutical firms to create a mutually beneficial partnerships focused on expanding access to pediatric zinc products through commercial channels, building viable demand and improving the profitability, growth and sustainability of the market for zinc products in Pakistan.

In January 2010, POUZN contracted with a Pakistani advertising firm, Interflow Communications, Ltd., to develop a logo, a mass media campaign and educational materials for consumers. This campaign began airing a television commercial in April 2010 and broadcasting radio spots in May 2010. These spots were aired for five months until October 2010.

In February 2010, POUZN collaborated with the Pediatric and Medical Associations of Pakistan to host a series of educational seminars in the seven target districts for pediatricians and general practitioners during which the role of zinc in diarrhea treatment was highlighted. These seminars took place in April, May, and October 2010.

In July and late September 2010 Aga Khan University, under contract to USAID, conducted baseline and interim household surveys to determine the impact of the

communication campaign and training seminars on the use of zinc as a diarrhea treatment in the target districts.

PROGRAM COMPONENTS

CREATING A SUSTAINABLE PRODUCT SUPPLY

Four Pakistani pharmaceutical manufacturers produce pediatric zinc diarrhea treatment products: ATCO Laboratories, ZAFSA Pharmaceuticals, Genix Pharma and Macter International. These products are registered for sale in Pakistan by the Pakistan drug regulatory authority and were tested by the Government of Pakistan pharmaceutical laboratory for quality. These products sell for PKR 35 – PKR 150 (US\$0.41-\$1.76), depending upon the brand and dosage strength. Seven firms currently produce ORS for the Pakistan market which sell separately for around PKR 7-10 (US\$0.08-0.12) and are widely available in both sectors throughout the country. A number of other pharmaceutical companies produce zinc products, but these are primarily nutritional supplements rather than diarrhea treatments. As both zinc and ORS products were widely available from a variety of firms, partners chose not to co-package the two together.



Pharmaceutical partners participate in marketing events to boost demand among key stakeholders and providers.

TABLE I: PEDIATRIC ZINC PRODUCTS IN PAKISTAN

Product	Form	Strength	Size	Retail Price
ATCO – Zincat	Suspension	10 mg/5ml	60 ml	PKR 44.7 (US\$0.53)
ATCO - ZincatOD	Syrup	20 mg/5ml	60 ml	PKR 60 (US\$0.71)
ZAFA – Yes2Zinc	Suspension	10 mg/ 5ml	60 ml	PKR 45 (US\$0.53)
ZAFA – Yes2Zinc	Suspension	20 mg/5ml	60 ml	PKR 50 (US\$0.59)
ZAFA – Yes2Zinc	Syrup	10 mg/ 5 ml	60 ml	PKR 50 (US\$0.59)
Genix – Cniz	Dispersible Tablet	20 mg	30 tablets	PKR 150 (US\$1.76)
Genix - Cniz	Syrup	20 mg/5 ml	60 ml	PKR 60 (US\$0.71)
Genix - Cniz	Suspension	10 mg/5 ml	100 ml	PKR 75 (US\$0.88)
Macter - Zincasa	Suspension	10 mg/5 ml	60 ml	PKR 35 (US\$0.41)

Exchange rate US\$1.00=PKR 85 (2010)

Each manufacturer of zinc or ORS products has extensive networks of distributors located in every province, reaching all but the most remote districts of Pakistan. In addition, these manufacturers maintain a detailing/sales force who specifically promote child health products including zinc.

Alongside the demand creation for zinc products, funded by POUZN, the project team initiated a financial partnership with each of these four highly motivated pharmaceutical partners to encourage them to expand their own marketing and detailing efforts in the pilot districts during diarrhea season. Each pharmaceutical partner developed a marketing plan that was reviewed and accepted by POUZN for co-funding. These programs, which included additional sensitization seminars for doctors, printing of marketing materials, and production of other detailing materials, were implemented by the four firms.

In August torrential rains resulted in widespread flooding in Pakistan, displacement of families, massive crop destruction, and ensuing outbreaks of cholera and other diarrhea diseases. In order to address the needs of families in the seven target districts,

POUZN again partnered with three of the pharmaceutical companies to create mobile vans, staffed by a local doctor with appropriate local language skills, which could travel into the flood affected areas bringing supplies of both ORS and zinc. POUZN worked with the Pakistan Safe Drinking Water Project, also implemented by Abt Associates, to arrange for the delivery of a key water treatment product (PUR® Purifier of Water—particularly suited to the treatment of turbid water) to the participating pharmaceutical firms for distribution via the vans among affected families in order to prevent further outbreaks of acute watery diarrhea.

IMPROVING CAREGIVERS KNOWLEDGE AND PRACTICE

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.

POUZN worked with a local advertising agency, Interflow Communications, to develop a marketing strategy and to develop a media campaign that would establish pediatric zinc as a household must-have product for the

Zinc - safe, effective, easily available

ZINC

an effective treatment for diarrhea, gives lasting protection to children

Diarrhea - a major cause of death among children under five

- Zinc is an essential element of our daily diet, and an effective treatment for diarrhea in children, from birth to five years of age
- Together Zinc & ORS not only give quick relief from diarrhea, but also stop it from aggravating, and give two or three months protection as well
- Recommended by WHO & Unicef for children under 5 years
- Complete 10-14 days course in case of diarrhea

Continue administering ORS with Zinc, and abstain from giving antibiotics and other medicines for instant relief without consultation with the physician.

USAID PAKISTAN

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Demand creation campaign materials reach caregivers throughout urban and rural areas.

treatment of diarrhea in children under five. Based on formative research with both target consumers and providers from the selected districts, Interflow designed a logo, posters and print materials and created a television commercial and a number of radio spots with the goal of making pediatric zinc synonymous with diarrhea treatment. The two major messages were that zinc is an effective treatment for diarrhea that not only addresses the immediate illness but has a 2-3 month protective effect if taken properly. Television spots were broadcast 1-3 times daily on six national and regional television stations and radio spots were aired 3-5 times

daily on nine regional radio stations in local languages. The mass media campaign ran throughout the diarrhea season beginning the middle of April and continuing into October.

Interflow also developed a number of complementary advertising strategies. These included a mobile video unit presentation, billboards, wall chalking, rickshaw branding, cinema advertising, IEC materials for use by providers, Lady Health Worker training and certificates for practitioners.

IMPROVING PROVIDER KNOWLEDGE AND PRACTICE

Provider education was another important facet of the program. Given the fact that the majority of caregivers seek diarrhea treatment advice from a provider and trust their local providers, a key element of the strategy was to reach providers with information about zinc and its effectiveness in both treating children and preventing future bouts of diarrhea. The POUZN team worked closely with its local pharmaceutical partners and with the national secretariats of the Pediatric (PPA) and Medical Associations (PMA) to conduct a series of seminars and workshops to sensitize professional health care providers about the new protocols for management of diarrhea that includes zinc along with ORS. Both the PPA and the PMA provide forums for advocacy and the transfer of medical information to providers throughout the country. The POUZN project contracted with these organizations to conduct medical education sessions for approximately 1,300 providers in the seven target districts. In late October POUZN provided an expert speaker to relay the zinc message to an additional 2,000 pediatricians participating in the 20th Biennial International Pediatric Conference in Pakistan.

POUZN PROGRAM EVALUATION RESEARCH RESULTS

Monitoring and evaluation research (baseline and endline quantitative household surveys and qualitative surveys with users and providers), funded directly by USAID/Pakistan, was conducted by Aga Khan University (AKU). The university research team completed baseline research in July 2010³ and in late September initiated endline research in four intervention and four control districts, which were matched on a set of socio-economic criteria.⁴ A total of 1,725 households were surveyed at baseline and 1,713 were surveyed at endline. Results of this research are presented below.

DIARRHEA TREATMENT PRACTICES

The survey found at both points in time that almost all respondents (92-97%) in all districts knew that diarrhea was caused by unsafe water, unhygienic food, or lack of cleanliness and that children should be treated for diarrhea. The most commonly used diarrhea treatments were ORS, anti-microbials, and “other” (unspecified) treatments. Zinc use increased from 3 percent at baseline to 7 percent at endline in control districts and from 6 to 7 percent in intervention districts. Other treatment practices were similar among respondents in both sets of districts: 17-22 percent treated with an antibiotic; about 36 percent of respondents in both sets of districts at

³ The POUZN program started in April to train physicians and in May to broadcast media messages, so the July survey cannot be considered a true pre-program baseline

⁴ The intervention districts were Karachi, Sukkur, Faisalabad, and Multan. The control districts were Lahore, Larkhana, Rawalpindi and Rahimyar Khan

baseline and 47 percent of respondents at endline used an antimicrobial.⁵ Treatments were obtained primarily from private pharmacies (88%), with Lady Health Workers a more important source at baseline (50%).

The proportion of zinc users who used zinc with ORS rose from 57 percent at baseline to 67 percent at endline (Table 2). The primary reasons given for not using ORS with zinc were that the respondent did not know the two should be given together, the child did not like it, ORS was not available in the home, or they did not think it was an effective treatment. Only 12 percent administered zinc for the full 10 days; 69 percent gave their child zinc for 1-6 days, while an additional 19 percent gave the zinc for 7-9 days (all districts, baseline and endline). About half of zinc users stated that it was difficult to remember to give a child zinc when the diarrhea had stopped.

TABLE 2. DIARRHEA TREATMENT USING ZINC AMONG CHILDREN UNDER FIVE AT ENDLINE

	Among children with diarrhea (%)	Among zinc users (%)
Treated with ORS	45.5	
Treated with zinc	6.7	
Treated with zinc plus ORS	4.6	66.9
Given zinc for 10 days or more	0.8	11.9
Total number of children	1713	118

At endline, 92 percent of zinc users in all districts thought that zinc was effective in treating the diarrhea and 93 percent said they would use it for the treatment of diarrhea in

⁵ According to physicians' in-depth interviews, the antimicrobial flagyl is widely known as a diarrhea treatment and often requested by caregivers of pharmacists, without a prescription. ORS plus flagyl is the current standard treatment recommended by providers.

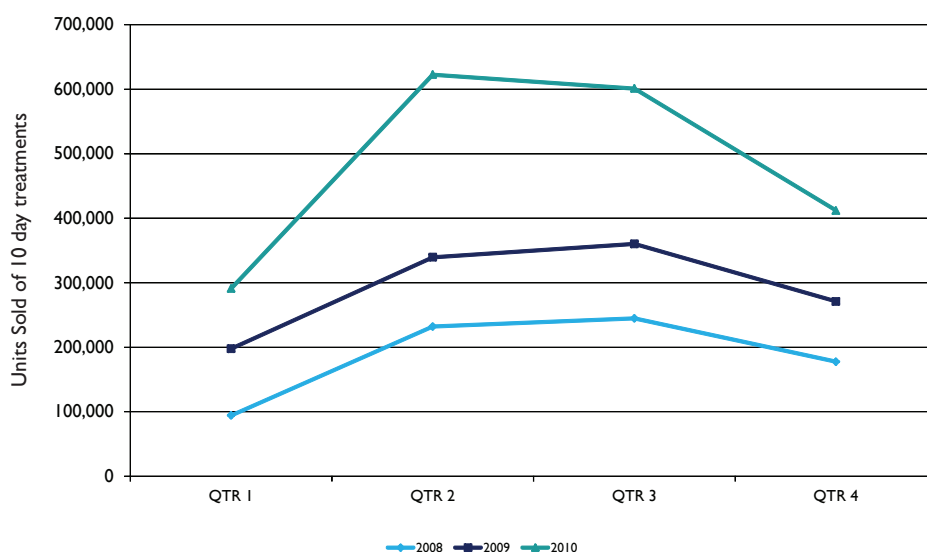
the future. The most common reasons for choosing the zinc product at baseline were accessibility (30%), quality of the product (28%), and that it was recommended by a doctor (22%). At endline, the most common reasons for choosing zinc were quality of the product (51%) and that it was recommended by a doctor (36%). Price was a prominent factor at baseline (17%) but at endline price was mentioned by only one respondent.

Only 14 percent of zinc users in all districts agreed that zinc reduces the risk of a new diarrhea episode in the following 2-3 months and only 19 percent in all districts agreed that zinc reduced the severity of diarrhea. However, 90 percent of respondents in all districts believed that zinc helped to reduce the duration of the diarrhea.

IMPROVING ACCESS

Most (74-80%) zinc users agreed that zinc was readily available and knew where to get zinc at shops located within walking distance from their home. In fact, knowledge of shops where zinc is available and easy to access increased between baseline and endline (by an average of 20 percentage points overall).⁶ At baseline, the most commonly cited sources of zinc were private pharmacies and Lady Health Workers (42% each), while at endline private pharmacies were the most frequently reported source (87%) followed by government health centers (9%). At endline 59 percent thought the price was affordable or inexpensive; only 15 percent thought the zinc was expensive, with the remaining 26 percent offering no opinion on price. Surprisingly, the percentage of respondents who thought the price was not expensive/affordable doubled between baseline and endline (from 27 to 59%).

FIGURE I. SALES OF ZINC PRODUCTS IN PAKISTAN 2008-2010



Source: IMS Retail Audit Data.

⁶ This conclusion was based on the percentage of respondents agreeing with the following two Likert scale statements: "Shops nearby always have zinc for sale" and "There is a place nearby where I can get zinc when my child needs it," and disagreeing with the following statement: "I don't know where to get zinc."

In spite of the low use rates noted in the survey results in the pilot districts, sales of zinc products nationally increased considerably. Figure 1 illustrates increases in sales over the past three years and indicates the impact of increased demand during the 2010 diarrhea season. Between 2008 and 2009, sales during the diarrhea season increased 47 percent. Between 2009 and 2010, during the same period, sales increased 75 percent. In terms of units, 1.93 million pediatric zinc treatments were sold in 2010 by all pharmaceutical companies in Pakistan. POUZN's four pharmaceutical partners realized sales of over 1.6 million zinc treatments in 2010.

EFFECTIVENESS OF COMMUNICATION EFFORTS

During the baseline, no respondents could recall a zinc-related message. When questioned about their exposure to messages about zinc at the endline, only 10 percent in the intervention districts and 7.3 percent in control districts had heard a message or received information about zinc for diarrhea. Overall nine percent had been

exposed to a message about a specific zinc product (10 percent in intervention districts and 8 percent in control districts). As shown in Table 2, the most common sources of information were doctors, television commercials, lady health workers, and friends or neighbors. Given the comparatively high use of zinc in the control districts at endline, an examination of the source of exposure is enlightening. During the baseline period, Lady Health Workers were an important source of information but were less important at endline. Doctors were an important source of zinc information, particularly at endline. Few mentioned having heard of a specific zinc/ORS product via billboards, wall chalking, mobile vans (used during the flood emergencies in August), cinema advertisements, radio, relatives, banners/posters, pharmacies, or rickshaw ads. Focus group participants at endline who mentioned knowing about zinc as a diarrhea treatment had seen or heard messages regarding the benefits of using zinc through television viewing and having seen one of the banners attached to rickshaws.

TABLE 3. SOURCE OF INFORMATION ABOUT ZINC

Source	Baseline		Endline	
	Intervention Districts	Control Districts	Intervention Districts	Control Districts
Doctor	15%	39%	38%	65%
Television	13%	13%	16%	15%
LHW	50%	30%	12%	8%
Friend/Neighbor	4%	0	12%	7%
Radio	13%	0	4%	2%
Relative	2%	0	7%	0
Hospital	0	17%	6%	2%
Pharmacy	0	0	4%	0
Billboard	2%	0	0	0
Rickshaw	4%	0	2%	0
Wall chalking	2%	0	0	0

Qualitative interviews with caregivers (both mothers and fathers) confirmed that doctors were the most important source of information regarding diarrhea and other childhood illnesses.

Endline research confirmed a statistically significant association ($p < .001$) between exposure to a zinc message—either from media or an interpersonal source (doctor) – and use of zinc for the treatment of the most recent bout of diarrhea. In both intervention and control districts, caregivers who reported having heard either a generic message about using zinc for diarrhea treatment or a message about a specific zinc product were significantly more likely than those not recalling those messages to have used zinc for the most recent pediatric diarrhea episode (Figures 2 and 3). While it cannot conclusively be stated that exposure to the messages led to zinc use, it should be noted that zinc use in both intervention and control districts was highly associated with recall of a message. While radio messages were targeted to intervention districts, television messages were broadcast throughout both Sindh and Punjab regions and thus may have reached the control districts as well. In addition, POUZN contracted with the Pakistan Medical Association to conduct medical education sessions for doctors in all seven of the intervention districts and supported Pakistan Pediatric Association sensitization sessions in major cities which brought together doctors from all districts in the two regions included in this study, thus extending the area of influence beyond the intervention districts. All doctors interviewed by the research team in both intervention and

FIGURE 2. ZINC USE BEHAVIOR BY EXPOSURE TO GENERAL MESSAGE ABOUT ZINC

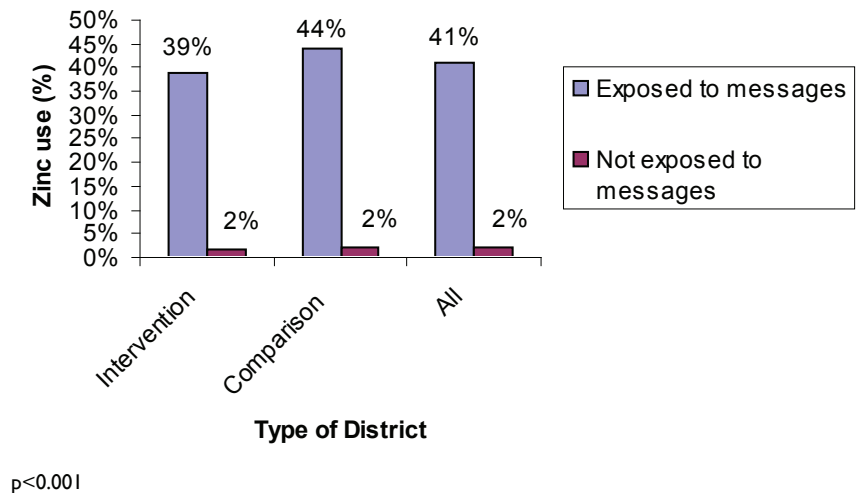
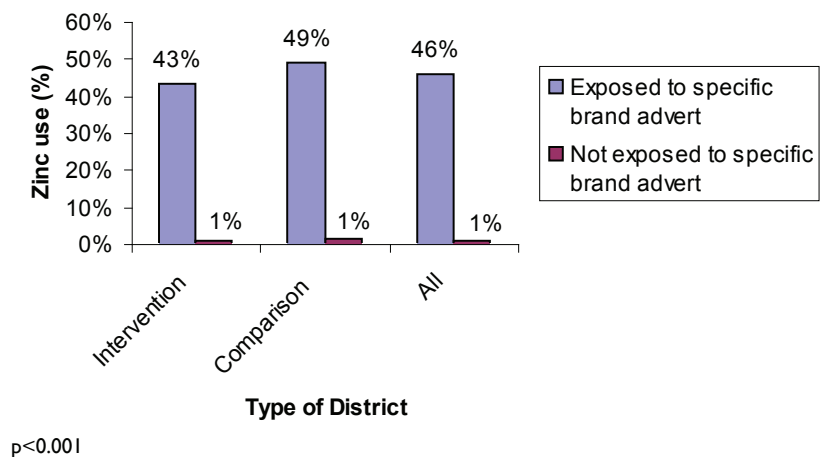


FIGURE 3. ZINC USE BEHAVIOR BY EXPOSURE TO BRANDED MESSAGES



control districts were familiar with zinc and had begun to prescribe zinc with ORS.

PROGRAM CONCLUSIONS AND LESSONS LEARNED

Collaboration with the private pharmaceutical sector is a viable and cost effective approach to ensure a sustainable and competitively priced supply of zinc. All four pharmaceutical partners produced a range of quality pediatric zinc products, registered those products with the pharmaceutical regulatory agency, distributed them through their existing marketing channels that reached far into rural areas, and priced them competitively.

Partnering with local pharmaceutical manufacturers and co-funding marketing activities can be a mutually beneficial strategy. The four pharmaceutical firms were active participants in and financial contributors to all POUZN-sponsored events—physician seminars, flood response and marketing activities. All partners realized significant increases in sales of pediatric zinc which they credited to the demand creation activities of the POUZN project. Moreover, these highly motivated firms were able, with POUZN sharing a portion of the costs, to expand their own marketing and detailing efforts in the pilot districts during the diarrhea season, thus capitalizing on other marketing channels.

Behavior change takes time and continuing investment. Use rates were low but similar in both intervention and

control districts by the end of the diarrhea season. Treatment of diarrhea with zinc and ORS is a new protocol and it has proven difficult to change caregiver practices from treating with anti-diarrheals and ORS to zinc and ORS. One season is not sufficient to have major impact on behavior change.

Caregiver compliance with the 10 day zinc regimen continues to be a major behavioral challenge. The majority of caregivers administered zinc correctly with ORS, but only 12 percent administered zinc for the full 10 days. Very few zinc users were cognizant of the protective effect of zinc or that zinc can reduce both the severity and duration of diarrhea. Changing this behavior will take more focused effort – through both mass media and interpersonal messaging, particularly working with health care providers at both community and clinic levels to improve counseling skills and to emphasize the protective characteristics of zinc that would provide an incentive to continue use throughout the recommended 10 days.

Exposure to zinc use messages is essential to create awareness of and demand among caregivers for previously unknown zinc products. Exposure to a message about zinc was highly associated with zinc use. Caregivers who reported hearing either a generic or brand specific message about zinc were significantly more likely to have used zinc to treat the diarrhea during the child's recent bout in both intervention and control districts. While it is not possible to conclude that exposure led to increased zinc use, these findings are promising in demonstrating an association between exposure and use and confirming that focusing resources on both sensitizing

doctors about zinc and demand creation via television advertising were appropriate strategies.

In countries with high reliance on providers for diarrhea treatment advice it is critical to reach these key influencers of behavior. In other POUZN programs, mass media was the critical channel for increasing knowledge and encouraging trial and use. Formative research indicated a high reliance on doctors for diarrhea treatment advice, thus POUZN's demand creation efforts in Pakistan were centered both in mass media messaging through a variety of channels and sensitizing doctors, both pediatricians and general practitioners, about zinc. Research findings confirmed the importance of doctors both as a source of information and as a motivator for the purchase of zinc. Recommendation by a doctor was cited frequently in both baseline and endline surveys as the reason for using zinc. Television advertising, which reached all districts, regardless of intervention status, was the second most important source of information for those who had been exposed. So few respondents were exposed to messages about zinc through radio, posters, billboards, rickshaw advertisements, wall chalking, mobile vans, or cinema advertisements that in the future zinc program managers should carefully consider whether or not these are cost effective channels in Pakistan before using them again.

ACKNOWLEDGMENTS

This report was authored by Vicki MacDonald and Dr. Kathryn Banke of Abt Associates. The authors would especially like to acknowledge the significant contribution of the POUZN Pakistan team in the successful implementation of this project: Dr. Farah Riaz, who led the communication efforts and managed research activities and Mr. Anjum Kazmi, who led marketing and training efforts with our pharmaceutical partners. They would also like to thank Janet Paz-Castillo and Malia Boggs from USAID; Dr. Iqbal Memon, Dr. Sajjad Siddiqui, and Dr. M.A Arif from the Pakistan Medical and Pediatric Associations; and Dr. Zulfikar Bhutta and Dr. Sajjid Soofi from the Aga Khan University Department of Pediatrics and Child Health for their support throughout implementation of this program. This issue was designed and produced by Maria Claudia De Valdenebro, Abt Associates Inc.

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RECOMMENDED CITATION

MacDonald, V. and K. Banke, July 2011. *Partnering with the Pharmaceutical Industry to Ensure Access to Pediatric Zinc for Diarrhea Treatment in Pakistan: Results and Lessons Learned*. Bethesda, MD, USA: Social Marketing Plus for Diarrheal Disease Control: Point-of-Use Water Disinfection and Zinc Treatment (POUZN) Project, Abt Associates Inc

ABOUT POUZN

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

Contract No. GPO-I-00-04-00007-05

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

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July 2011