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SOCIAL MARKETING PLUS FOR DIARRHEAL DISEASE CONTROL: POINT-OF-USE WATER DISINFECTION AND ZINC TREATMENT (POUZN) PROJECT

2005 - 2010 FINAL REPORT

This publication was produced for review by the United States Agency for International Development. It was prepared by Angela Stene, Vicki MacDonald, Susan Mitchell and Alison Bishop, Abt Associates for the Social Marketing Plus for Diarrheal Disease Control: Point-of-Use Water Disinfection and Zinc Treatment (POUZN) Project

POUZN
Point-of-use safe water & zinc
Saving Children's Lives

POUZN is led by Abt Associates Inc. and implemented in collaboration with Population Services International
November 2010.

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In collaboration with
Population Services Internationa

SOCIAL MARKETING PLUS FOR DIARRHEAL DISEASE CONTROL:
POINT-OF-USE WATER DISINFECTION AND ZINC TREATMENT (POUZN) PROJECT 2005-2010

LEARNING FROM EXPERIENCE:
POUZN'S WORLDWIDE EFFORTS TO INTRODUCE AND PROMOTE POINT-OF-USE AND ZINC PRODUCTS FOR THE PREVENTION AND TREATMENT OF PEDIATRIC DIARRHEAS THROUGH PRIVATE SECTOR CHANNELS

Njum Kazmi

Training for Lady Health Workers in Pakistan on zinc treatment for children under five.

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Vicki MacDonald

School children in Benin learn how to treat household drinking water with Aquatabs and carry the message home to their families.

ACRONYMS

ADEMAS	*Agence pour le Développement du Marketing Social*
ASF	*Association de Santé Familiale*
AXxes	USAID Primary Health Care Project (in DRCongo)
CAMÉ	*Centrale d'Achat des Medicaments Essentials*
CAMERWA	Public Pharmaceutical Wholesaler (in Rwanda)
CBO	Community-based Organization
CHW	Community Health Worker
DHS	Demographic and Health Survey
FCFA	*Franc Communauté Financière Africaine*
FECECAM	*Féderation des Caisses d'Epargne et de Crédit Agricole Mutuel*
DRC	Democratic Republic of the Congo
HDI	Human Development Index
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
IEC	Information/Education/Communication
IMCI	Integrated Management of Childhood Illness
IPC	Interpersonal Communication
LHW	Lady Health Worker
MOH	Ministry of Health
NGO	Nongovernmental organization
ORS	Oral Rehydration Salt
P&G	Procter and Gamble
POU	Point of Use
POUZN	Social Marketing Plus for Diarrheal Disease Control: Point-of-Use Water Disinfection and Zinc Treatment
PSI	Population Services International
SMC	Social Marketing Company
SWS	Safe Water System
UN	United Nations
UNICEF	United Nations' Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization

PSI /Rwanda

Launch of houehold drinking water desinfection product, Sûr'Eau, in Rwanda.

INTRODUCTION

According to the World Health Organization (WHO), diarrheal diseases cause 1.2 million deaths in children under 5 years of age (out of 10 million total) throughout the developing world each year and contribute substantially to malnutrition in surviving children. The United States Agency for International Development (USAID) has long recognized the importance of improving access to safe water and to diarrhea treatments to mitigate diarrheal illness and mortality, particularly in children.

The Social Marketing Plus for Diarrheal Disease Control: Point-of-Use Water Disinfection and Zinc Treatment (POUZN) Project is a $12 million project funded by USAID that was designed to expand access to and use of point-of-use (POU) water disinfection and zinc products for the prevention and treatment of diarrhea through private sector channels. The POUZN project was implemented from October 2005 through November 2010 by Abt Associates Inc. in collaboration with Population Services International (PSI). Over the life of the project, it worked in 13 countries. A full POU program was carried out in six countries (Benin, Democratic Republic of the Congo (DRC), Haiti, Kenya, Malawi, and Rwanda), full zinc promotion programs were carried out in four countries (Benin, Madagascar, Nepal, and Pakistan), and technical assistance was provided in four additional countries (Angola, Bangladesh, Cambodia, and Senegal).

The POUZN project used both commercial and social marketing approaches to increase access to diarrhea prevention and treatment products for caregivers of children under five. These included a number of low-cost water disinfection products that would ensure clean, safe drinking water at the household level as well as a set of zinc products marketed as a companion to oral rehydration salts

(ORS) that have been proven to decrease the severity and duration of childhood diarrheas and provide protection against future bouts of diarrhea.

To ensure long-term availability of both POU and zinc products, the program partnered with commercial manufacturers and private sector distributors where they existed and could offer a good quality product or service. Where commercial approaches were not feasible or ability to pay was more limited, social marketing brands were introduced with the aim of eventually catalyzing the commercial market, demonstrating the viability of these products to commercial firms.

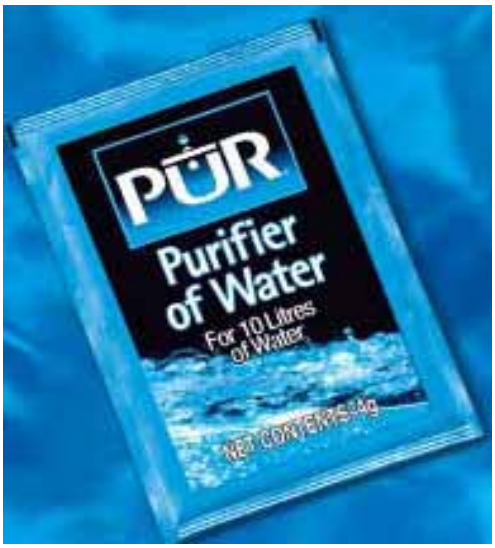
With each partnership, POUZN supported an accompanying behavior change strategy to increase knowledge about diarrheal disease prevention and treatment, instill confidence about the benefits of POU water and zinc treatment products, and overcome ability and motivational barriers to correct and consistent use.

The water disinfection component of the project emphasized household water treatment and safe storage as a public health intervention that prevents diarrhea caused by the transmission of waterborne pathogens. The target populations were children under five years of age and their caregivers, particularly in households that store water gathered from remote collection points, have intermittent water service, or suffer from poor water quality. In Rwanda and Haiti, the program also targeted people living with HIV/AIDS, whose compromised immune systems make them particularly vulnerable to the effects of unsafe water and diarrheal illness.

The POUZN project promoted the Safe Water System (developed by the U.S. Centers for Disease Control and Prevention), which consists of three elements: a chlorine-based water treatment product, storage in an appropriate container, and education to improve hygiene and water use practices. This includes both a liquid sodium hypochlorite solution (branded Waterguard in anglophone countries, Sûr'Eau in francophone countries, or Dlo Lavi in Haiti) in a standard 150 ml bottle with a cap that enables appropriate dosing for the traditionally used 20-liter container; and Aquatabs, manufactured by Medentech, which contains the active ingredient sodium dichloroisocyanurate (NaDCC) that rapidly dissolves in water to kill microorganisms that cause diarrhea. POUZN also promoted PUR Purifier of Water®, manufactured by Procter & Gamble (P&G), which treats water through a combined process of disinfection with calcium hypochlorite and flocculation with iron sulfate, and is particularly useful for turbid water sources. Table 1 summarizes the water disinfection products promoted by POUZN.

P&G's Waterguard and PUR are two water disinfection products marketed by POUZN.

PSI



The zinc treatment component of POUZN stemmed from the substantial body of evidence demonstrating that zinc, when given in conjunction with ORS for at least 10 days during and after diarrhea, reduces the duration and severity of diarrheal episodes and can have a protective effect against diarrhea morbidity in the subsequent two-month period after treatment (Baqui et al. 2002 and Zinc Investigators Collaborative Group 2000). In May 2004 the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) issued a new recommendation for diarrhea management that endorsed the use of zinc treatments, along with the new low-osmolarity[1] ORS, as a new safe and effective low-cost treatment for diarrhea to reduce death and illness in children in the developing world.[2] USAID embraced these recommendations and engaged cooperating organizations to both assist ministries of health and their public sector clinics to introduce zinc within standard diarrhea management protocols and to introduce zinc treatment through private sector channels. Table 2 summarizes POUZN's zinc promotion programs.

TABLE 1. WATER DISINFECTION PRODUCTS PROMOTED BY THE POUZN PROJECT

POU Product	Form	# Liters Treated	Manufacturer	Countries
WaterGuard	Liquid	1,000	Locally manufactured except Haiti	Angola, Haiti, Kenya, Malawi, Rwanda
PUR	Powder	10	P&G (imported)	DRC, Kenya, Malawi
Aquatabs	Tablet	20	Medentech (imported)	Bangladesh, Benin, Kenya, Senegal

TABLE 2. ZINC PRODUCTS PROMOTED BY THE POUZN PROJECT

Product	Form	Manufacturers	Country
Diarrhea treatment kit	Diarrhea treatment kit: Ten 20mg tablets of zinc sulfate and two sachets of flavored ORS	Imported zinc (Nutriset) and ORS	Benin, Madagascar
Zinc alone – ORS sold separately	Dispersible 10 or 20 mg zinc sulfate tablets in 10 tablet dose	Local manufacturers: CTL, DJPL, NPL	Nepal
Zinc alone – ORS sold separately	Dispersible 20 mg zinc sulfate tablets, single treatment (10-14 day) syrups and suspensions	Local manufacturers: ATCO, ZAFA, Genix, Macter	Pakistan

[1] The new low-osmolarity ORS has lower levels of both glucose and sodium, which has been found to reduce stool output, vomiting, and unscheduled IV therapy.
[2] http://www.who.int/child-adolescent-health/New_Publications/CHILD_HEALTH/Acute_Diarrhoea.pdf

K.P. Upadhyay

POUZN trained over 5000 pharmacists in Nepal about zinc as a diarrhea treatment.

TECHNICAL STRATEGIES

POUZN emphasized eight steps in achieving its results in both point-of-use and zinc programs:

1. Program design and formative research
2. Partner selection
3. Selection of products and setting prices
4. Development of a distribution strategy
5. Consumer/caregiver behavior change promotional strategy
6. Provider training and communication
7. Ensuring an appropriate policy and regulatory environment
8. Evaluation research to measure impact

Program design and formative research: In each program, a country plan was developed that included all of the program elements: product, price, distribution, and promotion. At the program design stage the project conducted both primary and secondary research to help inform the program strategy. In each country, focus groups were conducted with caregivers of children under five and, in zinc focus countries, with private providers of diarrhea treatment. In addition, a secondary analysis of each country's Demographic and Health Survey (DHS) data was conducted to determine existing patterns of behavior for diarrhea prevention and treatment, including which products were utilized and from what source. The design team also met with key stakeholders including representatives from the respective Ministry of Health (MOH), local manufacturers and distributors, others working in the field of diarrhea prevention and treatment, provider associations, and local advertising and research organizations.

TABLE 3: POUZN PROGRAM BY TYPE AND PARTNER

Country	Type	Partner
Angola	Introduction	PSI
Bangladesh	Introduction	Social Marketing Company (SMC)
Benin	Introduction	PSI
Haiti	Scale-up	PSI
Kenya	Scale-up	PSI
Malawi	Scale-up	PSI
Nepal	Introduction	PSI
Pakistan	Scale-up	Local manufacturers
Rwanda	Scale-up	PSI
Senegal	Introduction	Agence pour le Développement du Marketing Social (ADEMAS)

Partner selection: In all countries but Pakistan, POUZN worked with a local social marketing organization for program implementation. Table 3 highlights each of the POUZN programs, the local social marketing partner, and whether products were introduced or brought to national scale. The local social marketing group handled product importation or liaised with local manufacturers when required, participated in program design, oversaw product distribution and program implementation, and developed and/or supervised provider and caregiver communication interventions.

In four countries, a POU product had been introduced by PSI prior to commencement of the POUZN project. In these countries, POUZN's main goal was to expand product use, particularly into rural areas with poor access to the products and where diarrhea prevalence rates were higher. For the introduction of new products, the local social marketing organizations played a key role.

Product selection and pricing: In each country, POUZN evaluated options for local manufacturing versus product importation weighing product availability, manufacturing capability, pricing, consumer willingness and ability to pay, and the quality of local manufacturing. When local manufacturing was not possible, the product was imported.

In a majority of POU programs, the price covered product manufacturing and packaging costs to allow for increased program sustainability. Where the commercial partner introduced its own product (Kenya and Senegal), the price was set directly by the manufacturer. Where the social marketing organization introduced the product, the price was set based on a combination of cost of goods and determination of ability to pay. Table 4 provides the price per month for each POU product and shows that, for the majority of families, monthly water treatment costs for WaterGuard and Aquatabs are not significant and are affordable for most caregivers.

TABLE 4. MONTHLY COST OF POU PRODUCT FOR A FAMILY OF FIVE (ASSUMES 20 LITERS/DAY)

	Kenya	Benin	DR Congo*	Haiti	Malawi*	Rwanda	Senegal	Average
WaterGuard	$0.15			$.38	$0.13	$.33		$0.25
PUR	$5.28		$3.30		$2.16			$3.58
Aquatabs	$0.90	$.75					$.75	$0.80

Note: Price has been converted to U.S. dollars and standardized to reflect the cost of treating 20 liters/day for one month.
*WaterGuard receives a 32 % and PUR a 53 % subsidy in Malawi and PUR a 45 % subsidy in DRC.

For each of the zinc programs a full product cost recovery price was charged except for the community-based program in Madagascar (Table 5). In the case of Nepal and Pakistan, where the product was introduced directly by the manufacturer, the price was set by the manufacturer and included some of the marketing costs and profit.

Development of a distribution strategy: POUZN worked through existing distribution channels whenever possible. This included both commercial and government pharmaceutical wholesalers as well as fast-moving commercial goods wholesalers and distributors. In order to reach rural markets in Benin, DRC, Haiti, Kenya, Madagascar, Malawi, and Rwanda, partnerships were developed with both local community-based or international nongovernmental organizations, many of whom either employed existing or created new cadres of community-based distributors to both promote product use and sell POU or zinc treatment products to caregivers. The objective was to make both sets of products available to potential consumers within a reasonably short distance of their homes, at frequently visited public or private sector retail outlets or other community points of sale.

Marketing and promotion: In each country, the POUZN team began by examining treatment seeking behaviors of caregivers and conducting formative research to determine the best communication strategy to reach consumers. Marketing of the products was done through mass media and interpersonal communication approaches aimed at both health providers and end users (caregivers). Radio and television spots were developed and aired, information/education/communication (IEC) materials were developed and printed, and mobile video unit films and messages were created and broadcast in remote areas without access to mass media. Partnerships were created with community-based nongovernmental organizations (NGOs) to implement IPC at the community and in some cases the household level.

TABLE 5. PRICES OF ZINC AND ORS PRODUCTS

	Benin	Madagascar	Nepal	Pakistan
Diarrhea treatment kit	$.90	$1.00 (full price) $0.25 (subsidized)		
Stand-alone zinc			$0.19-0.52	$0.41-0.88
Stand-alone ORS			$0.10-0.14/ sachet	$0.08-0.10/ sachet

The project's communication objectives for consumers of POU products were to ensure that caregivers understand the connection between unsafe water and diarrhea; establish awareness of POU products as a year-round, easy-to-use, high-quality, effective, easily accessible and affordable method to prevent childhood diarrhea; establish awareness of the importance of adopting safe hygiene practices (including hand-washing at critical times and storing treated water correctly in the home); and encourage trial, correct and sustained use of POU products.

However, in some places POUZN found that the most effective messages were not focused on health outcomes. Rather these messages leveraged caregiver concerns with social status or desire to be good parents. For example in Rwanda, the safe water campaign was called the "Good Life" campaign; it sought to position SûrEau as a water treatment product that offers a caregiver the comfort and peace of mind that comes from knowing that she is doing the right thing to ensure the well-being of her children.

Communication objectives for the zinc portion of the program were similar. These focused on ensuring that caregivers of children under five understand that zinc together with ORS is the appropriate treatment for uncomplicated diarrhea, know that dispersible zinc tablets or syrups are available from either public or private sector clinics or retail outlets such as pharmacies, understand that unnecessary diarrhea treatments (anti-diarrheals and antibiotics) may be harmful to their children and are not the most effective treatment, and correctly treat their child by providing both zinc and ORS for the recommended periods of time. Given that the zinc and ORS were purchased separately in some countries, the POUZN team emphasized the importance of utilizing ORS together with zinc.

Provider training: Given providers' propensity for treating diarrhea with antibiotics, anti-diarrheals, and other pills and syrups, the POUZN team provided considerable training to providers, and pharmacists, conducted detailing sessions with providers and sponsored numerous information sessions for this secondary target audience with the objective of encouraging them to prescribe zinc with ORS as the first line treatment for uncomplicated cases of pediatric diarrheas. POUZN also partnered with medical associations in Pakistan and Madagascar, working through them to conduct sensitization sessions during regularly scheduled meetings.

GOVERNMENT AS A KEY POLICY CHAMPION FOR PUBLIC AND PRIVATE SECTOR ROLLOUT OF ZINC AND ORS THERAPY

Prior to commencement of the POUZN project, zinc was available only in small pilot zinc programs in Nepal. Only 0.4 percent of caregivers provided zinc during diarrhea bouts occurring within the two weeks preceding the 2006 DHS. Both the public and private sectors were accustomed to prescribing ORS along with antibiotics or anti-diarrheals.

The Child Health Division of Nepal's Ministry of Health and Population was one of the first health ministries to embrace the WHO/UNICEF recommendations to include zinc and low-osmolarity ORS in standard diarrhea treatment, establishing a Zinc Task Force, revising its diarrhea management and community-IMCI protocols, and lobbying donors like USAID and UNICEF to fund both public and private sector zinc programs. The ministry's support for the registration and quality assurance of the locally manufactured pediatric zinc products facilitated the launch of a sustainable private sector zinc program and was critical in helping Nepal achieve dramatic increases in caregiver use.

Policy and regulatory environment: In each POUZN country program, a number of policy and regulatory steps were essential. For both types of products, an appropriate government authority needed to accept registration of the product and establish quality standards for the product to be regulated.

Product registration was not an issue in most of the POUZN POU programs. However, in Bangladesh, due to the prior registration of a POU product as a pharmaceutical, the importer encountered problems in obtaining a non-pharmaceutical registration status for Aquatabs. This brought the POUZN program to a halt as over-the-counter status was essential to ensuring widespread access among the target population. At project's end, this had not been resolved.

Zinc also needed to be registered for over-the-counter sale so that consumers would have easy access, ideally beyond the pharmacy and wherever ORS was sold. Incorporation of zinc into national Integrated Management of Childhood Illness (IMCI) protocols for the standard treatment of diarrheal disease in all four zinc countries and inclusion of zinc on the country's essential medicines list also facilitated procurement of zinc for public sector programs and launch of private sector diarrhea zinc treatment programs in all four program countries.

Research: POUZN utilized both qualitative and quantitative research to design and evaluate its programs including focus group discussions, individual interviews, mystery client surveys, retail audits and household surveys. In seven countries programs were evaluated at a population basis using both baseline and end line surveys.

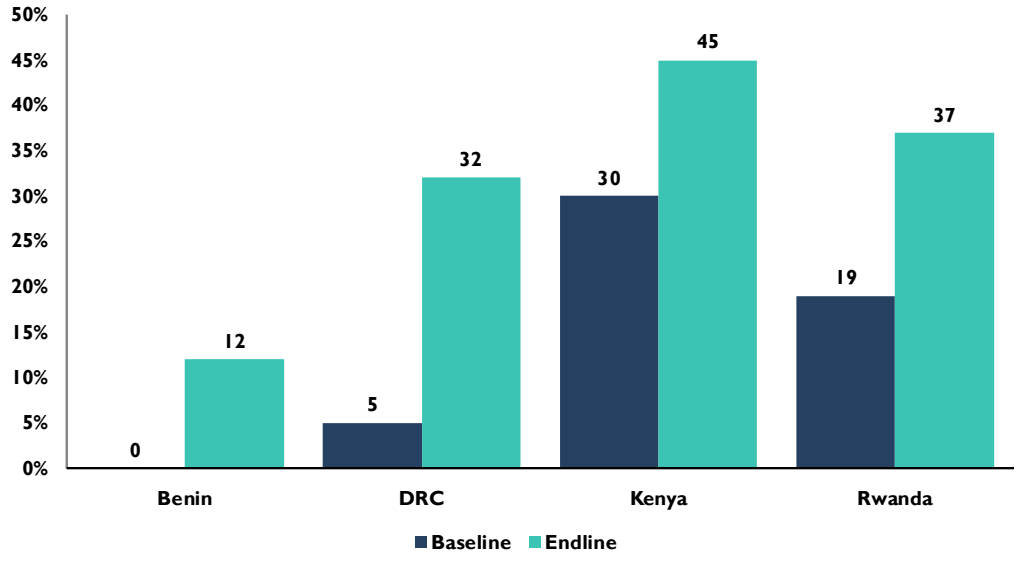
K.P. Upadhyay

A pharmacist in Nepal cousels mothers on the correct use of zinc with ORS for treatment of diarrhea.

PROJECT RESULTS

The POUZN project conducted impact evaluations in seven of its countries (Benin, Kenya, DRCongo, Madagascar, Nepal, Pakistan and Rwanda). Household surveys were conducted in each of the countries. In addition, qualitative surveys and mystery client surveys were conducted in selected countries to deepen understanding of the program results. Impact evaluations were conducted for four of the POU programs. As shown in Figures 1, 2, and 3, trial (ever use) and current use increased significantly in all four countries. However, the gap between trial and current use remains high. Future programs will need to consider this gap and develop strategies for increasing sustained use of POU products.

FIGURE 1. EVER USE OF PROMOTED POU PRODUCTS



Source: POUZN funded HH surveys

FIGURE 2. CURRENT USE (SELF-REPORTED) OF PROMOTED POU PRODUCTS

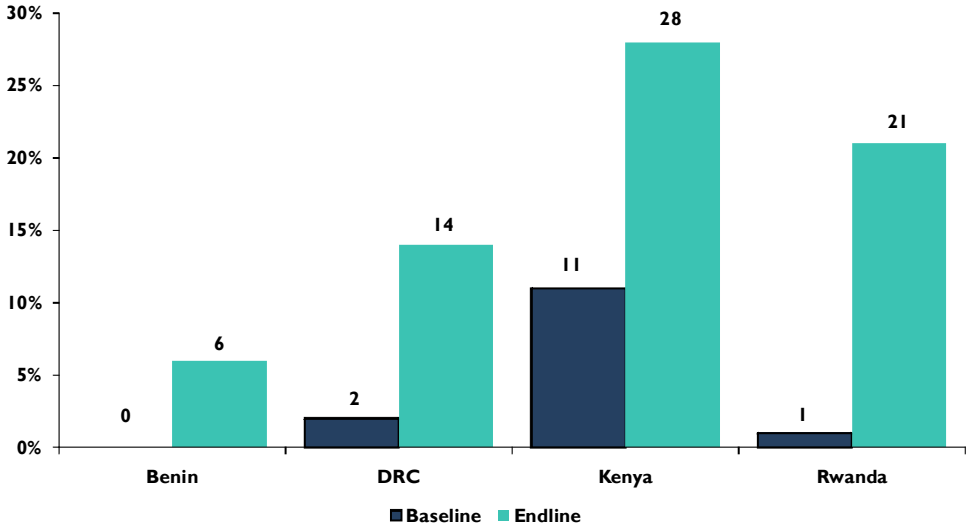
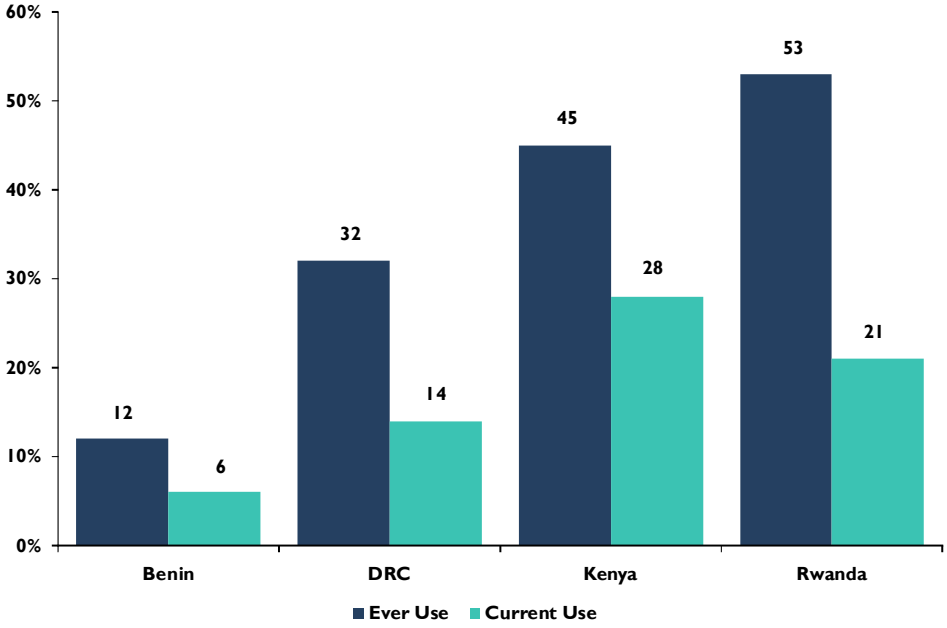
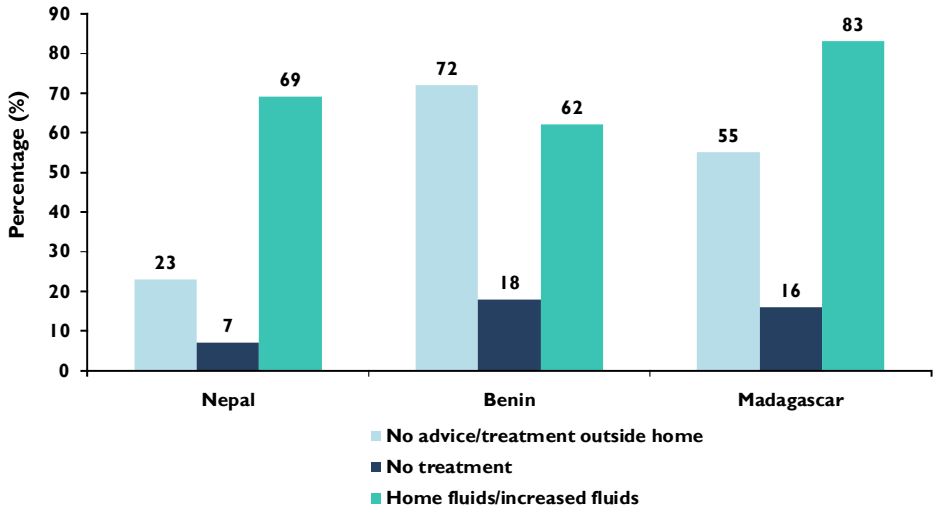


FIGURE 3. EVER USE VERSUS CURRENT USE OF PROMOTED POU PRODUCTS



Quantitative evaluation data are available for three of the four zinc programs (Benin, Madagascar, and Nepal). Overall the evaluations of zinc programs found that a large percentage of caregivers do not seek advice or treatment for diarrhea outside of the home as shown in Figure 4. Moreover, about 20 percent of respondents in Benin and Madagascar reported not treating diarrhea at all. In all three countries, 60–80 percent said they use home fluids or increased fluids. This poses a challenge, particularly for private sector programs.

FIGURE 4. DIARRHEA TREATMENT PRACTICES



Source: POUZN-funded household surveys

However, the project was able to significantly increase utilization of zinc in a short time frame (under two years) in two of the programs, Benin and Nepal (Figure 5). In Madagascar the political crisis significantly hampered program implementation for an entire year.

FIGURE 5. ZINC UTILIZATION IN POUZN PROGRAM COUNTRIES: COMPARISON WITH BASELINE

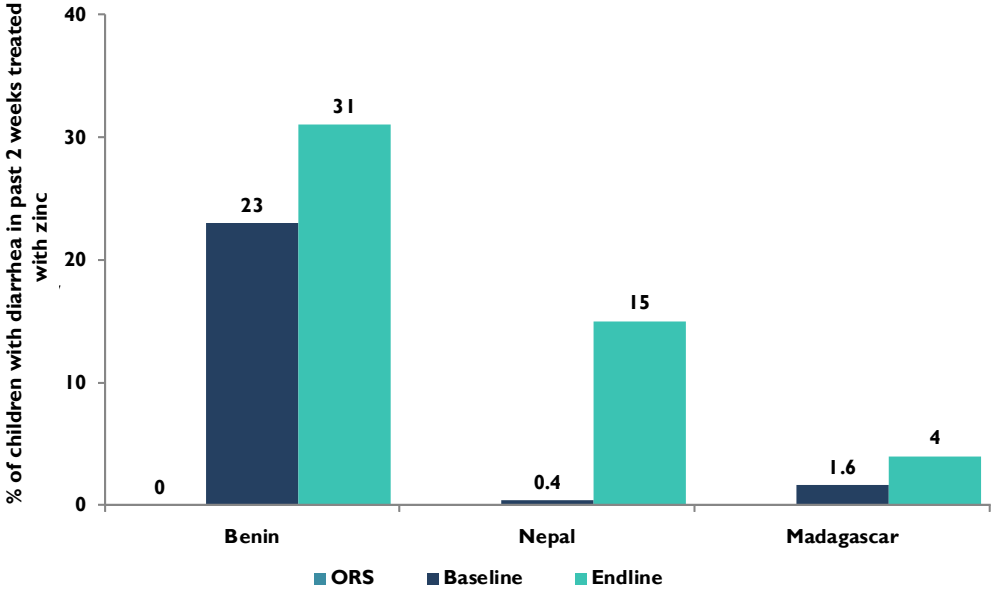
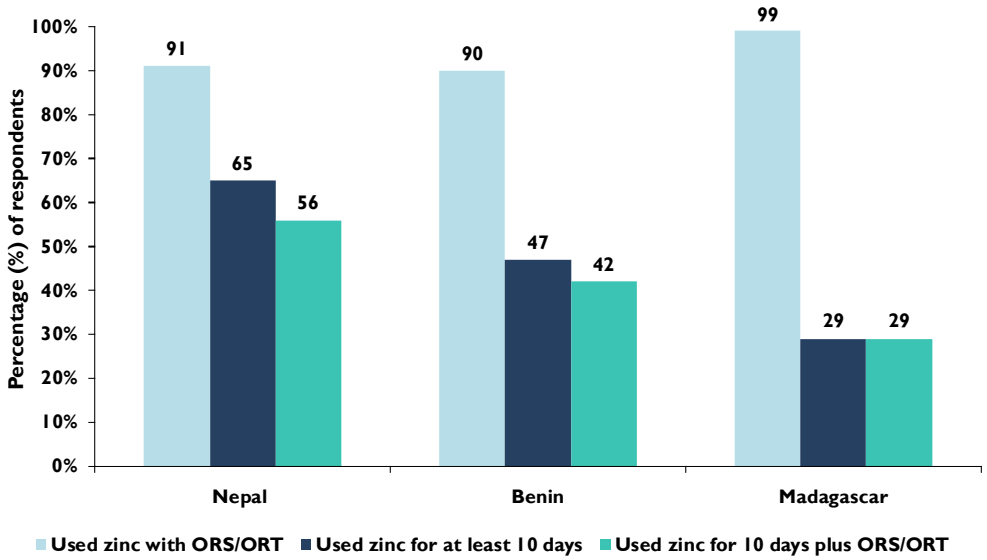


Figure 6 shows the end line results of correct use behaviors (defined as taking zinc for 10 days along with ORS for 2-3 days). In all three programs, use of ORS along with the zinc was high, even when the products were not co-packaged. However, to gain the full benefits of the product, it is important to use zinc for the full 10 days. Compliance with the 10-day regimen was mixed and will require attention in future programs.

FIGURE 6. CORRECT ZINC UTILIZATION IN POUZN PROGRAM COUNTRIES



LESSONS LEARNED

OVERARCHING

- By increasing access to POU and zinc products and increasing exposure to key messages, it is possible to significantly increase uptake of POU water disinfection and diarrhea treatment products.
- Program design needs to be adapted to local context.
- When the right conditions exist, scale-up in the private sector can be achieved in a relatively short time.
- A coordinated public-private sector program is more effective than a program focusing on the private sector alone.
- Both mass media and interpersonal communication (IPC) are essential to creating awareness and encouraging correct and consistent use.
- Evaluation research is critical to monitor program success and to draw lessons to guide future program design.

POINT-OF-USE PROGRAMS

In the majority of the POUZN water disinfection programs, both trial (ever) use of the products and current use of the water treatment products increased significantly. Exposure to mass media, social/community support, perceived availability of POU water treatment, perceived threat from unsafe water and individual self-confidence in one's ability to appropriately treat water were all significant factors in increased use. Additional lessons learned include the following:

- Partnering with the public sector for promotion and distribution is a promising extension of social marketing. Both public and private sectors can be effective distribution channels. It is important to build on traditional social marketing and leverage alternative distribution channels such as public health

clinics, CHWs, schools, and emergency relief to scale up distribution and effectively reach mothers and children under five.

- Integrating POU into other community-based health programs ensures a level of sustainability for only marginal additional costs.
- The significant predictors of household water treatment behavior were identified as social support/ social norms, self-efficacy (caregivers' confidence in ability to practice the behavior), perceived availability of household water treatment, and perceived threat from unsafe water. Communications that focus on these determinants are more likely to motivate water treatment behavior.
- Exposure to project messaging was also found to be positively associated with current and ever use of household water treatment in Benin, DRC, and Rwanda. In Kenya, the focus was more on interpersonal channels of communication and unbranded messaging. Exposure to messaging was associated with increased water treating behavior in general but not with increased rates of current or ever use of promoted products.
- IPC and mass media are both important communication channels for encouraging new behaviors.

ZINC TREATMENT PROGRAMS

The POUZN project initiated zinc programs through private sector channels in Benin, Madagascar, and Nepal. In Pakistan, pediatric zinc had been produced, distributed, and marketed for one year prior to POUZN's efforts to create greater demand for the products. In Madagascar, and Nepal, public sector pilots prior to POUZN provided baseline use rates of under 2 percent. In Benin ORS had been vigorously marketed resulting in a 23 percent use rate. POUZN succeeded in increasing use rates to 31 percent in Benin and 15 percent in Nepal and 7 percent in Pakistan (selected districts, not a national program). Civil conflict in Madagascar hampered the POUZN private sector efforts but public sector districts, where zinc and ORS supplies were available, achieved a 12 percent use rate. Lessons learned in the implementation of private sector zinc programs include:

- Zinc programs in resource-constrained countries, where health care is sought primarily from the public sector, are most effective when private sector programs are implemented in close collaboration with the public sector.
- In countries with a pharmaceutical industry, local manufacturing of zinc is both feasible and possible in a relatively short time frame.
- Zinc promotion through mass media is essential to increasing knowledge and awareness of zinc as diarrhea treatment.
- Given the high cost of packaging, ORS and zinc should be co-marketed but not necessarily co-packaged unless there is no ORS available on the market or very low use of ORS.

- Compliance with the 10-day regimen has been more challenging than anticipated.
- Training and detailing are not enough to motivate providers to recommend ORS and zinc instead of antibiotics or anti-diarrheals.
- One of the major challenges is convincing caregivers that zinc with ORS is more effective and safer than antibiotics and anti-diarrheals.

K.P. Upadhyay

Program endline research conducted in Nepal with mothers of children under five years.

THE POUZN PORTFOLIO OF COUNTRY ACTIVITIES

As noted above, from October 2005 through November 2010, POUZN implemented programs in 13 countries: Angola, Bangladesh, Benin, Cambodia, Democratic Republic of the Congo (DRC), Haiti, Kenya, Madagascar, Malawi, Nepal, Pakistan, Rwanda, and Senegal. A brief description of each country program and key results achieved follows.

MAP 1. COUNTRIES WITH POUZN COUNTRY PROGRAMS AND TECHNICAL ASSISTANCE INITIATIVES

POINT-OF-USE COUNTRY PROGRAMS

BENIN

In 2007, POUZN began the design of a program to introduce a household water disinfection product in Benin, where diarrhea prevalence, according to the most recent (2006) Demographic Household Survey (DHS), was 10 percent. POUZN's initial program assessment examined the various product options and selected Aquatabs as the most appropriate product, given that there was not an acceptable local manufacturing firm that could produce a liquid product. As a result, a social marketing model was implemented, with implementing partner PSI working with manufacturer, Medentech, to import, over-package, distribute, and market Aquatabs, a chlorine-based tablet, through several distribution mechanisms. This program continues with USAID funding.

PROGRAM SNAPSHOT: BENIN

Background	• Population: 9.06 million (Central Intelligence Agency [CIA] 2010)
	• GNI per capita (purchasing power parity): $1,510 (World Bank 2010)
	• UNDP Human Development Index* (HDI) rank: 134/169 (UNDP 2010)
	• 66 percent of the population is rural (INSEA 2007)
	• High infant (78/1,000 live births) and child mortality (123/1,000 live births) (UNICEF 2008).
	• 13 percent of deaths in children under five are caused by diarrhea (Black 2010).
	• 94percent of population does not treat water to prevent diarrhea (INSEA 2007).
Partners	• Medentech, manufacturer of Aquatabs
	• MOH and its associated clinics, CHWs, and hygiene and sanitation assistants
	• 13 local NGOS
	• 14 local radio stations
	• FECECAM (women's microcredit groups)
Product	• Aquatabs
Geographic area	• Seven departments (6.1 million people, 70 percent of population)
Dates of operation	• 2008–10 (2 years)
Budget	• $1,153,000
Key results	• From 2006 to 2009, households with children under five ever treating their water using any method increased from 4 percent to 12 percent.** Of these, 52 percent used Aquatabs.
	• Current Aquatabs use in the seven departments increased from 0 percent to 6.3 percent (2009).
	• The number of towns/districts with at least one Aquatabs vendor increased from 7.5 percent (December 2008) to 35.5 percent (November 2009).

*The Human Development Index (HDI) ranks countries by level of "human development." It is based on a country's life expectancy rate, education level, and per-capita GDP. It offers greater insight into standard of living than that offered by the country's per capita GDP alone.

**These results are based on comparable data: for both years, the data shown here are from a population-based survey of households with children under five in the POUZN program departments.

Ensuring Access to and Availability of Affordable Products. Aquatabs are manufactured in pre-packaged blister strips of 10 tablets, each of which treats 20 liters of water. PSI imported the strips and overpackaged them in a colorful box with use instructions printed thereon. After conducting formative research with potential consumers in a number of areas of Benin, POUZN decided to sell each strip of Aquatabs for a cost recovery retail price of West African francs (FCFA) 125 (US$0.25).

PSI engaged two private pharmacy wholesalers and one government pharmacy wholesaler, *Centrale d'Achat des Medicaments Essentials* (CAMÉ), to distribute Aquatabs to private pharmacies and 450 public clinics and pharmacies. The POUZN team also worked with 10 commercial wholesalers to market the product commercially through over 1000 shops and kiosks in the seven targeted departments and the capital city of Cotonou. During the second year of implementation, POUZN engaged new NGO partners, such as FECECAM, a women's microcredit group, as well as MOH-based CHWs and hygiene assistants to promote and sell Aquatabs. Cholera outbreaks and a flood emergency immediately prior to the launch allowed the POUZN program to respond quickly with supplies of Aquatabs, strengthening exposure to the product and reinforcing the importance of household water treatment.

Since inception, 47 percent of the product has been distributed through by commercial wholesalers and sold through shops and kiosks, 14 percent was distributed pharmaceutical wholesalers and marketed through private pharmacies, 4 percent was purchased by CAMÉ for sale through MOH health clinic pharmacies, 31 percent of sales were made to institutional entities (primarily the Red Cross) for humanitarian response; and 4 percent sold to other distribution channels. Data from the 2009 household survey indicated that 26 percent of those purchasing Aquatabs had done so primarily from pharmacies (28 percent), health centers (26 percent), markets or kiosks (24 percent).

Promotion - Improving Caregivers Knowledge and Practice: With only 6 percent of households treating their water with any method prior to commencement of the POUZN activities, the project had to introduce both the concept of water treatment and the Aquatabs product. POUZN's initial mass media efforts utilized national radio networks to reach households living in urban and peri-urban areas. Due to slow first-year sales outside of emergency channels, in 2009 the team stepped up radio advertising, developed a television commercial, and placed billboards in strategic locations in each of the target departments. These activities had a positive impact on sales and supported the efforts of the community and retail sales agents, who found that consumers were much more likely to buy an initial supply of the product after they had seen the television advertisement. This also sharply increased orders by wholesalers.

The communications strategy in Benin was also heavily focused on IPC. POUZN engaged 13 NGOs already trained in community development and outreach skills, provided their community agents with additional training in diarrhea prevention techniques and set monthly targets for delivery of sensitization sessions. The POUZN team also produced briefs on safe water and diarrhea for use by PSI's 14 community radio partners that were able to reach deep into the rural areas. Using those briefs the community radio stations prepared community radio messages, special interviews, and other media programs specific to household water disinfection. These community radio activities supplemented national radio broadcasts. MOH sanitation assistants and clinic staff were also trained on diarrhea prevention and counseling skills necessary to convey these messages to caregivers in their communities.

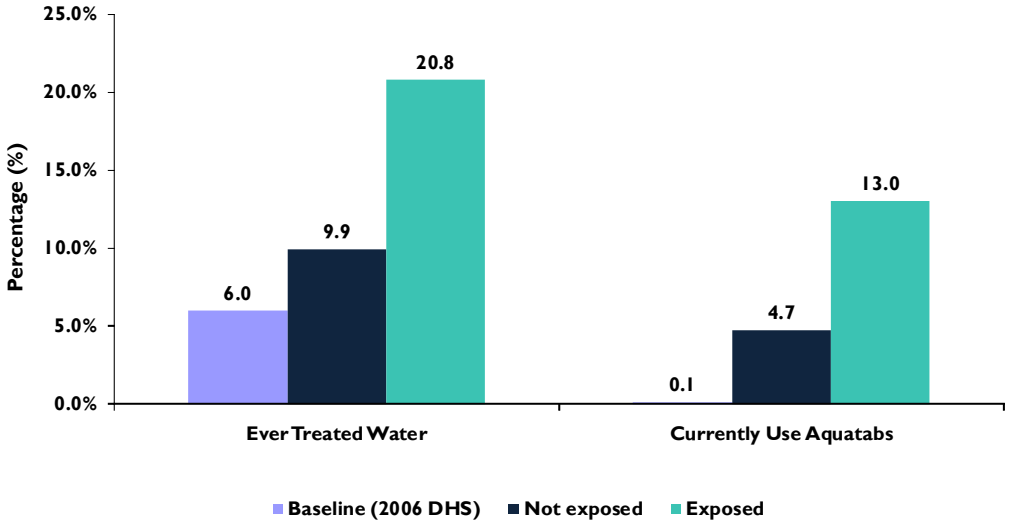
Key Results: Aquatabs was a brand-new product in an environment where few people ever treated their water. The program approach of mass media advertising combined with distribution through a variety of traditional and non-traditional outlets resulted in relatively strong sales and trials of Aquatabs over a short period of time. The percentage of targeted households with children under five years treating their water with any method or product increased from 6 percent to 13 percent. Of those treating their water, more than half had tried Aquatabs at least once. Current use of Aquatabs increased from 0 percent to 6.3 percent between 2006 and 2009. Pharmacies – both commercial and those associated with MOH health centers – were the primary sales points, followed by commercial retail outlets (boutiques, market stalls, etc.).

Vicki MacDonald

Community-based sales agent sells Aquatabs door-to-door to improve access for target population.

Research results indicated a positive association between exposure to at least one POUZN program message and ever treating or currently using Aquatabs as shown in Figure 7. Comparison of data from the 2006 DHS and the 2009 POUZN survey shows that the proportion of households with children under five who had ever treated or currently use Aquatabs to treat their water was significantly higher if the respondent had been exposed to a message about safe water or Aquatabs.[3]

FIGURE 7. WATER TREATMENT BY RESPONDENTS WITH AND WITHOUT EXPOSURE TO MESSAGES ON SAFE WATER/AQUATABS, 2006–09 (PERCENT OF HOUSEHOLDS)



[3] These results are based on comparable data: for both years, the data shown here are from a population-based survey of households with children under five in the POUZN program departments.

DEMOCRATIC REPUBLIC OF THE CONGO

POUZN's program in the DRC began in late 2007 as an effort to expand an ongoing water treatment program to market PUR initiated by PSI in 2006 with funding from Procter and Gamble (P&G) into the province of South Kivu. The program partnered with the USAID bilateral AXxes project and PSI's local affiliate Association de Santé Familiale (ASF) to market PUR and significantly increase use.

PROGRAM SNAPSHOT: DRC

Background	• Population 70.92 million (CIA 2010)
	• GNI per capita (purchasing power parity): $300 (World Bank 2010)
	• UNDP HDI rank: 168/169 (UNDP 2010)
	• High infant (108/1,000 live births) and child (161/1,000 live births) mortality (UNICEF 2008)
	• 18 percent of children under five had diarrhea in the two weeks preceding the Multiple Indicator Cluster Survey (2010).
	• 18.5 percent deaths in children under five are caused by diarrhea (Black 2010).
Partners	• P&G
	• USAID's Project AXxes (with major partners Catholic Relief Services and Interchurch Medical Assistance)
	• Association de Santé Familiale (ASF)
Product	• PUR
Geographic area	• South Kivu province (4.7 million) = 7 percent of total population
Dates of operation	• 2007–09 (2 years)
Budget	• $280,000
Key results	• From October 2007 to December 2009, 526,846 sachets of PUR were sold, one-third of them to address cholera emergencies.
	• Nearly one-third of respondents reported that they had ever used PUR.
	• 14 percent of caregivers could demonstrate to interviewers that they were currently using it.

Over the past 15 years, DRC has been the center of continued conflict with corresponding high rates of poverty, disease, and famine. This high level of conflict has led to a humanitarian crisis with millions displaced and lacking access to safe drinking water, sanitation, and hygiene as well as food, tools, and shelter (Office for the Coordination of Humanitarian Affairs 2009). In 2009, 1.9 million people remained internally displaced across DRC, of which over 1.5 million were in North and South Kivu provinces (Office for the Coordination of Humanitarian Affairs 2009).

Expanding POU Access into Rural South Kivu through Commercial, Nonprofit and Public Channels: POUZN worked with PSI local affiliate ASF to market PUR and expand its accessibility into rural areas of South Kivu. Through collaboration with USAID's AXxes project and its partner NGOs, which manage clinics in 28 health zones, ASF integrated PUR into AXxes'

Promoting the use of PUR in DRCongo Photocredit: PSI

package of health activities and expanded its relationship with CHWs and community clinics in rural areas. POUZN trained health zone-level doctors and provided them with counseling materials on POU and hygiene. The doctors trained a cadre of CHWs to promote and market the product, and the health clinics became public sector sales outlets.

POUZN funding also supported the expansion of ASF's commercial sector distribution network by increasing the number of sales points in hard-to-reach communities and increasing visits to these zones by its sales agents assigned to South Kivu. PUR is now available in 100 sales points, including pharmacies, street vendors, private health clinics, and markets.

Emergency Distribution: During the project period, ASF collaborated with NGOs, U.N. agencies and the government to respond to 10 cholera outbreaks, flooding and the displacement of populations. POUZN provided safe water demonstrations with PUR, radio promotion support and IEC materials to CHWs to assist in this effort.

Price: With support from USAID, ASF imports PUR tax free and through product sales is able to cover the product cost, quality testing, shipping and handling. The POUZN program covered all marketing and promotional costs. The current consumer price is Congolese Francs 50 (US$0.055). Free distribution of PUR by the U.N. and NGOs during cholera outbreaks did however cause some confusion among consumers about the pricing: why was PUR provided free at some times and not at others? Retailers were particularly concerned that consumers thought they were reselling free humanitarian distributions of PUR for a profit.

Megan Wilson?

Training community mobilizers in DRCongo.

Hygiene, Sanitation, and Product Promotion: POUZN generated demand for PUR largely through branded and generic messaging via radio talk shows and tele-dramas broadcast through a mobile video unit that circulated to 130 villages. Caregivers were also counseled about water treatment by CHWs while waiting to see health care providers for pre-natal and antenatal care at public clinics. ASF estimates it reached 103,800 caregivers in 2,080 clinic-based sessions over the life of the project. The main message promoted through these channels was "Clear water is not necessarily clean water" and "Treat your water every day with PUR."

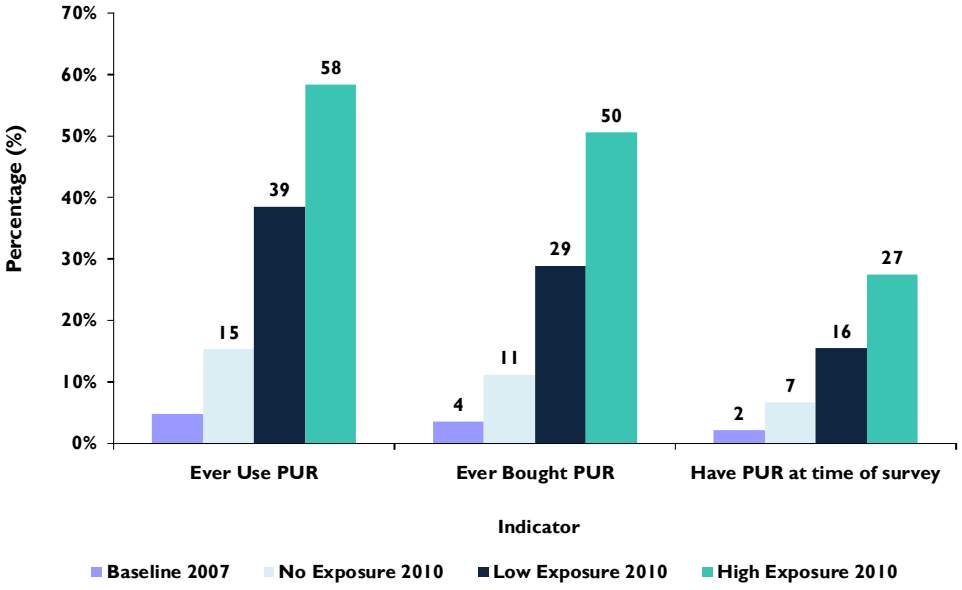
A partnership with 100 schools (6 percent of schools in the province of South Kivu) trained students to be health promoters for POU, hygiene and sanitation within their homes. Students were given three PUR sachets to demonstrate product use. Community health agents, provided with PUR to sell at a small profit margin, continued to provide monthly counseling and demonstrations to sustain the momentum of school, clinic, and mass media promotional efforts.

Key Results: From October 2007 to December 2009, 526,846 sachets of PUR were sold. Of that total, 172,934 sachets (about 32 percent) were purchased by NGOs for free distribution during cholera outbreaks.

In comparing 2007 DHS data for South Kivu with data from the POUZN-funded 2010 quantitative survey with 1,352 households, those who had ever used PUR increased from 5 percent to 32 percent, and those who had ever purchased PUR increased from 4 percent to 25 percent. More importantly, 14 percent of caregivers of children under 5 showed interviewers that they currently had it on hand and were using it (compared with only 2 percent in 2007).

The 2010 quantitative study also revealed that exposure to messages about PUR and POU positively influenced product use. There were 12 different

FIGURE 8. IMPACT OF EXPOSURE TO COMMUNICATIONS ON POU USE IN DRC



communications channels through which caregivers could receive messages about PUR, drinking water, and diarrhea. Those with the highest exposure had the highest ever use, ever purchase and current use of PUR as shown in Figure 9. Research also revealed that caregivers with knowledge about the causes of diarrhea were more than seven times more likely to have used PUR compared with those with little or knowledge. Caregivers with higher self-confidence in their ability to treat their drinking water were more than twice as likely to use PUR compared with those with lower self-confidence.

HAITI

Haiti is the poorest country in the western hemisphere, ranking it among the worst in terms of both political stability and health indicators. Even before the devastating earthquake of January 2010, prevalence of diarrheal disease was the second leading cause of death among children under five years old and unemployment was 80 percent. POUZN's efforts in Haiti were centered on the introduction of a liquid water treatment product. Initial efforts were made to locate a local manufacturer, which was unsuccessful, and then to contract with a manufacturer in the neighboring Dominican Republic. When this effort also failed, due to quality control concerns, the POUZN program located a manufacturer in Miami, imported the product, and branded it Dlo Lavi ("water of life" in Haitian Creole).

PROGRAM SNAPSHOT: HAITI

Background	• Population: 9.65 million (CIA 2010)
	• GNI per capita (current US$): $653.7 (2008) (UNdata 2010)
	• UNDP HDI rank: 145/169 (UNDP 2010)
	• Child mortality rate (under five): 76/1,000 live births (UNICEF 2008)
	• Infant mortality rate: 57/1,000 live births (UNICEF 2008)
	• 20 percent of deaths in children under five are caused by diarrhea (Black 2010).
	• 24 percent of children under five had diarrhea in two weeks preceding last DHS (Caymittes 2007).
Partners	• Prime Enterprises (Dlo Lavi manufacturer in Miami)
	• USAID bilateral health project Pwoje Djam
	• Catholic Relief Services, CARE, World Vision, Save the Children
Product	• WaterGuard: Branded as "Dlo Lavi"
Geographic Area	• 34 target communes reaching 40 percent of the population.
Dates of Operation	• 2007–09 (2 years); note: the project was completed prior to the earthquake.
Budget	• $350,000
Key Results	• The number of outlets distributing Dlo Lavi expanded from 68 in 2008 to 160 in 2009.
	• A 2009 study found that 70 percent of caregivers knew that tap water is not always safe, even if it is clear, and can result in diarrheal illness.
	• 90 percent of mothers surveyed in 2009 knew that POU water treatment eliminates bacteria.
	• One-third of the population surveyed were familiar with Dlo Lavi.

PSI/Haiti

Dlo Lavi promotional poster with instructions for product use.

Engaging the Commercial and NGO Sectors for the Distribution of Dlo Lavi: The project developed a two-pronged distribution strategy. The first was commercial sector distribution thru shops, pharmacies, kiosks, etc. in the communes serviced by USAID bilateral health project "Pwoje Djam." These distribution sites cover approximately 34 of Haiti's 136 communes and urban areas of Haiti. The second was community-based distribution through local and international NGOs. The POUZN team also worked with a number of programs for people living with HIV and AIDS, to distribute the water treatment product.

The project overestimated how many remote geographic areas it could reach given logistical and transport constraints, and it tried to expand beyond Port-au-Prince too rapidly. It also underestimated the challenges associated with strongly entrenched traditional views about diarrhea and illness. These included strong beliefs that "germs don't make Haitians sick" and the belief that diarrhea is not a serious disease but rather a normal rite of passage for weaning children.

Establishing an Acceptable Price of Dlo Lavi: PSI set the wholesale price of Dlo Lavi at US$0.50 to recover the cost of producing and packaging the product. This puts consumer price at 25 gourdes ($0.63), a price that 90 percent of women in a household survey said they would be willing to pay.

Using Promotional Activities to Educate Caregivers and Increase Product Use: Sanitation, hygiene, water treatment messages, and product promotion were delivered via mass media (radio, outdoor advertising) and IPC (community mobilization and health center promotion) channels. The messages sought to raise awareness of the dangers of diarrheal disease and to promote increased use of POU. Due to low literacy levels, print materials included pictures with clear images for proper product use.

Key Results: POUZN expanded distribution of POU water treatment products in Haiti and raised public awareness of the role that water treatment plays in preventing diarrhea.

The results of the Dlo Lavi program were assessed in a January 2009 household survey with 987 women and caregivers of children under the age of five. Of those surveyed:

- 52 percent of households had ever treated their drinking water.
- 22 percent of households were treating their drinking water at the time of the survey.
- Less than 1 percent of caregivers had used Dlo Lavi in the 24 hours preceding the survey.
- 3.6 percent of all caregivers had ever used Dlo Lavi.
- Of caregivers who had ever treated their water with any product, 10.3 percent had used Dlo Lavi.

The program encountered numerous challenges due to limited resources and an ambitious goal of rapidly expanding into remote areas where reliable product supply chains are often difficult to establish. The follow-up household survey revealed some barriers to adoption and acceptance of Dlo Lavi. Though nearly all caregivers knew that their children under five were especially vulnerable to illness and diarrhea from drinking contaminated water, most caregivers did not regard diarrhea as a serious health threat. They were also not confident that water treatment products were totally safe for their children and did not consider Dlo Lavi easy to find.

KENYA

The POUZN program in Kenya began in 2007. It focused on scaling up a water treatment program that PSI had been implementing since May 2003, when PSI introduced WaterGuard into the Kenya market. PSI had also been marketing P&G's PUR since 2006. The POUZN program allowed PSI to expand its safe water program into poor and vulnerable communities in Coast province. Frequent drought, interspersed with heavy rains and flooding, and limited access to improved water sources make that province and especially its coastal areas prone to cholera and other diarrheal disease outbreaks. In 2009, PSI incorporated Aquatabs into its distribution network to ensure a range of options were available to the target populations.

Expanding Rural POU Access in Coast Province: When the POUZN project began, WaterGuard was being distributed nationally solely through Kenya's existing commercial network, which led to higher WaterGuard availability in urban outlets than in rural ones. In 2007, the program revised its marketing strategy for the Coast by enhancing linkages with community-based organizations (CBOs) to increase rural access to POU water treatment products. In 2008, CBOs began to sell WaterGuard and PUR. Rural sales representatives served as an important link between the CBOs and neighboring

PROGRAM SNAPSHOT: KENYA

Background	• Population: 40 million (CIA 2010)
	• GNI per capita (purchasing power parity): $1,570 (World Bank 2010)
	• UNDP HDI rank: 128/169 (UNDP 2010)
	• Rural population: 59 percent (KNBS 2010)
	• Child mortality rates have increased over time: from 111.5/1,000 live births in 1998) to 128 deaths per 1,000 in 2008 (UNICEF 2010a).
	• Diarrheal diseases cause 20 percent of these deaths (Black 2010).
	• In 2008, 17 percent of children under five had diarrhea in the two weeks prior to the survey (KNBS 2010).
Partners	• P&G
	• Medentech and Medipharm (Aquatabs manufacturer and distributor)
	• 15 local and international NGOs and community-based organizations (CBOs) working in Coast (SWAP, CARE, Sustained Health Enterprise Foundation, Kwale Health Forum, Plan, Kenya Medical Research Institute, World Vision, AMKENI, Family Health International, Mombasa Relief International, Plan International, Aga Khan Coastal Rural Support Program, and the Kenya Red Cross)
Products	• WaterGuard (Safe Water System)
	• Aquatabs
	• PUR
Geographic area	• Coast Province (2.5 million people)
Dates of operation	• 2007–10 (2.5 years)
Budget	• $ 560,000
Key results-	• From 2007 to 2009, ever use of promoted products among caregivers of children under five in Coast province increased from 43 percent to 51 percent.
	• Ever use of WaterGuard increased from 30 percent to 45 percent.
	• 29 percent of surveyed households had used a promoted product in the last 24 hours.*

*This is based on testing for chlorine residuals during the end-line household survey conducted in 2009. There is no comparison data to be used as a benchmark.

outlets, ensuring consistent CBO access to the products. Operating as a revolving fund for the local sales people, WaterGuard became an income-generating activity, while bringing POU treatment products closer to the community. Nationally, the team also began to work with rural retail agents who acted as mobile wholesalers, transporting products from sub-distributors to the retail trade and often linking rural retailers to targeted communities. Almost two years into this targeted distribution strategy, 81 percent of those who used WaterGuard in Coast province had purchased it from a local duka (kiosk), illustrating increased access by rural populations. WaterGuard was sold for KSH 20 (US$ .24) per bottle; PUR for KSH 7 (US$ .08) per sachet, and Aquatabs for KSH 2.5 (US$ .03) per tablet, as shown in Table 6.

PSI/Kenya

2007: WaterGuard, the "caring protector" that every mother needs.

POUZN AND THE KENYA RED CROSS

The Kenya Red Cross relies on a network of 4,000 volunteers in Coast province in a range of health and other sector activities. Through POUZN, the Kenya Red Cross incorporated safe water and hygiene promotion into existing activities. The "Keep it Up" program focused on malaria prevention. Yet, as communities were demanding solutions to address diarrheal disease problems that they were facing, the Kenya Red Cross saw an opportunity to build on malaria prevention messages to incorporate safe water, hygiene, and sanitation.

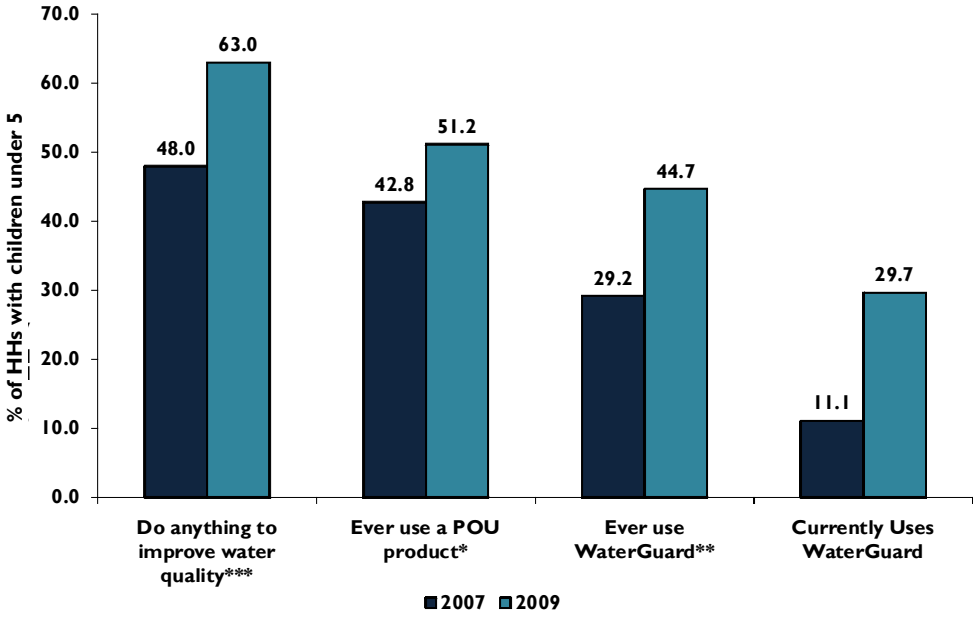
TABLE 6: POU PRODUCTS IN KENYA

Product	Form	Price	# Liters Treated
WaterGuard	Liquid	KSH 20 (US$0.24)/bottle	1,000
PUR	Powder	KSH 7 (US$0.08)/bottle	10
Aquatabs	Tablet	KSH 2.5 (US$0.03)/tablet	20

Improving Caregivers' Knowledge and Motivation to Use POU Products: The communication strategy was also reoriented to focus primarily on local radio broadcasting that emphasized severity of diarrhea, tackled issues about effectiveness of POU water treatment, and placed more emphasis on safe water storage and hygiene practices. Through personal communications with residents, CBOs also played a prominent role in addressing barriers to health behaviors. These CBOs included women's groups, village health committees and others involved in health and civil society activities. Rather than promote POU as a stand-alone behavior, partner NGOs integrated POU and hygiene messages into existing health activities. This approach ensured that safe water and hygiene messages would resonate as part of a more comprehensive child health promotion package and ensure sustainability of POU water treatment after POUZN ended.

Key results: In Coast province, caregivers of children under five significantly improved water-treatment behaviors during the project. The percentage of caregivers surveyed who had ever used a household water treatment product increased from 30 percent to 45 percent between 2007 and 2009, as shown in Figure 9. A similar trend was found in use of promoted products. The percentage of households with children under five reporting that they were currently using one of the promoted products increased from 11 percent to 30 percent.

FIGURE 9. GROWTH IN USE OF WATER TREATMENT PRODUCTS IN COAST PROVINCE, KENYA



Awareness of POU water treatment is now high in urban areas and growing significantly among rural communities. The POUZN project enabled PSI to intensify efforts in Coast province and expand availability of the range of all three POU products – WaterGuard, PUR, and Aquatabs – through partnerships with CBOs, extended rural commercial distribution, and enhanced safe water and hygiene communications through IPC techniques. Through various community outreach channels, combined with mass media, knowledge and understanding of WaterGuard increased among caregivers of children under five. Most impressively, the number of caregivers who had heard of WaterGuard and knew where to purchase it increased significantly. In the 2009 POUZN-funded survey of Coast province, 88 percent of households with children under five had ever heard of WaterGuard (PSI 2010), 69 percent knew that diarrhea can be contracted from water, and 80 percent knew where to obtain WaterGuard.

MALAWI

The POUZN program in Malawi also sought to expand an existing water treatment program into rural areas. PSI has promoted both WaterGuard and PUR since 2002. Because rural areas have the highest rates of diarrhea and child mortality, POUZN worked to increase knowledge, use, and access to

PROGRAM SNAPSHOT: MALAWI

Background (Note: source is NSO Malawi 2005 unless otherwise noted)	• Population: 15.45 million (CIA 2010)
	• GNI per capita (purchasing power parity): $760 (World Bank 2010)
	• UNDP HDI rank: 153/169 (UNDP 2010)
	• 85 percent of the population resides in rural areas
	• Rural mortality in children under five is 164/1,000 live births compared with 116/1,000 in urban areas
	• Diarrheal disease is the second leading cause of child mortality and illness.
	• 11 percent of deaths in children under five are caused by diarrhea (Black 2010)
	• 22 percent of children had diarrhea in the two weeks preceding the 2004 Malawi DHS
Partners	• Chemicals and Marketing, Ltd (C&M); local manufacturer of WaterGuard
	• World Vision, World Relief, Blantyre Synod, and Fresh Water Project
	• MOH health surveillance assistants
Products	• WaterGuard (Safe Water System)
	• PUR
Dates of operation	• 2006–10 (4 years)
Budget	• $ 900,000
Geographic area	• National (urban and rural)
Key results	• According to PSI's 2010 household research:
	• 99 percent of households were aware of POU.
	• 83 percent knew at least one location where they could purchase one of the POU products
	• 63 percent stated that they lived within walking distance of a sales point

AUDIENCE PROFILE FOR "NABANDA PHIRI"

Nabanda Phiri is a hardworking, caring mother in her mid-twenties. She lives with her husband and three children in Salima district. Family survival is her key goal, and to achieve this, she puts in long and laborious days doing household chores and working in the field during the planting and harvest seasons. Nabanda's family income is roughly MK 150 (US$1) per day. There is more money during the harvest season, and less during the planting season.

Nabanda's children frequently experience diarrhea, but she does not treat her water – with her busy schedule, she is not looking for an additional task. She has heard of WaterGuard and the free calcium hypochlorite that is sometimes available at clinics. Though she realizes that diarrhea is a threat to her children's health, Nabanda believes that they are healthy enough to recover even if they fall sick with diarrhea. She thinks that WaterGuard should be provided free and points out that it is hard to find in her local shops.

WaterGuard in those areas, complementing previous efforts to launch and distribute the product in urban areas. POUZN collaborated with PSI's Child Survival and Health Grant team and partnered with four NGOs to implement the program.

Manufacturing and Price Setting: The POUZN project continued to work with the local manufacturer of WaterGuard, Chemicals and Marketing, Ltd, which has been successfully producing WaterGuard since 2004. As WaterGuard has gained traction in Malawi, its wholesale price has gradually increased, from MK 8 (US $0.06 in 2002) to MK 30 (US$0.21 in 2008) to improve its sustainability. Even with the price increase, however, the product is still subsidized at 32 percent. PUR was imported from P&G and priced at US$0.036 (a 53 percent price subsidy on the cost of goods price of US$0.08).

Using Diverse Distribution Systems and Partnerships to Ensure Product Availability: PSI/Malawi's national commercial distribution network consists of 412 outlets, including 306 wholesalers who redistribute to retailers across the country. The POUZN project's main strategy for reaching the rural areas involved partnerships with NGOs to promote and distribute WaterGuard and PUR.

Leveraging funds from diverse child survival projects, POUZN took advantage of multiple channels of delivery through collaborations with partner organizations working in water and sanitation community development activities and enhancing existing structures within the communities. The team engaged NGO partners World Vision, World Relief, Blantyre Synod, and Fresh Water Project and trained both NGO staff and MOH health surveillance assistants to promote POU water treatment, diarrheal prevention through improved sanitation, and rehydration with ORS. POUZN also collaborated with a nationwide school initiative to promote POU through schools in areas most prone to flooding and water contamination, and with the U.S. Peace Corps, which distributed the products through local health and sanitation clubs. Building on the private sector work, PSI worked with multiple donors to distribute POU and hygiene kits to 15,000 pregnant women via public health clinics. During cholera outbreaks, POUZN provided 226,000 bottles of WaterGuard for distribution in highly affected areas. Through these multiple channels, POUZN extended accessibility and awareness of POU into remote areas. These messages complemented the MOH's Essential Health Package, which had already identified prevention, treatment, and care for acute diarrheal diseases as chief interventions and included messages of basic hygiene for diarrheal prevention.

Reaching Rural Communities through a Targeted Communication Strategy: Radio spots, community drama, and mobile television drama were the main tools used to reach rural communities during cholera outbreaks. The mass media campaigns emphasized not only the importance of POU along with sanitation and hygiene; the messages also were intended to enhance the perceived value of POU in preventing diarrheal disease, and to increase the self-

PSI, Malawi

Community mobilizers demonstrate correct water treatment practices in Malawi

confidence of caregivers in their ability to procure and actively use the product. To be effective, the communications strategy must appeal to caregivers such as Nabanda Phiri, described in the text box below.

Key Results: Safe water and hygiene programming shows great promise in improving diarrhea prevention practices. More than 1.16 million bottles of WaterGuard were sold during POUZN's tenure in Malawi, providing over 1.1 billion liters of water treated. Over 2.7 million sachets of PUR were sold, providing over 27 million liters of safe water for rural families. Ninety-nine percent of respondents in the 2009 POUZN-funded survey could cite a project-promoted water treatment product, 83 percent knew at least one location where they could purchase one of the POU products, and 63 percent stated that they lived within walking distance of a sales point.

RWANDA

The POUZN program in Rwanda began in 2007 in an effort to rejuvenate PSI's water treatment program that had been curtailed due to lack of funding. With POUZN funding, PSI was able to re-launch Sûr'Eau (francophone equivalent of WaterGuard) in a more cost-effective container and with revised branding. The Rwanda program had several innovative features. including diversifying distribution channels to encompass the commercial/ pharmaceutical sector, public sector health clinics, CHWs, and NGOs and CBOs. Second, with U.S. President's Emergency Plan for AIDS Relief (PEPFAR) support, Sûr'Eau was promoted and supply through NGOs providing HIV/AIDS services and outreach. Third, the project partnered with USAID's Health Systems 20/20 project to supply and promote Sûr'Eau through community-based health insurance schemes (mutuelles de santé) in two cholera-prone districts.

PROGRAM SNAPSHOT: RWANDA

Background	• Total population: 11.06 million (CIA 2010)
	• GNI per capita (purchasing power parity): $1,060 (World Bank 2010)
	• UNDP HDI rank: 152/169 (UNDP 2010)
	• Percent of population that is rural: 80 percent (INSR 2005)
	• Mortality in children under five is 112/1,000 live births (UNICEF 2010b)
	• 14 percent of children under five had diarrhea in the two weeks preceding the 2005 DHS (INSR 2005).
	• 20.5 percent of deaths of children under five are due to diarrhea (Black 2010).
Partners	• Sulfo Industries (local manufacturer)
	• MOH and its associated CHWs
	• Mutuelles in Rubavu and Nyagatare districts
	• Réseau Rwandais des Personnes Vivant avec le VIH/SIDA (RRP+)
	• Association des Femmes Rwandaises (ASOFERWA)
	• Society for Women and AIDS in Africa (SWAA)
Products	• Sûr'Eau (Safe Water System), branded for francophone audience
Geographic area	• National
Dates of operation	• 2007–10 (2.5 years)
Budget	• $ 900,000
Key results	• Almost universal coverage of Sûr'Eau in urban areas (99 percent); 49 percent coverage in rural villages. *
	• From 2007 to 2010, ever use of Sûr'Eau increased from 20 percent to 40 percent.
	• Use of Sûr'Eau in the last 24 hours, objectively verified by chlorine residual, was 19 percent in 2010.
	• In districts where Sûr'Eau was sold through mutuelles, self-reported use of the product was 21 percent vs. 2 percent in the control district

*POUZN retail assessment of 1,500 outlets conducted in 2010.

Improving Access to Sûr'Eau in both Public and Private Sectors:

Starting in mid-2007, a new 150ml bottle was introduced into the market at a new price of Rwanda Francs (Frw) 300 (about US$0.55) in rural and urban settings through both commercial and nonprofit retailers and the public sector. In the private health sector, sales representatives ensured that retailers, wholesalers, and sub-distributors had Sûr'Eau in stock through direct delivery strategies. At the beginning of the POUZN project, Sûr'Eau was distributed nationally by a team of PSI/Rwanda sales representatives who sold directly to private retailers and the public sector. Eventually this structure was streamlined by selling directly to 30 private sector wholesalers who then sold to retailers. POUZN supported the wholesalers with advertising and created market forums to bring together wholesaler and retailers and to demonstrate the product.

Standardized Sur'Eau Bottle

In the public sector, POUZN partnered with the government's pharmaceutical wholesaler, CAMERWA, to supply 421 health clinics and their associated CHWs, who sold the product at a small profit. By July 2010, POUZN had trained CHWs in 22 of Rwanda's 30 districts. These locally elected health workers quickly became an important source for Sûr'Eau in the rural districts, combining product promotion with behavioral change communication in hygiene and sanitation.

In the final analysis, this was a very successful approach to improving access. Results from the 2010 end-line household survey, presented in Table 7, indicate that 54 percent of users purchased Sûr'Eau from public sector outlets, 31 percent from commercial outlets, and 11 percent from pharmacies.

TABLE 7. SOURCE OF POU TREATMENT PRODUCTS

Channel Accessed	Percentage
Kiosk/Shop	31.1
Pharmacy	10.7
NGOs	1.2
Public health clinics/CHW	53.8
Other	0.5

Source: POUZN end-line survey, 2010.

With funding provided by USAID's Health Systems 20/20 project, the POUZN team implemented a pilot program to distribute Sûr'Eau through the health insurance schemes (mutuelles) in two districts between April 2008 and July 2009. This pilot aimed to increase access to and use of Sûr'Eau and reduce mutuelle expenditures on diarrhea treatment. Mutuelle managers and CHWs in those catchment areas were trained to promote and sell Sur'Eau, and they were offered communication materials.

Promotion - Improving Caregiver Knowledge and Use of Sûr'Eau:

To address barriers to accessibility and use of Sûr'Eau, POUZN used mass media and launched the "Good Life" campaign, which worked to rapidly build awareness and knowledge among the caregivers of children under five though billboards, banners, and television and radio spots and shows to promote water treatment and hygiene practices. Of the methods used, television and radio were most effective, as were the CHWs and community groups that incorporated product promotion with broader hygiene and sanitation behavioral change. POUZN's collaboration with the MOH also proved valuable, as the CHWs were strong sales and product representatives. Partnership with the MOH enabled Sûr'Eau promotion to also be incorporated into broader public health hygiene and child survival campaigns.

PSI/Rwanda

Community mobilizers promote correct treatment and storage of drinking water

Key Results: By using all available public and private channels, the POUZN project put Sûr'Eau into local shops and caregivers' hands around the country, achieving near universal coverage in urban areas (99 percent) and reaching about half that in rural areas. With such high coverage, usage rates increased dramatically. The POUZN-funded 2010 survey showed the proportion of those who had ever used Sûr'Eau doubling since 2007, from 20 percent to 40 percent (Figure 10). Moreover, 19 percent of survey respondents in 2010 had used Sûr'Eau in the last 24 hours to treat their water, as verified by chlorine residual.

Actual use depended heavily on the caregiver's perceived ease of access to the product. Distribution through the public sector played an important role in ensuring coverage in rural areas and expanded community-based distribution and education through its cadre of CHWs. CHWs were also a crucial factor in promoting self-confidence among potential Sûr'Eau users.

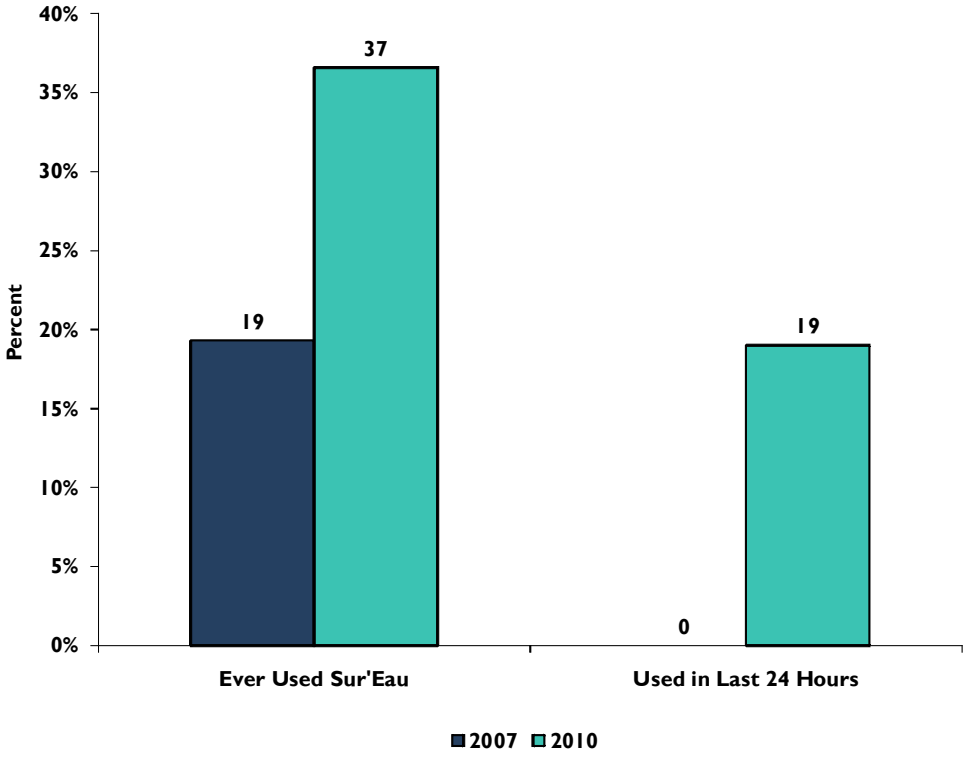
In the two pilot districts where POUZN and Health Systems 20/20 collaborated to promote Sûr'Eau through mutuelles, there were also significant increases in Sûr'Eau use. Self-reported use was 22 percent in pilot districts, versus only 2 percent in the control district, which was not participating in the mutuelle pilot but where Sûr'Eau was available through traditional channels. Similarly, 60 percent of respondents in pilot districts had ever used the product compared with 11 percent in the control district. The most frequent source of Sûr'Eau supply in the pilot districts was CHWs, from whom about two-thirds of users purchased the product.

PSI/Rwanda

Launching Sûr'Eau in Rwanda

Knowledge about diarrhea and how to prevent it also increased significantly due to the POUZN campaign. In 2010, 64 percent of households surveyed had been exposed to diarrhea prevention messages in the last six months. In addition, more than half (53 percent) of surveyed caregivers knew where they could purchase Sûr'Eau, compared with 23 percent in 2007.

FIGURE 10. CURRENT AND EVER USE OF PROMOTED POU PRODUCT IN RWANDA



ZINC COUNTRY PROGRAMS AND ACTIVITIES

BENIN

Benin's POUZN program was an integrated effort to both prevent diarrhea and treat childhood diarrheas when they occurred. This allowed the program to benefit from economies of scale as the team managed both a water disinfection and zinc treatment program. Prior to the commencement of the POUZN project in Benin, zinc was unknown and not available in the country. ORS, under the brand name Orasel, had been marketed for 12 years (1995–2008) by PSI and the 2006 DHS data revealed that awareness of ORS was high with 71 percent of caregivers knowing about oral rehydration. Despite this high knowledge rate, only 23 percent of caregivers actually used ORS when their children had diarrhea. The POUZN program in Benin was implemented between 2008 and 2010.

PROGRAM SNAPSHOT: BENIN

Background	Population: 9.06 million (CIA 2010)
	GNI per capita (purchasing power parity): $1,510 (World Bank 2010)
	UNDP HDI rank: 134/169 (UNDP 2010)
	66 percent of the population is rural (INSEA 2007)
	High infant (78/1,000 live births) and child mortality (123/1,000 live births) (UNICEF 2008).
	13 percent of deaths in children under five are caused by diarrhea (Black 2010).
	Diarrhea prevalence per 2006 DHS was 9 percent.
Partners	MOH
	13 local NGOS, 14 local radio stations
	FECECAM (women's microcredit groups)
Product	OraselZinc: (10 20mg tablets of zinc sulfate and two sachets of orange flavored ORS)
Geographic area	Seven major departments covering 70 percent of Benin's population
Dates of operation	2008–10 (2 years)
Budget	$650,000
Key results	Between 2006 and 2009, ORS use among caregivers of children under five with diarrhea in the past two weeks increased from 23 percent to 40 percent.
	Use of zinc among this population increased from zero in 2006 to 28 percent in rural areas and 34 percent in urban areas (31 percent overall).

POUZN's four major wholesaler partners distributed OraselZinc to:

- 174 urban commercial pharmacies
- 60 rural, commercial pharmacies
- 460 public pharmacies

Introduction of a New Diarrhea Treatment by Capitalizing on ORS Branding: No zinc products were available in Benin in 2007, nor was local manufacturing capacity available. The POUZN project imported zinc from France and added a treatment course of zinc to the three-sachet Orasel package that PSI was already marketing, replacing one of the sachets of the new low-osmolarity ORS with a blister of 10 20mg zinc sulfate tablets. This enhanced diarrhea treatment product, branded OraselZinc, was launched in July 2008 in seven target departments and the capital city of Cotonou. The POUZN

communication campaigns encouraged those who had previously used Orasel to now use OraselZinc to meet the treatment needs of the country during diarrhea seasons. Based on formative research on willingness to pay, as well as price comparisons of other diarrhea treatment products available on the market, the price for OraselZinc at all (public and private) outlets was set at a cost recovery price of FCFA 450 (US$0.90).[5]

Establishing Public-Private Partnerships to Assure Appropriate Distribution Channels: The Benin POUZN program was very much a public-private partnership, with POUZN marketing a diarrhea treatment kit through public sector, commercial, and community channels. The POUZN program built upon the existing PSI distribution system by working actively with the three private pharmacy wholesalers and CAMÉ, the government pharmacy wholesaler, to distribute and market the kit. POUZN also worked with 10 commercial wholesalers that distributed OraselZinc through kiosks, drug vendors, retail shops, and other informal sector sales outlets. In late 2009, POUZN expanded into 12 departments through a partnership with a national women's microcredit group. As of 2010, CAMÉ had purchased half (50 percent) of the OraselZinc stocks, followed by the commercial wholesalers (23 percent), pharmaceutical wholesalers (22 percent), humanitarian institutions (4 percent), and community-based sales channels (less than 2 percent).

Using a Mix of Mass Media and IPC to Promote OraselZinc: Mass media efforts utilized national radio and television networks and 14 community radio partners to reach households living in the target areas. These broadcasts were aired from March to December 2009 and March to December 2010 to coincide with the two diarrhea seasons. In addition, the POUZN team produced a set of promotional and educational materials tailored to local knowledge and literacy levels, for use during community-based IPC activities and at points of sale. The 13 NGO partners were also trained to discuss use of the kit for diarrhea treatment with caregivers during group meetings and while waiting for service at health clinics. The POUZN project trained more than 1,200 community-based agents to educate primarily rural populations about OraselZinc.

Working with Providers to Promote Correct Use of OraselZinc among Caregivers: Working with health care providers is particularly important in the case of OraselZinc, given that caregivers need to know that they should give zinc for the full 10 days, along with ORS for the first two days. The POUZN project realized from the beginning that to succeed it would need to train and provide materials for both public and private providers. POUZN developed a single integrated training manual that addressed both diarrhea prevention through improved sanitation, hygiene, and household water treatment and standard case management for pediatric diarrheas; trained over 400 public sector health clinic workers; and followed up with refresher

POUZN PROVIDES EMERGENCY RESPONSE

In late 2008, the POUZN team worked with the MOH and partner NGOs to address cholera outbreaks and widespread flooding in Benin by coordinating community-based educational activities, doubling mass media messages on diarrhea prevention and treatment, and sharing communications materials including posters and flyers in the most-affected neighborhoods. These efforts strengthened exposure to OraselZinc and positioned POUZN as a leader in diarrhea prevention and treatment in Benin.

[5] This price covers product, management, and packaging costs while affording the wholesalers and vendors a small profit margin. As with other products, promotion, and management costs are not recovered.

Vicki MacDonald

Launching OraselZinc in Benin through community mobilization

training. Pharmacy assistants were trained in 2010 and providers were visited by detailing teams throughout the program to educate them on proper prescription and use.

Key Results: POUZN conducted a household survey in 2009, and mystery client and retail audit surveys in 2009 and 2010. This research found that 53 percent of caregivers with children under five with diarrhea in the past two weeks had treated with either ORS or a recommended home fluid (compared with 30 percent in the 2006 DHS in the same target departments) and 31 percent of caregivers used zinc to treat their child during the episode of diarrhea. Among caregivers using zinc for their children in the past two weeks, rural (28 percent) and urban (34 percent) use dramatically increased from no use in 2006. Of those administering zinc, 88 percent administered it with ORS; 47 percent administered zinc for the full 10 days and 42 percent administered zinc for the full 10 days along with ORS as shown in Table 8.

TABLE 8. DIARRHEA TREATMENT USING ZINC AMONG CHILDREN UNDER FIVE

	Among Children with Diarrhea (percent)	Among Zinc Users (percent)
Treated with zinc	30.9	--
Treated with zinc plus ORS	27.0	87.5
Given zinc for 10 days or more*	14.1	46.6
Treated with zinc for 10 days or more plus ORS*	12.6	42.1
Total number of children	307	103

*Excludes those who had not taken zinc for the full 10 days because the child still had diarrhea.

The survey also examined sources of supply for caregivers who gave their children zinc during their recent bout of diarrhea, since OraselZinc was available through public, private, and other outlets. Primary sources were public health clinics (64 percent), private pharmacies (24 percent), and CHWs

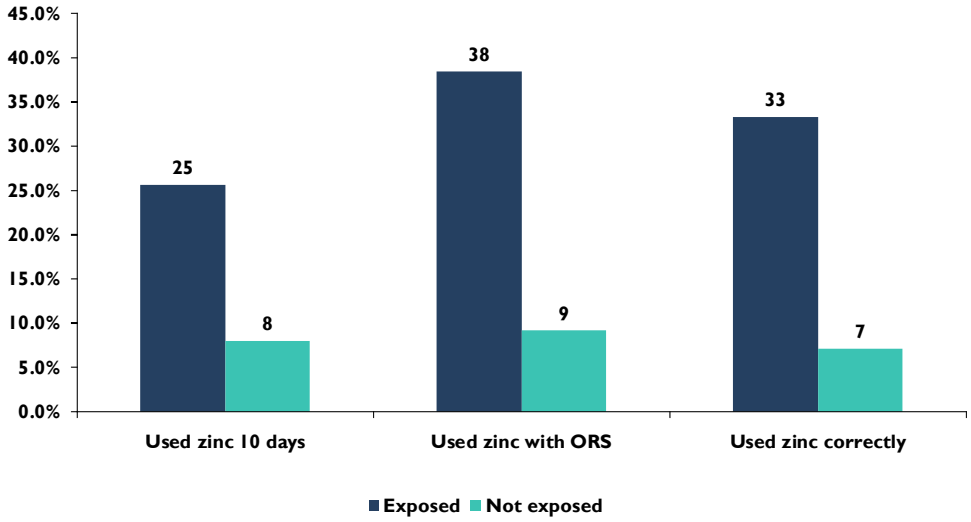
(7 percent). Zinc users chose their zinc sources based primarily on quality of care. As shown in Table 9, poorer segments of the population tended to use public sector sources, while private sources were most commonly reported among wealthier quintiles – although the price of zinc is the same for all, regardless of source.

TABLE 9. SOURCE OF ZINC BY WEALTH DISTRIBUTION OF CAREGIVERS WHO GAVE ZINC TO THEIR CHILDREN WITH DIARRHEA IN THE PAST TWO WEEKS

Caregiver Wealth Quintile	Percentage of Caregivers Who Purchased from Public Sector Source (n=72)	Percentage of Caregivers Who Purchased from Private Sector Source (n=30)
Poorest	49	6
Poorer	19	12
Middle	15	23
Richer	17	33
Richest	0	26

Mass media was an important source of information for caregivers. Respondents whose children had diarrhea in the past two weeks who had seen a message about either zinc for diarrhea treatment or OraselZinc in the past three months were more than twice as likely to know that zinc is an appropriate and/or effective treatment for diarrhea than respondents whose children had diarrhea in the past two weeks who had not seen the same messages. Moreover, 74 percent of households who had heard and could recall a zinc-related message were more likely to correctly use zinc, either by administering along with ORS and/or administering zinc for the full 10 days had administered zinc to their child with diarrhea (versus 22 percent among those not hearing the message) as shown in Figure 11.

FIGURE 11. ZINC USE BEHAVIOR BY RECALL OF "CORRECT USE" MESSAGES



Note: p-values could not be calculated due to small numbers of respondents in strata. "Correct use" messages include (1) zinc should be used with ORS; (2) zinc should be used for 10 days; (3) zinc should be used for 10 days with ORS. The figure shows the proportion of respondents recalling/not recalling each of these specific messages who practiced each message's promoted zinc use behavior.

The May 2010 mystery client survey of 10 rural public health clinics and 10 urban pharmacies trained by POUZN revealed that 96 percent of public clinics recommended zinc but only 28 percent provided full instructions. Seventy percent of the pharmacies recommended zinc, but only after the client requested a less expensive treatment option. In addition to prescribing zinc, 84 percent of public clinics and 52 percent of pharmacies that recommended OraselZinc also recommended an antibiotic or anti-diarrheal.

MADAGASCAR

Madagascar was one of the first countries to revise its IMCI protocols to include ORS and zinc to treat uncomplicated diarrhea and to include zinc on its Essential Medicines List. With USAID's support, public sector programs piloted treating diarrhea with zinc and ORS in 2006. POUZN's private sector zinc program commenced in 2009 and continues in 2010, although civil strife in the country delayed product launch and hampered implementation throughout 2009. POUZN distributed and marketed two pre-packaged diarrhea treatment kits containing two sachets of the new low-osmolarity ORS and a blister of 10 20mg pediatric zinc sulfate tablets – one through commercial channels at full cost recovery and a second, at a subsidized price, through community sales channels.

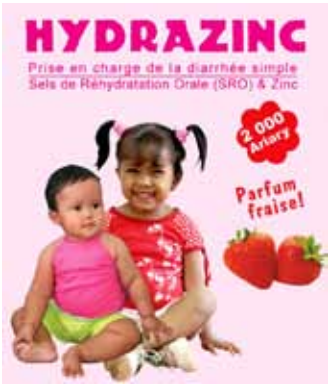
PROGRAM SNAPSHOT: MADAGASCAR

Background	• Population: 21 million (CIA 2010)
	• GNI per capita (purchasing power parity): $1,050 (World Bank 2010)
	• UNDP HID rank (2010): 135/169 countries (UNDP 2010)
	• More than three-quarters of population (76 percent) live in rural areas (INSTAT 2010).
	• Diarrhea prevalence rate for children under five as of 2009 ranged from 2 percent to 18 percent per district (INSTAT 2010)
	• 22 percent of child deaths were caused by diarrhea-related illness (2008) (WHO/CHERG 2010).
Partners	• SanteNet 2 – USAID's bilateral health project
	• Medical Care Development International
	• Catholic Relief Services
	• CARE International
	• Local NGOs: GOLD, Mercy Ministries, ASOS, Population and Environmental Services (PENSER), Voahary Salama, SALFA
	• Madagascar Medical Association (CROM)

Product	• Two diarrhea treatment hits were marketed:
	  • Subsidized ViaSûr
	  • Non-subsidized "premium" HydraZinc project

Geographic area	• Community based: Initially seven districts; scaled to 45
	• Commercial: Nation-wide through distribution to pharmacies
Dates of operation	• 2009–10 (One year)
Budget	• $1.5 million
Key results	• Due to civil unrest, media and travel restrictions and interruptions in importation of OraselZinc, Madagascar achieved low use rates.
	• Zinc use in March 2010 ranged from 2-3 percent in POUZN districts to 12 percent in MOH districts

Introducing zinc through private sector commercial and community-based channels: POUZN implemented a two-pronged program in Madagascar to reach target audiences throughout the country. In April 2009, POUZN introduced a subsidized diarrhea treatment kit, ViaSûr, that contains zinc, orange-flavored ORS, and pictorial/Malagasy instructions for low-literacy target populations. This kit was made available exclusively through rural community-based sales agents, supervised by NGOs, for the subsidized price of 500 ariary (US$0.25).



In June 2009, the POUZN project also introduced its "premium" diarrhea treatment kit, HydraZinc, containing the same zinc sulfate tablets, strawberry-flavored ORS, and pictorial/French instructions, and distributed it nationwide through the commercial pharmaceutical system for sale in pharmacies and rural drug shops at a cost recovery price of 2,000–2,500 ariary (US$1.00–1.25). HydraZinc has been positioned as a more up-scale, premium product and is being promoted through mass media advertising.

The POUZN program was complemented by a public sector program in a majority of health districts throughout the country. Prior to the political crises in January 2009, the Ministry of Health and Family Planning had been moving forward with an aggressive plan to train their health clinic staff in the new standard management for childhood diarrhea using the new low-osmolarity ORS and zinc. By 2010, they had reached half of the health centers in 90 of the 111 health districts of Madagascar.

Promoting Improved Diarrhea Treatment Behaviors: POUZN developed separate messages to educate providers and caregivers for the appropriate use of ORS and zinc.

The POUZN team distributed ViaSûr exclusively through NGOs and their community-based distributors in 225 priority communes in partnership with USAID's bilateral project, SantéNet2, and a number of international and local NGOs. POUZN developed counseling card/treatment guides and trained community-based distributors, supervised by the NGOs, to both sell the kit and promote its use along with disseminating hygiene, sanitation, and child survival messages. These activities were supplemented by mobile rural video unit teams. As part of the market segmentation strategy, ViaSûr was not advertised via national media, but via local radio and interpersonal channels only.

HydraZinc was made available in the majority of pharmacies throughout the country. This kit was advertised through mass media, which emphasized correct use of the product with ORS, via broadcasts on public and private radio and television stations. Sales increased considerably as soon as television advertising was permitted. Other communication materials for HydraZinc

focused on point-of-sale promotional materials, detailing, and promotion with medical doctors and pharmacists, encouraging them to include HydraZinc in prescriptions for diarrhea treatment. In the absence of mass media promotion during the first several months of HydraZinc availability, mini-launches with regional units of the Madagascar Medical Association were conducted to create demand for the products.

Challenges: The Madagascar program was delayed by the political and civil unrest, delays in receipt of ORS supplies during both diarrhea seasons, and restrictions on advertising via national television and radio channels during 2009.

Key Results: In March 2010, POUZN conducted its end-line evaluation, through qualitative research, a mystery client survey, and a quantitative household survey to examine program impact on diarrhea treatment practices, message recall, perceptions, and knowledge. The evaluation found that the program constraints had indeed slowed uptake of ORS and zinc. By the end of the 2009–10 diarrhea season in March 2010, zinc use in the sampled districts was low, ranging from 2 percent to 3 percent in the POUZN and control districts to 12 percent in the MOH districts. Public sector clinics and CHWs were the major sources of zinc: 69 percent of zinc users obtained zinc supplies from a public sector source; 31 percent obtained zinc from private sector sources (pharmacy, drug shop, private clinic, or CHW). ViaSûr kits were not yet extensively available in the target rural communities or drug shops although HydraZinc was reportedly available in 90 percent of pharmacies. Very few caregivers (3 percent) in all surveyed districts reported that they were advised to use zinc when they sought treatment outside of the home.

Few caregivers had any knowledge of zinc or of the diarrhea treatment kits. Only 23 percent of caregivers had heard any message on diarrhea treatment over the past three months; only 8 percent had heard about ORS; and just 2 percent had heard about zinc or the kits.

NEPAL

The POUZN program in Nepal was the project's first diarrhea treatment program. Nepal's Ministry of Health and Population in 2004 became one of the first in the world to create a Zinc Task Force and prepare stakeholders for the introduction of zinc in line with the new WHO/UNICEF recommendations, requesting assistance of USAID to help them develop both a public and private sector approach to introduce zinc as the standard treatment. The POUZN program began in early 2007 in the three districts of the Kathmandu Valley and by 2008 had been scaled up to a national program active in 30 of Nepal's 75 districts.

PROGRAM SNAPSHOT: NEPAL

Background (Note: source is MOPH 2007 unless otherwise noted)	• Population: 28.95 million (CIA 2010
	• GNI per capita (purchasing power parity): $1,180 (World Bank 2010)
	• UNDP HDI rank: 138/162 countries (UNDP 2010)
	• 12 percent of children under five experienced diarrhea in the two weeks prior to the NDHS survey.
	• Diarrhea prevalence: 12 percent overall but 22.6 percent of children 6-11 months, and 20 percent in children 1-2 years.
	• 15 percent of mortality in children under five due to diarrhea (Black 2010)
Partners	• MOH Child Health Division
	• Deurali-Janti Pharmaceuticals Pvt. Ltd. (DJPL)
	• CTL Pharmaceuticals Pvt. Ltd. (CTL)
	• Nepal Pharmaceuticals Laboratory Pvt. Ltd. (NPL)
	• U.S. Pharmacopeia, drug standards organization
Product	• Local zinc products were marketed as ZINC DT 10/20, Zincova 20 and Z-Dis-10/20.
	• As ORS was already well known and available, co-packaging was not needed.
Geographic Area	• 30 districts (approximately 65 percent of the population)
Dates of Operation	• 2006-2008 (2 years)
Budget	• $950,000
Key Results	• An informal PSI retail survey found that 75 percent of the outlets in the target districts carried zinc.
	• Zinc use among caregivers for pediatric diarrheal treatment rose from 0.4 percent in 2006 to 15.4 percent in 2008. *
	• Private chemists and clinics were the main source of zinc (58 percent) followed by public clinics/hospitals (47 percent) and community health volunteers (15 percent)

* POUZN Household survey. August-September 2008. (n=3,550 households) in 30 target districts.

Creating a Sustainable Zinc Market by Partnering with Local Manufacturers: Prior to POUZN's launch, zinc was virtually unknown outside of five small pilot public sector efforts and no zinc was available from external sources or local manufacturers. Both the public sector and POUZN had planned to distribute imported zinc tablets. However, meetings with local manufacturers and the Department of Drug Administration during the initial program assessment revealed that there was already a commitment to and an interest by local firms in manufacturing a dispersible tablet in Nepal. As a result,

Nepal diarrhea treatment poster.

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. By August 2007, all three firms had produced, registered, and begun distribution of five sulfate-based zinc products. The local firms set the prices of their products ranging form $US 0.19 to $0.50 and distributed them through their regular wholesale and retail channels. These zinc products are now available in private sector chemist shops in more than 30 major urban and peri-urban districts of Nepal, making zinc accessible to 65 percent of the Nepalese population.

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, the U.S. drug standards organization. U.S. Pharmacopeia laboratories tested and ensured the quality of all five zinc sulfate products and then provided technical assistance to the Nepalese firms on how to attain international Good Manufacturing Practices certification.

Product Promotion - Encouraging the Use of Zinc and ORS Together: POUZN's promotional material stressed the message of appropriate use of ORS and zinc, and emphasized that pills, syrups, antibiotics and anti-diarrheals were not appropriate for uncomplicated cases of diarrhea. POUZN aired these messages on local and national radio and television stations with advertising frequency increasing during the high diarrheal season.

Printed promotional materials included a consumer-tested generic campaign logo, posters, flyers, billboards, and job aids for hospitals and clinics, encouraging the use of zinc and ORS treatment together to promote healthy children. The public sector in the meantime incorporated ORS and zinc for diarrheal treatment into its IMCI strategy.

As both public and private providers were in the habit of prescribing inappropriate diarrheal treatments, provider education was key. PSI therefore trained 2,243 public sector health staff and 5,800 private sector chemists on the new protocols and introduced to them the new locally manufactured products.

K.P. Upadhyay

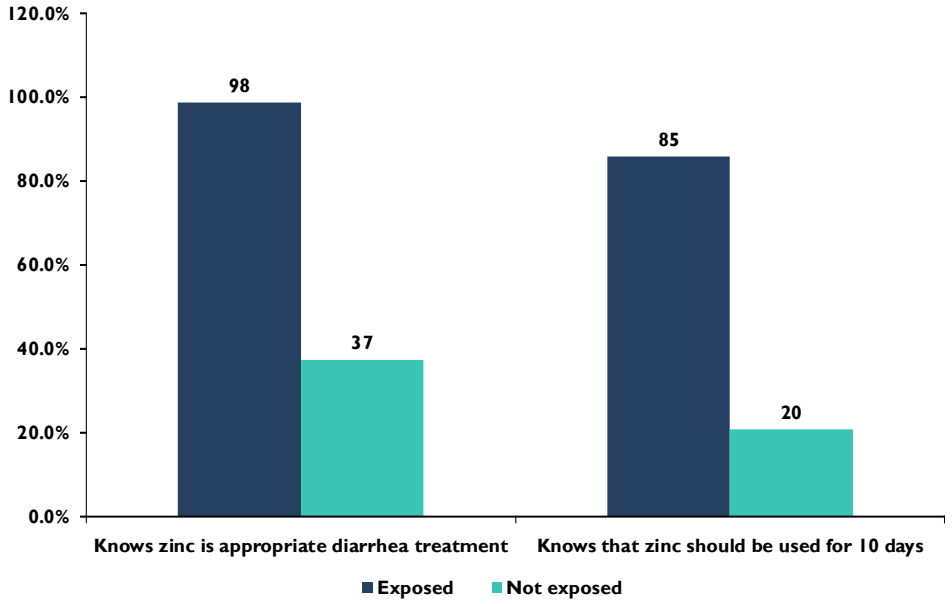
Survey research teams collect zinc use data in Nepal

Key Results: The POUZN program in Nepal began in three Kathmandu Valley districts in 2007 and was active nationwide for one diarrhea season (2008). The program 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.

In September 2008, POUZN conducted a mystery client study of 114 chemists in Kathmandu. It found that 97 percent of chemists provided counseling, yet 82 percent recommended an anti-diarrheal, 63 percent prescribed ORS, 31 percent recommended zinc, 10 percent provided another pill/syrup, and 3 percent gave an antibiotic. Only 10 percent recommended either zinc or zinc and ORS alone (without accompanying treatments). The biggest challenge was the perception that zinc was not as effective as an anti-diarrheal because it did not immediately stop diarrhea.

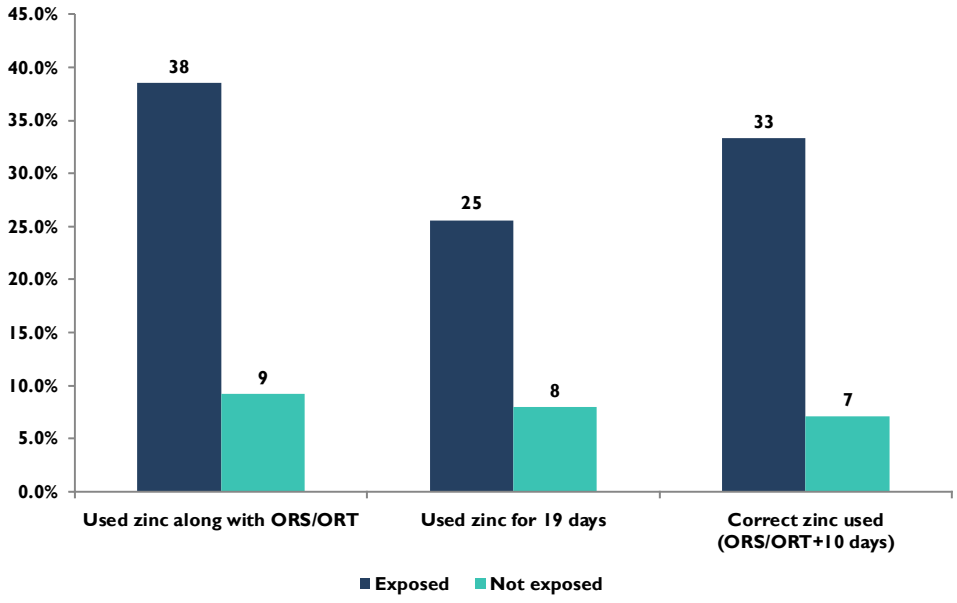
Product promotion was integral to increasing consumer use of zinc. In the household survey of September 2008, 98 percent of those exposed to any type of zinc message (from any source) said they would use zinc for acute and persistent diarrhea versus 37 percent of those not exposed to a message. Those who had been exposed to messages about zinc were four times as likely to know that zinc should be used for 10 days than those who had not heard about zinc (Figure 12).

FIGURE 12. KNOWLEDGE OF ZINC ASSOCIATED WITH MESSAGE EXPOSURE



Moreover, those who could recall a specific use instruction message were much more likely to have followed the instructions in that message to use zinc correctly as shown in Figure 13.

FIGURE 13. CORRECT ZINC USE BY MESSAGE EXPOSURE/RECALL



PAKISTAN

The private sector plays an important role in diarrhea care and management for children under five in Pakistan, with the majority of caregivers seeking care from either a trained provider in their community or a local Lady Health Worker (LHW) rather than going directly to a pharmacist to request advice or medication. POUZN was invited to Pakistan in 2009 to conduct an assessment of the potential for USAID to support a diarrhea treatment program with zinc. The assessment team found a vibrant emerging market for zinc products and in 2010 implemented a program to create demand for those zinc products through consumer education via generic mass media campaigns and provider education via information sessions conducted by provider associations in seven districts located in the Punjab and Sindh regions of Pakistan.

PROGRAM SNAPSHOT: PAKISTAN

Background (Note: source is NIPS 2008 unless otherwise noted)	• Population: 184.40 million (CIA 2010)
	• GNI per capita (purchasing power parity): $2,710 (World Bank 2010)
	• UNDP HDI rank: 125/169 (UNDP 2010)
	• 24 percent of the population lives below the poverty line (2005/06) (CIA 2010).
	• Mortality rate in children under five: 89 per 1,000 live births.
	• Diarrheal diseases account for 16 percent of deaths in children under five (Black 2010).
	• Diarrhea prevalence was 22 percent for all children under five, with prevalence rate highest among children ages 6-11 months.
Partners	• ATCO Laboratories Ltd
	• ZAFA Pharmaceutical Laboratories (Pvt) Ltd.
	• Genix Pharma (Pvt) Ltd.
	• Macter International (Pvt) Ltd.
	• Interflow Communications Ltd.
	• Pakistan Pediatric and Medical Associations
	• Aga Khan University (evaluation research)
Geographic area	• Seven target districts representing 11 percent of the total population
Dates of operation	• 2010 (1 year)
Budget	• $600,000
Key results	• Over 1.6 million treatments sold during 2010

Creating Vibrant Partnerships with Pakistani Pharmaceutical Firms: POUZN efforts were focused on expanding and increasing the market for zinc products, working initially with two pharmaceutical manufacturers, ATCO Laboratories and ZAFA Pharmaceuticals. Over time, two additional firms entered the pediatric zinc market with quality products. Each of these four firms has an extensive network of distributors located in every province, reaching all but the most remote districts of Pakistan. In addition, these manufacturers maintain a detailing/sales force that specifically promotes child health products including zinc.

Anjum Kazmi

Pharmaceutical partner, Macter, showcases pediatric zinc products at marketing events in Pakistan.

POUZN not only implemented a demand creation campaign, described below, to increase sales but also initiated financial partnerships with each of these highly motivated pharmaceutical partners to encourage them to expand their own marketing and detailing efforts in the pilot districts during the 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 posters, and production of other detailing materials, were implemented by three of the firms.

Demand Creation through Mass Media and Provider Education:

Provider education was an important facet of the program. Given that fact that the majority of caregivers seek diarrhea treatment advice from a provider, 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 over 2,000 professional health care providers about the new protocols for management of diarrhea.

Pakistan diarrhea treatment promotional poster.

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 create a media campaign. Based on formative research with both target consumers and providers from the

selected districts, Interflow designed a logo, posters, and print materials; created a television commercial and a number of radio spots; and developed billboards and rickshaw advertisements. Interflow also developed a mobile video unit presentation, brochures, posters and other IEC materials for use by providers and LHWs. The latter initiative complemented the MOH's initiative which supplied zinc syrup to LHWs to promote product among caregivers in urban slums and rural areas.

Emergency response: In August 2010 torrential rains resulted in widespread flooding in Pakistan, displacement of families, massive crop destruction, and 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 and Interflow 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 PUR, which is particularly suited to the treatment of turbid water caused by the floods, via the vans in order to prevent further outbreaks of acute watery diarrhea.

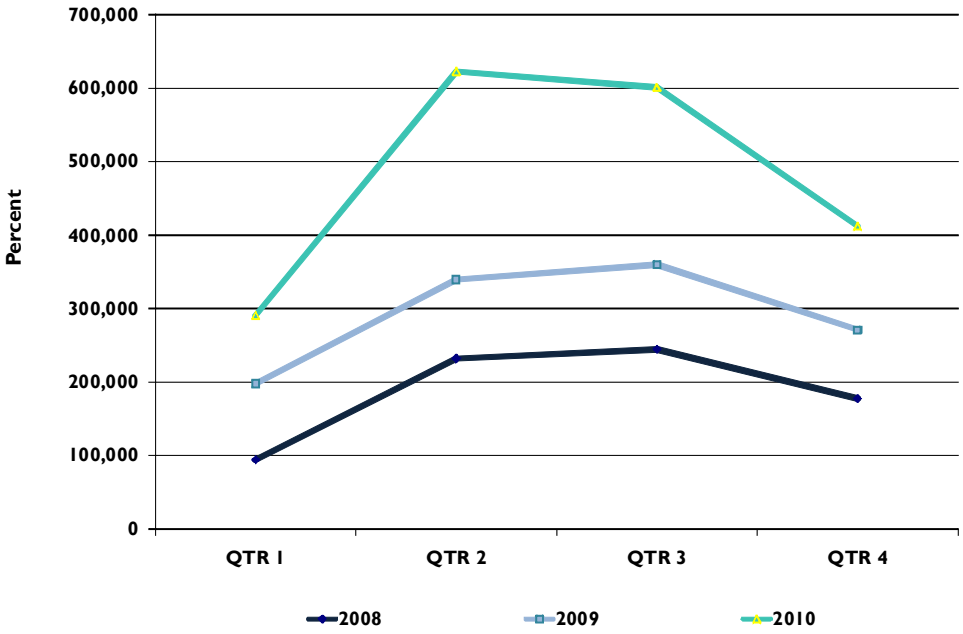
Key Results: The Aga Khan University conducted a baseline survey in July 2010 and an endline survey in late September 2010 in four intervention and four comparison districts in the target provinces which were matched on a set of socio-economic criteria .The survey found at both points in time that almost all respondents (92-97 percent) knew that diarrhea was caused by unsafe water, unhygienic food, or lack of cleanliness and that children should be treated for diarrhea. The majority of caregivers sought advice or treatment outside of the home for the diarrhea episode, primarily from health clinics (80-91 percent). 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: over 47 percent treated with ORS, 17-22 percent treated with an antibiotic; about 36 percent of respondents in both sets of districts at baseline and 47 percent of respondents at end line used an antimicrobial. Treatments were obtained primarily from private pharmacies or private health providers, with Lady Health Workers a more important source at baseline.

[7] Qualitative research confirmed that caregivers prefer ORS over home-prepared fluids. According to respondents, ORS is readily available in the bazaar and easy, neat, and hygienic to prepare.

[8] According to in-depth interviews with physicians, 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.

In spite of the low use rates noted in the survey results in the pilot districts, sales of zinc products nationally increased considerably. Figure 14 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%. Between 2009 and 2010, during the same period, sales increased 75%. In terms of units, 1.93 million pediatric zinc treatments were sold. POUZN's four pharmaceutical partners realized sales of over 1.6 million zinc treatments in 2010.

FIGURE 14. SALES OF ZINC PRODUCTS IN PAKISTAN 2008-2010



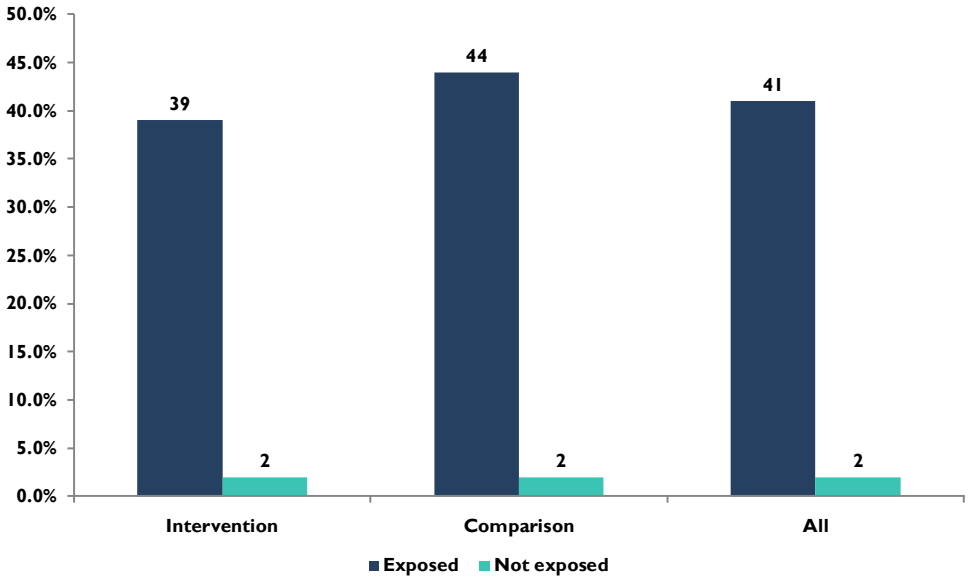
Source: IMS Retail Audit Data.

During the baseline, no respondents could recall a zinc-related message. When questioned about exposure to a zinc messages at the endline, 10 percent in the invention districts and 7.3 percent of respondents in control districts had heard a message or received information about zinc for diarrhea. 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 end line. Doctors were an important source of zinc information in both intervention and comparison districts but were the most important source of information in comparison districts. 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, zinc users were twenty times more likely to have heard a message about using zinc for diarrhea treatment than to have heard no message (Figure 15). While we cannot conclusively state that exposure to the messages led to zinc use, we do note that zinc use in both intervention and control districts was highly associated with exposure to a zinc related message. Television messages were broadcast throughout both Sindh and Punjab regions and thus reached comparison districts as well. POUZN contracted with both the Pakistan Medical and Pediatric Associations to conduct medical education sessions for doctors 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 control districts were familiar with zinc and had begun to prescribe zinc with ORS.

FIGURE 15. ZINC USE BEHAVIOR BY EXPOSURE TO GENERAL MESSAGE ABOUT ZINC



TECHNICAL ASSISTANCE TO POU AND ZINC PROGRAMS

The POUZN project also provided technical assistance to four zinc or POU programs as described below:

ANGOLA

To address a growing need for safe water in Angola, POUZN added its support to Exxon-Mobile and USAID to permit PSI to launch a pilot safe water program in Luanda. The objectives of the program were to introduce a household drinking water treatment product at a price affordable for low-income families as well as to aid in the prevention of cholera by targeting cholera-prone municipalities. POUZN provided support to the PSI team, allowing them to develop a behavioral change communication program; a brand name, packaging, and tagline for the safe water system product, Certeza; and register the product with the Angola MOH. In April 2008, POUZN launched Certeza in Luanda at pharmacies and retail outlets that already carried other PSI products. Radio and billboard communications on household water treatment and hygiene promotion began in June 2008 and supported the strong uptake of Certeza. Sales teams then organized two weeks of community launch events at local markets in the target municipalities to raise recognition of the new product, initiated theater events, distributed pamphlets with messages on safe water, and initiated marketing to consumers.

BANGLADESH

In Bangladesh, POUZN worked with the Social Marketing Company (SMC), a large and well established social marketing organization, to introduce and market Aquatabs in partnership with Medentech. POUZN funding supported market research to determine Aquatab's acceptability and market potential. POUZN commissioned SMC to carry out a qualitative Knowledge, Attitudes, Perceptions, and Practice study on drinking water and water purifying tablets. This study was conducted with 26 focus groups to determine conceptual product acceptability and reactions to product features, positioning and price, and communication approaches. A household survey among 1,200 women in six urban and rural districts covering a range of socio-economic groups was also conduct to assess acceptability and adherence of water purifying tablets, while obtaining insights on willingness to use, willingness to pay, and suggested distribution channels for Aquatabs. The POUZN program in Bangladesh did not progress beyond the formative research stage due to issues with non-pharmaceutical registration status with the government of Bangladesh. Efforts to register the product in Bangladesh for over-the-counter sales continue.

CAMBODIA

In March 2006, the Cambodian MOH and PSI, in coordination with WHO and with financial support from USAID, launched a demonstration project to introduce a diarrhea treatment kit, containing both ORS and zinc, branded as

OraselKIT®, in selected districts of two provinces of Cambodia. In February 2007, POUZN staff, together with USAID and WHO, evaluated that pilot and prepared a report detailing the results and lessons learned.

Key findings from the end-line evaluation: From March to December 2006, sales of the OraselKIT doubled expectations (reaching 33,000). These sales suggested an affordable price and strong promotional angle. Co-packaging of the ORS and zinc was a preferred method among households and providers interviewed, given the lack of high quality ORS on the market, and low awareness of zinc. Product promotion and distribution through the village promoters was seen as a successful mode of reaching impoverished households, and the mass media campaigns were seen as successful and complementary modes of behavior change communication that helped boost sales and knowledge. The high demand however also caused stock-outs, which interrupted supply and resulted in rationing of the product. The evaluation also revealed continued reliance among providers on inappropriate treatments such as antibiotics and anti-diarrheals, despite the program's efforts to train and advertise the OraselKit's unique benefits.

SENEGAL

In 2009, Senegal's Agence pour le Développement du Marketing Social (ADEMAS), a local nonprofit social marketing agency, was searching for a means of enhancing its sustainability as an organization through diversifying its product mix by potentially adding a health product. At the same time, Medentech was seeking to enter the Senegalese market with its water treatment product, Aquatabs. The POUZN program worked with both ADEMAS and Medentech, conducting a market feasibility assessment for Aquatabs and evaluating the capacity of ADEMAS to serve as the social marketing intermediary, working through its partner Valdafrique, to import and introduce Aquatabs on a viable commercial basis in Senegal. The POUZN team interviewed a wide range of stakeholders from 15 nonprofit, commercial, and public agencies to assess product need, challenges for marketing, distribution and scale, and opportunities to incorporate Aquatabs into water, hygiene, sanitation, and health sectors. As a result of the technical assistance and initial purchase of Aquatabs by POUZN to initialize a revolving fund, ADEMAS successfully launched Aquatabs into the Senegalese market in February 2010. Since the launch, ADEMAS has established partnerships with a broad spectrum of public, private, and civil society organizations, women's and youth groups and schools. ADEMAS has trained over 850 promoters, health agents, and government representatives on the benefits and use of Aquatabs and sold 1,540,850 tablets (enough to treat over 30 million liters of water).

LESSONS LEARNED IN THE IMPLEMENTATION OF POINT-OF-USE WATER DISINFECTION PROGRAMS

Partnering with the public sector for promotion and distribution is a promising extension of social marketing. Making the product available at the public clinics and ensuring it is distributed by MOH-affiliated CHWs has contributed to increased access and use. Training CHWs to promote water purification while disseminating correct messaging built a sense of trust in the product, and caregivers used it to treat their water at home.

A combination of IPC and mass communication are essential for encouraging correct POU use behaviors. Water treatment behaviors are relatively complex and require the consumer to correctly mix the treatment into the water, safely store the water, and perform these behaviors on a consistent and correct basis. Mass media communications generate awareness on a broad, national scale with short radio and television broadcasts, while IPC reaches communities on a more individual level to tackle the barriers to adopting correct POU practices, build confidence in the individual's ability to correctly perform the behaviors, and provide evidence of social/community support – from a trusted community source.

A cost-effective method for implementing IPC is to integrate POU into other community-based health programs. Training of community-based volunteers (e.g., youth groups, CBOs) in outreach techniques builds capacity in communities that can be leveraged for safe water outreach activities by other organizations as well by other health areas, such as promoting nutrition, and breastfeeding. The integration of community-based distribution through the mutuelles de santé system in Rwanda was among the most effective initiatives within the POUZN program. There are often only marginal additional costs to integrate POU into existing health activities such as malaria prevention promotion and Child Health Weeks.

Increasing awareness of the need for household water disinfection and increasing trial use of POU products can be accomplished in a relatively short period of time. In most POUZN programs both trial and current use rates significantly increased within two years. Knowledge of water treatment products led to increased trial use rates: from 0 percent to 12 percent nationwide in Benin, from 5 percent to 32 percent in the South Kivu province in DRC, from 30 percent to 45 percent in a mature program in Kenya, and from 19 percent to 37 percent in a revitalized program in Rwanda. Current use rates similarly increased to 6 percent in Benin, 14 percent in DRC, 28 percent in Kenya, and 21 percent in Rwanda.

The gap between trial and current use of POU water treatment products is large and needs to be the focus of programs going forward. In all programs, ever use far outpaced current use of treatment products. Additional research needs to be undertaken to better understand consumer behaviors relating to trial use and sustained use.

LESSONS LEARNED IN THE IMPLEMENTATION OF DIARRHEA TREATMENT PROGRAMS WITH ZINC AND ORS

Zinc treatment programs in resource-constrained countries where health care is sought primarily from public sector clinics are most effective when public and private sector programs are coordinated and the relationship between the public and private sectors is collaborative. POUZN worked closely and collaboratively with the public sector in all of its zinc programs, but this was particularly critical in countries where the public sector was the primary source of care (Benin and Madagascar). Engaging the public sector in Benin was essential to high use rates. Given the tendency of caregivers in Africa to seek both advice and treatment from public sector sources, this partnership has proven critical to providing access to zinc. In countries where the public sector is a major source of care, it is unlikely that high zinc use rates can be achieved through a private sector program alone.

Zinc promotion through mass media is essential to creating awareness of, demand for, and correct use of previously unknown products. Radio and television advertising created awareness that zinc is an appropriate diarrhea treatment. Survey results confirmed that those persons who recalled either a generic or brand-specific message were more likely to know that zinc is an appropriate and/or effective treatment for diarrhea. Caregivers who had heard and could recall a specific message related to correct use of zinc were also more likely to have used zinc correctly than those who had heard about zinc from another source.

In countries with a pharmaceutical industry, local manufacturing of zinc is both feasible and possible in a relatively short time frame. POUZN successfully worked with three pharmaceutical firms in Nepal to

bring pediatric zinc to the marketplace and partnered with an additional four in Pakistan to expand their own production, distribution, and marketing efforts. These manufacturers saw the long-term potential market for pediatric zinc and realized that their own ministries of health were committed to promoting zinc (and ORS) as the preferred treatment for pediatric diarrhea. With the encouragement of POUZN, these firms made a commitment to provide a quality product at an affordable price.

Even when not co-packaged, zinc has not substituted for ORS. POUZN messages have reinforced this correct behavior by instructing caregivers to use ORS and zinc tablets together and focusing marketing messages on the joint use of the products in all countries.

Given the high cost of packaging, ORS and zinc should be co-marketed but not necessarily co-packaged unless there is no ORS available on the market or very low use of ORS. In all of the POUZN programs, whether the products were packaged together or separately, a high percentage of zinc users also used ORS. Despite low ORS use overall, most zinc users in Madagascar also used ORS, leading one to believe that packaging ORS with the zinc in traditionally low ORS use areas may be an appropriate approach to increasing overall ORS use rates.

Changing provider behaviors remains a major challenge. One of the most difficult behaviors to change is that of both public and private sector providers' tendency to continue to recommend antibiotics and anti-diarrheals in the face of new treatment guidance and specific training on the subject of diarrhea management with zinc. Additional attention needs to be paid to providers through refresher training and to pharmacy personnel through either detailing or the provision of other incentives (such as increasing the retail margin on zinc product sales to make it more profitable a product when compared to anti-diarrheals) to encourage them to prescribe zinc.

Caregiver compliance with the 10-day zinc regimen continues to be a behavioral challenge. Convincing caregivers to continue to give the zinc after the ORS treatments are finished and the child's health has improved remains a major challenge. Caregivers appear to be administering the zinc correctly with ORS, but are not continuing to administer zinc for the full 10 days. It is apparent that changing this behavior will take more focused effort — through mass media messaging, interpersonal messaging, and 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 through the recommended 10 days.

CONCLUSIONS

By increasing access to POU and zinc products and increasing exposure to key messages, it is possible to significantly increase uptake of POU water disinfection and diarrhea treatment products.

Program design needs to be adapted to local context. In many countries in Africa, both health care and related advice on treatment is sought primarily from the public sector. In the POUZN project, public sector sales channels were an important access point for water treatment products as well as diarrhea-related advice and treatment. Therefore, a coordinated public/private sector program is more effective than a program focusing on the private sector alone.

After five years of program implementation, all of the POUZN programs are continuing to be funded through USAID-financed bilateral projects or other agreements with local cooperating agencies. Building on an existing social marketing platform allowed for relatively fast scale-up for relatively small investment of $200-300,000 a year. It is clear that liquid and tablet chlorine-based water treatment products as well as pediatric zinc tablets and syrups, along with ORS, can be offered at non-subsidized prices that are affordable. When the right conditions exist, scale-up in the private sector can be achieved in a relatively short time.

Behavior change is the most critical element. Both mass media communications and IPC are essential to raising awareness of and encouraging correct and consistent use of the products. Mass media communications generate awareness on a broad, national scale, while IPC reaches communities on a more individual level to tackle the barriers to adopting new practices. The

influence of community resources (family, friends, and neighbors) should not be underestimated – particularly in rural areas. Information about diarrhea prevention and treatment products was frequently obtained from family or friends, indicating the diffusion effects of the many sensitization sessions of partner NGOs and the need for effective community-based IPC and correct information, particularly in rural areas where television and/or radio ownership is low or non-existent.

Evaluation research is critical to monitor program success and to draw lessons to guide future program design. Particularly for zinc, which is a new treatment protocol, research results have been essential to understanding motivators and barriers to progress in promoting these new behaviors.

Vicki MacDonald

School demonstrations bring Aquatabs water treatment knowledge into homes in Benin.

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