

CASES

PROCEEDINGS

IN PUBLIC HEALTH
COMMUNICATION & MARKETING

Volume IV

Improving Child Health in Cambodia: Social Marketing of Diarrhea Treatment Kit, Results of a Pilot Project

Dan Borapich
Mary Warsh

PSI/Cambodia

Corresponding Author:

Dan Borapich and Mary Warsh: PSI/Cambodia, No. 29 334 Street, Boeung
Keng Kang, Khan Chamcar Mon, Phnom Penh, Cambodia. Email: dborapich@
psi.org.kh and mwarsh@psi.org.kh.

Suggested Citation: Borapich D; Warsh M. Improving Child Health in Cambodia: Social Marketing of Diarrhea Treatment Kit, Results of a Pilot Project. *Cases in Public Health Communication & Marketing*. 2010; 4:4-22. Available from: www.casesjournal.org/volume4.

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Peer-Reviewed Case Study

Abstract

Diarrhea is one of the leading killers of children under five in Cambodia. The recommended first line of treatment for diarrhea is oral rehydration salts (ORS) and therapeutic doses of zinc. However, only 21% of Cambodian children receive treatment with ORS; zinc was not available prior to 2006. PSI/Cambodia implemented a pilot project to promote and distribute a diarrhea treatment kit (DTK) branded OraselKIT® including both ORS and zinc. The project was launched in 2006 in selected districts of Siem Reap and Pursat with support from the WHO and funding from United States Agency for International Development (USAID). The product was distributed through commercial retail, village shopkeeper networks, and community health workers. A communication campaign targeted caregivers of children under five, promoting OraselKIT and its use through mass media, a mobile video unit, interpersonal communication (IPC) and promotional materials. Evaluations of the project suggested high level support and satisfaction with the DTK from stakeholders, providers and caregivers. Overall, use of ORS and associated diarrhea treatment behaviors increased over time, and ORS and zinc recognition and ORS use were higher among implementation (DTK) villages than comparison villages. The pilot project demonstrated that a DTK is an acceptable product to caregivers, that diverse communication approaches can increase awareness and use of the product, and that using private provider networks can successfully improve availability of the product. More education and policy enforcement is needed to discourage ineffective alternative diarrhea treatments and more research should be conducted to monitor trends in DTK use and the DTK's effect on the total market.

Introduction

Diarrhea is one of the leading killers of children worldwide, accounting for 16% of deaths of children under five (World Health Organization [WHO], 2008). In Cambodia, diarrhea is the third leading cause of mortality for children under the age of five following neonatal causes and pneumonia (WHO, 2006).

As the majority of childhood deaths from diarrhea are due to dehydration, diarrhea treatment programs have emphasized oral rehydration treatment (ORT), either home-made solution and oral rehydration salts (ORS), accompanying continued feeding and fluid provision as the first line of care for diarrhea (WHO, 2004). Recent studies have demonstrated the efficacy of zinc in reducing the severity and duration of diarrhea (Zinc Investigators' Collaborative Group, 2000).

In 2004, the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) published a Joint Statement that recommended use of a new formulation of ORS with lower osmolarity coupled

with therapeutic doses of zinc. The Cambodian Ministry of Health (MOH) and Population Services International (PSI)/Cambodia subsequently combined efforts to introduce the new low-osmolarity ORS and zinc in the private sector.

In March 2006, the MOH and PSI launched a pilot project to introduce the first commercially available diarrhea treatment kit (two sachets of ORS and 10 zinc tablets) under the brand name OraselKIT®, with the assistance of the WHO and with funding from the USAID.

The goal of the pilot project was to improve child health in Cambodia by reducing the incidence and severity of childhood diarrhea. The objectives of the project were:

- to introduce DTK;
- to increase access to DTK; and
- to improve knowledge, attitudes and practices for appropriate home management of childhood diarrhea among caregivers of children under five.

Background

The Kingdom of Cambodia has an estimated population of 13.09 million (National Institute of Statistics, 2004). The majority of Cambodians live in rural areas, and more than a third live below the poverty line (National Institute of Statistics, 2004).

Cambodia's child mortality ranks among the highest in Southeast Asia with an under five mortality rate at 83 per 1,000 live births (Cambodia Demographic and Health Survey (CDHS), 2005). Limited access to safe water and poor hygiene contribute to child morbidity and mortality—only 53% of rural families have access to safe drinking water (National Report on Final Census Results, 2008). Diarrhea is responsible for 17% of deaths of children under the age of five (WHO, 2006). The Demographic and Health Survey conducted in 2005 indicated that one in five children under the age of five had diarrhea in the two weeks preceding the survey (CDHS, 2005). The problem appears to be worsening as the prevalence of diarrhea in children under 5 has increased to from 22% in 2005 to nearly 30% in 2008 (Cambodia Anthropometrics Survey, 2005 and 2008).

The current WHO recommendations for diarrhea treatment is low-osmolarity ORS coupled with continued feeding and fluid provision plus the use of therapeutic zinc (WHO/UNICEF, 2004). Low-osmolarity ORS has a lower level of salt and glucose than previous versions of ORS, which reduces stool output, vomiting, and the likelihood of hospital admission due to dehydration (WHO/UNICEF, 2006). Clinical trials have shown that the use of zinc reduces the

duration of diarrhea by 25-29%, the severity of diarrhea (frequency and stool output), and mortality by 40% (Zinc Investigators' Collaborative Group, 2000). Completing a full course of zinc (10-14 days) also reduces the likelihood of another diarrheal episode within the 2-3 months following treatment (Zinc Investigators' Collaborative Group, 2000).

The majority of Cambodia children do not receive appropriate first line treatment for diarrhea. Of children under five who had diarrhea in the two weeks preceding the DHS survey, just 21% were given ORS, 36% received recommended fluids (ORS and/or homemade rehydration fluids) and just over half received increased fluids of any kind. Many children received inappropriate treatments: 63.1% were treated with pills or syrups (CDHS, 2005). Of those who went to private sector providers, 42% were given antibiotics and 25% were given an injection. Those seeking care in the public clinics were treated with intravenous fluids 25% of the time (CDHS, 2005). Most providers advised caregivers to treat simple diarrhea with anti-diarrheals or antibiotics, neither of which are recommended (RPM Plus, 2004).

Compounding the issue of inappropriate recommendations for care was a structural absence of ORS in the private sector prior to 2006. There was no consistent commercial supply, and most ORS in the private sector was leaked from the public sector. This was of particular concern as available data suggests that the majority of the population seeks care from for-profit private providers

who may or may not be licensed medical providers (RPM Plus, 2004).

PSI began working in Cambodia in 1993 and has successfully social marketed a number of health products over the past 14 years. PSI/Cambodia and the MOH jointly decided to address the gaps in appropriate diarrhea treatment by launching a diarrhea treatment kit (DTK), a prepackaged product consisting of two sachets of low-osmolarity ORS and 10 tablets of zinc sulfate. PSI received funding from USAID and support

from WHO to pilot the social marketing of a DTK.

PSI/Cambodia selected Siem Reap and Pursat as the targeted provinces for the pilot due to their higher mortality rates for children under five (94 per 1,000 and 106 per 1,000, for Siem Reap and Pursat, respectively) and correspondingly low rates of ORT use (among children under five with diarrhea in the two weeks preceding the survey, just 12.2% in Siem Reap and 9.3% in Pursat received ORT) (CDHS, 2005).

Methods

PSI/Cambodia's programmatic approach included: developing and branding the DTK (**product**), setting the retail (**price**), ensuring the availability of the product through mobilizing the private sector distribution networks (**place**), and conducting communication campaigns (**promotion**) – the four

P's of social marketing. An additional "P" was partnerships, which were critical to the project's implementation. Primary target group was caregivers of children under five in rural areas of Pursat and Siem Reap, with secondary targets as public and private health providers and retailers.

Product

The DTK was branded OraselKIT® and contained two WHO/UNICEF-recommended low-osmolarity ORS sachets, one blister pack of 10 tablets of 20-mg dispersible zinc, and an instructional leaflet. The package contents, design, logo, and insert were developed by PSI/Cambodia based on information collected through formative research with target consumers, and were reviewed by the MOH and WHO. The instructional leaflet was developed in close consultation with these partners, and included illustrated instructions on product use, educational messages about diarrhea prevention and home management of diarrhea, referral advice for danger signs, and information about the OraselKIT®. All materials were pretested with target audience for comprehension, acceptability and attractiveness of the finished product.

Figure 1. The OraselKIT® diarrhea treatment kit.



Price

PSI/Cambodia set its retail price to be affordable to the target population, basing its decision on focus group discussions with the target audience and price comparisons

with similar diarrhea treatment products. Varieties of ORS were selling in the market for 300-500 (\$0.075 – 0.125 USD) riel per packet and antibiotics commonly sold to

treat diarrhea cost 1,000-1,500 riel (\$0.25 – 0.38 USD). (As the program was striving to encourage zinc use instead of antibiotics, antibiotics were considered as a comparable product for price decisions). Thus, the combined cost of two packets of ORS and antibiotics would be 1,600-2,500 riel (\$0.75 - 0.625 USD). The retail price for OraselKIT® was set at the lower end of the price spectrum, at 1,500 riel (\$0.38), to encourage its use among caregivers.

PSI/Cambodia sold OraselKIT® to nongovernmental organization (NGO) partners

and its network of private providers at 800 riel (\$0.20) and to wholesalers and pharmacies at 1,000 riel (\$0.25), and to commercial retailers and village shops at 1,200 (\$0.30). The cost of the product itself, including packaging, the leaflet, the ORS sachets, and the zinc tablets, is 1,500 riel (\$0.38), though the cost would likely be reduced with scale-up due to economies of scale. *Figure 2* shows how each NGO partner set margins to encourage sales of OraselKIT®.

Figure 2. DTK pricing structure.

Customer	USD	Riels
NGO Partners	0.2	800
Wholesalers/Pharmacies	0.25	1000
Retailers/Village Shops	0.3	1200
Consumers	0.375	1500

Place

Availability of OraselKIT® was ensured through the use of a variety of distribution methods, including public and private involvement. PSI/Cambodia provided the product to private NGOs that used their respective distribution networks to sell the product to the target population. Two of the major NGO distributors were Reproductive and Child Health Alliance (RACHA) and the American Red Cross/Cambodian Red Cross (ARC/CRC).

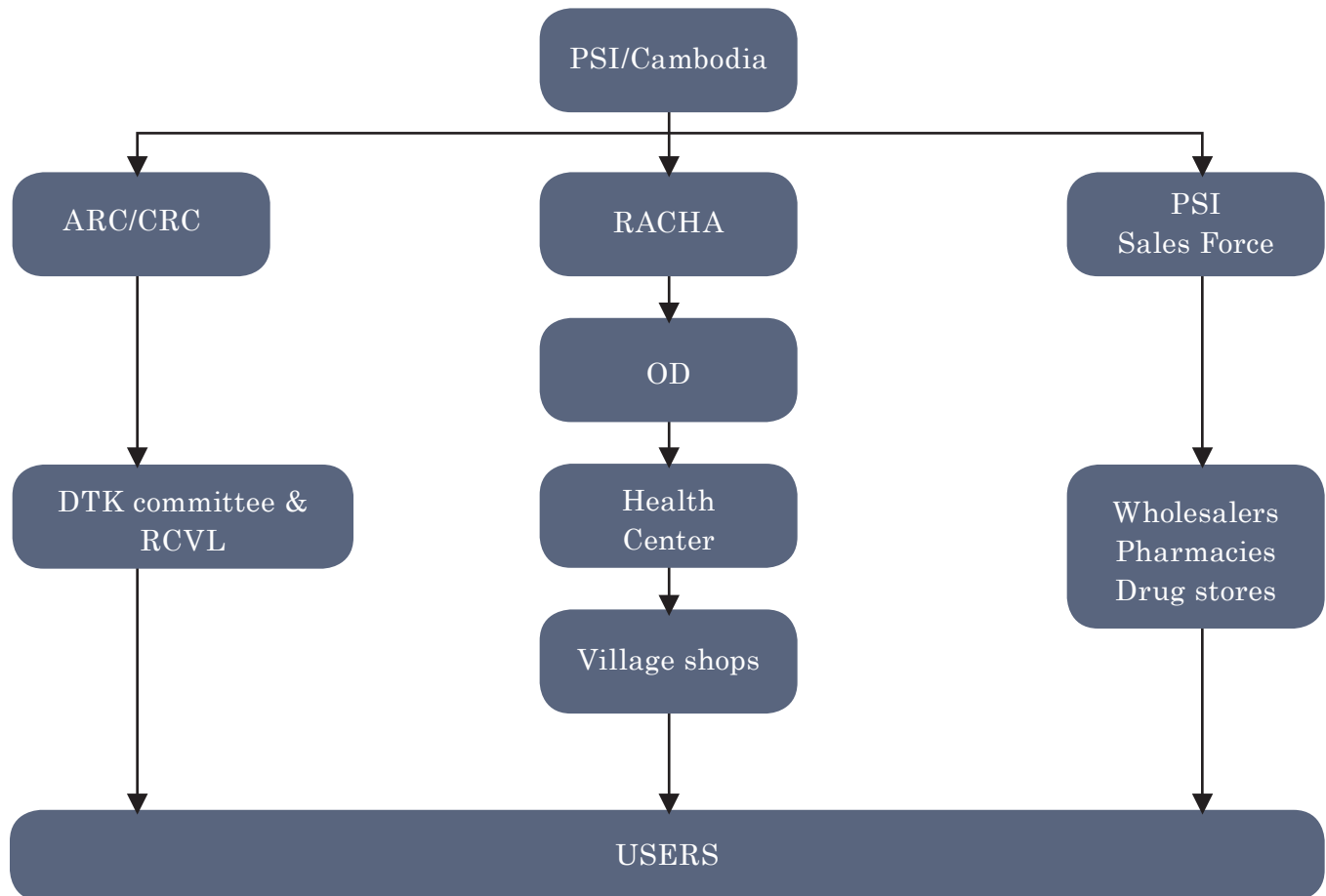
RACHA, a health organization working on child survival, had an established village

shopkeeper network wherein highly frequented shopkeepers in rural villages were provided with training in provision and use of health products. RACHA provided training to shopkeepers on OraselKIT® and distributed it through 500 village shops in Siem Reap and 379 shops in Pursat. The distribution was managed through the public sector to reinforce to public health officials the importance of diarrhea as a health problem, to create a linkage between health centers and private providers and foster ownership of the project by the public sector.

ARC/CRC was implementing an integrated child health project that used a community-based care group model for organizing and supporting Red Cross volunteers. ARC/CRC established DTK committees in 20 villages in Siem Reap, and made one volunteer per village responsible for sales of the Orasel-KIT®.

In addition to NGO distribution mechanisms, PSI/Cambodia sold the DTK through traditional commercial distribution networks including wholesalers, pharmacies, drug shops, the PSI franchise Sun Quality Health Network and other health care providers (see *Figure 3*).

Figure 3. DTK distribution networks.



Promotion

The DTK project used a “surround” placed based communications strategy to promote OraselKIT®. Interpersonal and outreach communications at the community level were reinforced by mass media and special promotional and educational events. The

overall positioning message of OraselKIT® to caregivers was that your child will be active and strong once you have treated his/her mild diarrhea at home with Orasel-KIT®. This message was consistently carried through all communications activities.

To increase acceptability of the product, messages also emphasized the fact that the Orasel tasted better than the available ORS and that the zinc had a sweet taste.

Village Health Support Group (VHSG) volunteers coordinated by PSI/Cambodia's NGO partners conducted a variety of IPC activities in local communities emphasizing basic diarrhea prevention, correct home-based diarrhea management, danger signs of dehydration, and correct preparation and administration of the DTK. VSHG volunteers made household visits, organized community educational sessions and reached caregivers at busy market places, health centers, pagodas and other gathering places. IPC was delivered using a variety of tools including pictorial flipcharts, educational leaflets and product demonstrations. VHSG volunteers linked caregivers with DTK retail outlets and provided product samples and promotional items such as t-shirts, infant "onesie" outfits, diapers and one-liter water bottles featuring the OraselKIT® logo.

IPC sessions were reinforced through television, cinema, a radio spot, billboards, and point-of-sale materials including stickers, posters, banners, and leaflets. The television and radio advertising focused on communicating five main messages:

1. The OraselKIT® is an effective treatment for uncomplicated diarrhea in children;
2. The kit contains two sachets of ORS and 10 tablets of zinc;
3. Mix the ORS with boiled water and give ORS several times daily;
4. Mix one zinc tablet in a spoon with boiled water or breast milk and give once a day for the full 10 days; and
5. ORS replaces liquids lost in diarrhea while zinc improves recovery and strength and helps prevent future diarrhea.

The billboard and point-of-sale materials focused primarily on promoting the OraselKIT® brand and increasing awareness of the product's availability. The docudrama movie presented a fictionalized version of real challenges faced by Cambodian mothers and caregivers in the day to day care of their children and treating diarrhea. The docudrama covered a range of sanitation and hygiene issues including causes, prevention, and appropriate treatment of diarrhea, with a focus on the use of DTK and increased fluids and feeding. In total, the DTK project aired 448 TV spots, 310 spots in cinemas, and 2,400 radio spots, and had 7 billboards.

Special events were conducted by PSI staffed mobile video units (MVU). MVU "shows" are night time edutainment programs hosted by DJs and complement daytime IPC activities. The shows combine docudrama video projected on large screens with highly interactive with question and answer segments, games designed to reinforce messaging and skits to encourage audience participation. Village shopkeepers were invited to set up product display booths and offer DTK for sale. The events involved and were endorsed by commune and village chiefs, the key local opinion leaders. MVU shows were highly effective in reaching rural communities—there were a total of 60 mobile video unit shows, each with an approximate attendance of 300 people.

Figure 4. OraselKIT promotional products.

Partnerships

Public sector involvement is critical to the success of any health intervention. The DTK project involved the public sector at the central, provincial, and district levels in the program implementation. At the central level, PSI/Cambodia received support from MOH officials including the Secretary of State for Health, the Director of Integrated Management of Childhood Illness, and the Deputy Director of the Central Medical Store. Without their “buy-in,” implementation would not be possible. At the provincial and district level, MOH staff were involved with the major aspects of the program, including: developing training curriculum; participating in training sessions; approving communication messages; reviewing product design; and leading launch events. The public sector is the trusted source of health information and their involvement

lend credibility to the program among the Cambodian population.

Tapping into existing, widespread NGO partner networks of outreach workers and village shopkeepers ensured that the program was able to reach the target populations in rural areas of Siem Reap and Pursat. The partnerships also facilitated an extensive training program of partners and providers on diarrheal disease, prevention, and treatment, and the DTK (content, mechanisms, and use). PSI/Cambodia trained its public and private partners to train their own staff. RACHA subsequently trained public health center staff, village shopkeepers, village health support groups (VHSGs), and nuns. ARC/CRC trained its own volunteer health workers and VHSGs. A total of 2,659 providers were trained (909

in Siem Reap and 1,750 in Pursat). PSI/Cambodia also provided communications training, promotional and educational materials (video drama, karaoke song, banners, leaflets, etc.), and support to the NGO partners.

PSI/Cambodia incentivized NGO partners by offering DTK to them at a reduced price

(800 riel or \$0.20 USD), who then used various systems in place to distribute the product. Some of the NGOs worked directly with the MOH and health clinics in a public-private partnership to improve distribution and to monitor performance of the distribution points.

Evaluation

PSI/Cambodia assessed the DTK project through a variety of approaches:

1. Review of process indicators, such as DTK sales data, project reports, and quarterly and evaluation reports of partners;
2. Interviews with key stakeholders, including staff from the MOH, PSI/Cambodia, RACHA, UNICEF, USAID, PATH, the Rational Management Plus Project, and the Pediatric Association of Cambodia, commercial distributors, community volunteers, shopkeepers and clerks, and caregivers who attended health facilities, village shops, and a mobile unit show;
3. Field visits to Siem Reap and Pursat implementation sites and distribution points; and
4. Four focus groups with users and nonusers of OraselKIT® in Siem Reap.

Process indicators suggested that the program had been extremely successful in promoting sale and use of the DTK. Total sales for the project duration were 39,867 kits, which was double the projected sales figures, and caused a stock out.

Interviews with key stakeholders suggested high levels of support and buy-in for the project. The MOH viewed the DTK as an opportunity to train staff, and felt that it provided an added incentive. They also felt that the DTK was affordable and made effective diarrhea treatment more readily available to caregivers. Medical providers felt that OraselKIT® was preferable to the existing ORS brand, Oralyte, which was too salty in

taste. The majority of the shopkeepers and private distributors were knowledgeable about the DTK and were familiar with the associated messaging.

Focus group discussions with 77 women from the target provinces reported high satisfaction with the DTK. The caregivers believed that the DTK tasted good and was effective in stopping diarrhea in 2-3 days, with children showing improved skin pallor and appetite. They also felt that the price of OraselKIT® was reasonable and preferred that the products be packaged and sold together.

In addition to PSI/Cambodia's evaluation, ARC/CRC conducted its own independent evaluation of the project. ARC/CRC conducted a baseline and endline cluster sample survey. The study included a random sample of caregivers from 10 intervention (DTK-selling) villages and 17 comparison (non-DTK-selling) villages in Pourk and Angkor Chum.

A comparison of DTK and non-DTK villages showed that intervention sites fared better on a number of indicators. While recognition of Oralit was similar between DTK and non-DTK villages, recognition of OraselKIT® brand was significantly higher among caregivers in DTK villages, 68% as compared to 26% in non-DTK villages. Similarly, more than one-third of caregivers in DTK villages knew of zinc, whereas just 13% of caregivers in non-DTK villages did. Regarding treatment choices for their children, a comparable number of caregivers between the two sites did nothing, provided

a pill or syrup, or engaged in some other form of treatment, but a significantly higher percentage of caregivers in DTK villages provided ORS to their children (72% vs. 56%).

Trends from the baseline to evaluation survey also showed improvements over time. Correct treatment with ORS increased significantly from 33% to 57%, whereas incorrect treatment with pills or syrups and injections decreased significantly (from 60% to 37% and 8% to 0%, respectively).

Continued breastfeeding during a diarrheal episode also showed a significant improvement over time, with those who breastfed their sick child more increasing from 41% to 68%. Increased fluid provision similarly significantly improved, from 51% to 67%. There was also a significant increase in caregivers reporting that they gave more food during a diarrheal episode, but no change in the amount of food provided after a diarrheal episode.

Lessons Learned

The pilot project demonstrated that the DTK can be successfully adopted by caregivers as the first line of treatment for uncomplicated diarrhea, and has significant

potential to reduce child mortality due to diarrhea. While the project was only a pilot, several important lessons emerged about launching a DTK.

Lesson 1: Packaging ORS and zinc together as a DTK is an effective means of marketing these products and encouraging their combined use.

While ORS existed in the market prior to this project, its use was relatively low and caregivers held some negative perceptions about its acceptability and efficacy. However, caregivers were open to seeking alternative treatments for diarrhea, such as pills and syrups, which suggested that they would be accepting of a new treatment product, zinc.

Packaging the ORS and zinc together was effective in encouraging the use of the two products together and revitalized trial and use of ORS. The informal interviews sug-

gested that caregivers were eager to continue administering ORS after the two sachets were consumed, as they saw positive results of the ORS-zinc combined regimen.

The pilot project demonstrated that promoting ORS and zinc together can increase the recognition of the importance of ORS and stimulate its use. The popularity of the newer low osmolarity ORS in the package can also motivate retailers and providers to press for the new formulation of ORS to be made widely available.

Lesson 2: Distributing the DTK through NGO networks and village shops is an effective means of increasing access and use in rural communities.

Of the provision networks that sold the DTK, village shops were the most critical to the success of the OraselKIT®. Part of the related success was that village shopkeepers were more easily persuaded to recommend the DTK than clinicians or pharmacist who have a larger variety of alternatives such as intravenous fluids. Additionally, village

shops and health workers may be the first stop for caregivers seeking treatment in the private sector.

Future DTK programs should seek to build on existing private distribution networks, as they have great potential to maximize patient access and use of the DTK.

Lesson 3: More intervention is needed with clinicians, pharmacists, and drug sellers who continue to provide inappropriate treatments for uncomplicated diarrhea.

Despite the WHO/UNICEF recommendations and the promotion of the DTK as a first line treatment, private practitioners continue to recommend intravenous fluid as a first choice and antibiotics as a second choice. These are sometimes provided in conjunction with the DTK. There are various reasons why private practitioners continue to recommend inappropriate treatments: they may perceive that caregivers who come to health facilities want more than “just” ORS; they are unfamiliar with the appropriateness of recommending ORS and zinc without other medicines; they are attempting to increase their profits by selling more expensive treatments; or they hold misconceptions about ORS based on the previous formulation that increased stool output.

More efforts need to be made to discourage the prescribing of inappropriate treatments for

simple diarrhea. Emphasis on avoiding unnecessary drugs should come from the MOH. Intensive lobbying by health organizations, NGOs, Maternal and Child Health Technical Working Groups and continuous advocacy for this cause are warranted. Public health officials should also be encouraged to support the use of ORS and zinc whether provided through the public or private sector. This could be achieved through training and reinforcement by medical detailing teams. An incentive system to encourage the primary use of DTK by providers could be especially effective. Creating broader consumer awareness of ORS/Zinc through messaging, communications and promotion would lend to informed demand for DTK when seeking treatment. This intervention is particularly critical in urban and peri-urban areas where caregivers have more access to financial means and greater availability of alternative treatments.

Lesson 4: The availability of anti-diarheal products in the marketplace creates a high-risk situation for children under five.

In Cambodia, the for-profit sector is inadequately regulated, resulting in inconsistent, poor quality, and potentially harmful products and services. The majority of pharmacies and drug sellers are not licensed. Counterfeit, expired, and banned drugs are available in the marketplace. For example, caregivers can still purchase a sachet of loperamide that is advertised for infants, but was outlawed from the international market

in the 1990s due to its effect on the central nervous system.

More regulation of these markets is needed, particularly from a policy and governmental level (through the MOH), as is increased training for public and private distributors on which of the available drug formulations (OraselKIT and competing ORS products) are appropriate and effective.

Lesson 5: A surround placed based approach using mass media and IPC in conjunction can improve awareness and use of the DTK.

The communication approaches appear to have been successful in increasing brand awareness and improving overall knowledge of diarrhea treatment. The most commonly cited channels through which caregivers using OraselKIT® had heard of the DTK were the television spot, radio, village shopkeep-

ers, and NGO volunteers and/or comedy groups. Examining knowledge and behaviors according to exposure to specific channels could help identify the most effective means of communicating with the target population in order to maximize resources.

Lesson 6: A strong monitoring and evaluation system is recommended to better assess the effectiveness of new socially marketed health products.

This project was primarily evaluated using process indicators and informal qualitative feedback due to funding constraints. However, a number of questions were raised during the evaluation process that could not be fully answered: the level of adherence to the recommended length of zinc use (the full ten day course); whether zinc is effective in replacing unnecessary medicines such as pills, syrups, antibiotics, and IVs; and whether caregivers continue to provide recommended home fluids after the two sachets of ORS have been used. Future projects would benefit from implementation of routine household surveys to track patterns and changes over time in ORS and zinc use and its behavioral determinants, as well as monitoring of exposure to programmatic messages to evaluate which channels are most effective for communicating which messages. Market monitoring of diarrheal treatment provision for products other than the DTK would also be advisable to examine how the DTK affects the total market

of alternative diarrhea treatments. This information would be critical to inform future programming and to affect policy decisions on a national level regarding appropriate diarrhea treatment.

Conclusion

Overall, the DTK project demonstrated that this product has high acceptance and use among caregivers and can be effectively distributed and promoted using a combination of public and private partnerships. The pilot indicated that the DTK should be scaled up

nationally to increase access to appropriate diarrhea treatment and reduce child mortality. This project also demonstrates that the DTK can be effectively promoted as the first line of treatment for diarrhea in rural and resource poor settings.

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Author Information

Ms. Dan Borapich is Director of Communications and Marketing at PSI/Cambodia. She oversees the development and implementation of behavior change campaigns for HIV, reproductive health, malaria and child survival programming; including mass media, IEC/IPC materials, promotional items and other materials to ensure achievement of both branded and generic communications objectives. Most recently, Ms. Dan Borapich led the expansion of the Orasel DTK project to an additional three provinces in Cambodia.

Ms. Mary Warsh is Senior Technical Advisor at PSI/Cambodia. Her primary responsibilities include working with host country national staff to strengthen and broaden their capacity to deliver effective evidence-based communications and social marketing campaigns in the areas of HIV/AIDS prevention and child survival. Ms. Warsh has assisted in the expansion of the Orasel DTK program and launched a point of use water disinfectant tablet and diarrhea prevention campaign to complement Orasel DTK activities.