



## New Diarrhea Guidelines Look Toward a Healthy Future for Vietnam's Families

### THE PROBLEM

At the National Pediatric Hospital in Hanoi, Vietnam, one in ten pediatric inpatients is admitted due to complications from diarrhea—and sometimes this number is even higher. Ten times as many are treated as outpatients, making diarrheal disease and the severe dehydration that comes with it among the hospital's top two pediatric concerns (the other is pneumonia).

Although the country has been a regional leader over the last two decades in addressing diarrheal disease and its impact on children and families by reducing hospitalizations, malnutrition, and mortality, public health leaders nationwide have seen progress languish and availability of key, basic interventions decline. High pediatric morbidity remains a burden on the health care system, and the problem persists in all settings. In major cities, high population density means epidemics can expand rapidly. In rural parts of the country, poor hygiene and limited access to clean water are constant culprits.

In recent years, awareness of the threat posed by diarrheal disease and the simple solutions to prevent and treat it stood stagnant. Clinical progress was stymied by outdated guidelines for physicians and nurses that had not been updated in more than a decade. Tried and true interventions such as oral rehydration and sanitation had been in practice since the 1970s, but the promise of new prevention and treatment tools—low-osmolality oral rehydration solution (ORS) and zinc, both recommended in 2004 by the World Health Organization (WHO) and UNICEF—had yet to be realized.



Low-osmolality ORS is now standard treatment in Vietnam's hospitals. Administered sip-by-sip to sick children, it is an essential tool for treating dehydration caused by severe diarrhea.

### THE PLAN

Through our existing relationships with health officials in Vietnam and bringing to bear our in-country presence and partnerships, PATH recognized an opportunity to



Educational pamphlets for parents encourage healthy practices to prevent diarrhea, including handwashing, breastfeeding, and proper nutrition.

develop a strategy that bridged policy with community health delivery. A multi-faceted effort would catalyze immediate impact and ensure sustainability by bringing the national guidelines up to date, training and equipping health workers, and raising community awareness nationwide. A model project would put it all into practice, while gathering lessons learned that would inform national rollout and, ultimately, expansion of enhanced diarrheal disease efforts throughout the Mekong region.

Officials within the Vietnamese Ministry of Health (MOH) recognized the need for improved diarrheal disease control programming, but since any efforts would be enhancements to the ministry's previously set national health plan, time and budget were limited. Such urgency could, however, be an opportunity—

allowing for rapid development and implementation that would save more young lives sooner.

Beginning in late 2008, the MOH joined PATH in quickly convening a working group of technical experts from throughout the country and also representing international health leaders like WHO and UNICEF. Each working-group member brought unique expertise and experience, ensuring local context for an approach that would ultimately serve as a regional and international model. Led by Dr. Le Than Hai, vice director of the National Pediatric Hospital (NPH), the group held a series of in-depth meetings to review current policies, disease-burden data, and the evidence for new interventions to prevent and treat diarrhea. They also considered the different challenges for implementation and improved care at the community level.

Their efforts led to the development of the MOH's new Guidelines for Management of Diarrhea in Children, which update the national prevention and treatment strategy by combining new interventions like zinc and low-osmolarity ORS with proven interventions including proper nutrition, hygiene, and breastfeeding. An additional update clarified the use of antibiotics for bacterial causes of diarrhea, including an emphasis on the use of ciprofloxacin to treat *Shigella* infection. The new guidelines applied a hands-on approach, building on the previous iteration to bridge theory to practice. They also provided prevention and treatment recommendations for different clinical settings, with content tailored to commune, district, and provincial levels. The technical working group developed a complementary training guide in parallel, anticipating educational needs and nationwide implementation by first training the trainers, who would then introduce the guidelines to subsequent administrative levels (national to provincial, provincial to district, district to commune, commune to village).

#### THE PARTNERS

**Ministry of Health** - Leadership from the MOH was crucial in advancing the development of new guidelines, as well as their roll-out on a wide scale. Though many providers knew about low-osmolarity ORS and zinc, they could not apply them in clinical practice without official guidance. The MOH will continue to play a key role in nationwide dissemination and

*“The project’s communications have had a positive impact on behavior change among mothers. Doctors and mothers are spreading the word, and education of parents will continue.”*

*—Dr. Le Quang Hung, Deputy Director, Binh Dinh Department of Health*

implementation, as well as long-term sustainability.

#### **National Pediatric Hospital** -

Officials at the NPH, led by Dr. Le Thanh Hai, vice director and head of the emergency department, convened the technical working group and spearheaded discussions on the new guidelines. The NPH also coordinated national-level trainings and was closely involved throughout a pilot project to apply the new guidelines in Binh Dinh province.

#### **Health Education Center (HEC)**

- A division of the MOH, the HEC coordinated national broadcasts on prevention and treatment of diarrheal disease, designed for different audiences. For health workers and policymakers, the national radio and TV channels aired a question-and-answer session in a talk-show format with experts from the NPH and the MOH's Nutrition Institute. A public-service announcement for the general public emphasized hygiene, prevention, and symptoms of severe dehydration.

**Binh Dinh Department of Health** - After pivotal participation at the train-the-trainers workshops in Hanoi, Binh Dinh officials coordinated training for local doctors and nurses who put the new guidelines into practice in a pilot project throughout the province. Routine supervision and evaluation by the Department of Health gathered important data that will help ensure streamlined roll-out nationwide.

**PATH** - PATH proposed the idea of updating the national guidelines based on WHO/UNICEF recommendations and convened national experts to help develop them. Throughout the project, PATH provided technical assistance to national and provincial activities, and arranged a donation of zinc for use in the Binh Dinh pilot effort.

## IMPLEMENTATION

After a preliminary application of the new guidelines at the National Pediatric Hospital in Hanoi, Dr. Hai and the NPH's training and education center conducted six workshops for health workers and two courses for trainers who would disseminate the new guidelines and facilitate their practical application among provinces. From there, provincial trainers in turn trained district-level peers, who then brought the knowledge to clinics at the community level.

*“Stopping diarrheal disease illness and death is possible. Vietnam is making tremendous progress and we hope that success in our country can encourage others in the region to increase uptake of simple, affordable, and effective solutions.”*

*—Dr. Le Thanh Hai, Vice Director, National Pediatric Hospital*

Binh Dinh province, located in South Central Vietnam, was selected for a demonstration project to apply the new guidelines. Crucial feedback would be used to inform the MOH's nationwide implementation.

By 2008 in Binh Dinh, funding for the Control Diarrheal Disease initiative had dried up. Diarrhea programming was at a standstill: routine case reporting from clinic to district to provincial levels was a thing of the past, training workshops were non-existent, and communications efforts for general awareness had dramatically declined. The

provincial hospital did not have a dedicated diarrheal disease team. Most importantly, health practitioners had not been properly acquainted with the 2004 update to WHO/UNICEF guidelines for clinical management of



Dr. Nguyen Khanh Toan, head of pediatrics at Binh Dinh Provincial Hospital, examines a young patient for signs of acute dehydration, a dangerous consequence of severe diarrhea.

acute diarrhea, which recommended the use of zinc and low-osmolarity ORS. Some physicians had heard of the improved, low-osmolarity ORS, but they could not use it without direction from the MOH. Some hospitals used a zinc syrup, but not consistently, and the product they used was not produced according to WHO standards.

At hospitals, mothers often urged IV transfusion for their sick children, when patient and deliberate administration of ORS would be sufficient. They also pressured physicians for antibiotics, regardless of whether the cause of diarrhea was bacterial or viral.

According to Dr. Le Quang Hung, deputy director of the Binh Dinh Department of Health, the pilot project and partnership with PATH dramatically improved the clinical landscape of diarrheal disease control. Provincial health officials and trainers attended workshops at the NPH in 2009, immediately returning to Binh Dinh to share outcomes and provide guidance to their peers. The province also held a refresher training for all districts in 2011, this time bringing in local kindergarten teachers, relying upon their proximity to parents in further spreading the word about both home-based care and improvements in the clinic. Bidiphar, a local pharmaceutical manufacturer, also attended training and initiated discussions with the Department of Health on potentially working together to produce zinc according to WHO standards. Bidiphar also began production of low-osmolarity ORS for use throughout the country.

In the interim, French manufacturer Nutriset donated zinc for use in the demonstration project. Made aware of the benefits zinc offered for both prevention and treatment through the training workshops tied to the new guidelines, physicians in Binh Dinh eagerly added it to their routine treatment regimens. Pediatric patients and their parents matched this enthusiasm, with zinc's taste appealing to the children and its stimulation of young ones' appetites providing relief for anxious mothers and fathers.

**"Diarrhea can be treated at home if the mother knows how."**

*—Nguyen Thi Huong, Nurse, Binh Dinh Provincial Hospital*

#### EARLY RESULTS

Today, at the Provincial Hospital and all district and commune-level health facilities in Binh Dinh, low-osmolarity ORS and zinc are included in daily practice for treating acute diarrhea among children. Nurses promote prevention and treatment awareness among parents using the brochures and posters developed by the HEC and through routine educational sessions offered not only to parents of children with diarrhea but to all caregivers throughout the hospitals.



After two days of vomiting, watery stools, and a fever, Anh Thu, 22 months old, was admitted to the provincial hospital for urgent treatment. Anh and her mother stayed for two more days and, after a regimen of zinc and low-osmolarity ORS, Anh won her fight against severe diarrhea and headed home.

Dr. Nguyen Khanh Toan, head of pediatrics, noted that the number of diarrhea cases presenting at Binh Dinh Provincial Hospital has been diminishing, which he attributed to greater awareness and improved treatment at the district and commune levels. There are 105 beds in the pediatric department. Previously, the entire ward

was filled with diarrhea patients, with severely sick children and their caregivers often doubled up on hospital beds in several rooms. Today, these cases typically claim only 10-15 beds in two rooms.

At Hoai Nhon District Hospital, there are no resources for formal evaluation, but physicians have

observed that time for inpatient stays is shorter (three to four days as opposed to one week). The numbers of inpatients have decreased, while outpatient cases have risen—indicating declines in severe cases. The number of presenting diarrhea cases among children used to be erratic, but seem to have become more stable, which they tentatively attribute to increased quality of care at commune health centers.

At Tam Quan Commune Health Center, for example, low-osmolarity ORS and zinc are now part of routine clinical practice, and staff note that mothers have responded positively. They also hear from families about the knowledge they have gained through the public-service announcements developed at the national level and broadcast on local radio and television. Since the project's inception, the district hospital has established 18 ORT corners at commune health centers and conducted 64 supervision visits. In 2010, they issued an official document to commune health centers on the use of zinc.

Throughout the province, Binh Dinh Department of Health officials have noted greater awareness among mothers, illustrated by less pressure that doctors treat diarrhea with IV transfusion. The case-reporting system from commune to district to province to national levels is also now consistent and comprehensive.

A December 2010 evaluation by the Nha Trang Pasteur Institute and the Binh Dinh Department of Health recorded increased knowledge among mothers, including significant gains in awareness on the appropriate use of antibiotics, use of the new ORS, and the benefits of exclusive breastfeeding. Home treatment also grew significantly.

An evaluation by the Department of Health on use and effectiveness of zinc found that 86% of children liked the taste and 99% of 649 mothers interviewed would use zinc again. In July 2011, Vietnam reached a major milestone toward providing zinc more broadly. Largely a result of the PATH project's advocacy and implementation experience in Binh Dinh, the Ministry of Health added zinc to the national Essential Drugs List, ensuring free public-sector availability and coverage by medical insurers.

#### CHALLENGES AND LESSONS LEARNED

Upon the completion of activities for the demonstration project, the Binh Dinh Department of Health convened a commemorative workshop. Partners and supporters from Nha Trang Pasteur Institute, Bidiphar, and the Binh Dinh People's Party joined physicians and officials from health facilities throughout the province, PATH, and the NPH. The workshop presented an opportunity to celebrate achievements and identify issues for future consideration and sustainability, as well as the chance to present observations and evaluation of the project.

**"The project's results are highly appreciated and bring real benefits to children and medical workers. This is the result of successful design, planning, and close cooperation."**

*—Nguyen Van Cang, Vice Chairwoman, People's Committee of Binh Dinh*

The national-level effort to update clinical guidelines, paired with the pilot project to apply them in Binh Dinh, yielded valuable lessons that will help streamline implementation throughout the country. Vietnam's experience enhancing diarrheal disease control also may have implications as health officials look to tackle other resilient challenges in child health, such as pneumonia. A formal evaluation will capture

comprehensive lessons, but the closing workshop revealed some early key learnings.

Passing down training in a step-wise format from physicians at national levels to the province, district, then commune levels was an effective method for sharing new information. It also will be key to sustainability, as community health workers often look to their district and provincial counterparts for continued guidance.

Information-sharing and message dissemination at national, provincial, and even district levels is typically reliable, but the structure for disseminating educational materials and messages at the community level remains challenging. PATH helped the MOH Health Education Center to identify gaps in dissemination and how to resolve them, such as the establishment of communications centers in each province, which allows for tailoring messages for the local community. Low literacy, particularly among tribal members in rural populations, remains a major consideration for awareness-building.



Nurse Nguyen Thi Huong oversees a mother preparing ORS, which can be given to children at home to stave off severe dehydration caused by diarrhea.



Zinc emerged as a reliable and respected new tool in the fight against diarrheal disease in Vietnam, but the challenge remains of creating a market and securing a reliable supply, at least in the near term. The inclusion of zinc on the Essential Drugs List is an important milestone that will hopefully overcome this challenge promptly. Now that it is on this crucial list, zinc will be covered by medical insurers and also guaranteed for free provision for children under five through the public sector—two important steps toward creating a viable market in the country and perhaps the region.

Time and again, partners cited the integration of several tools to fight diarrheal disease as a useful model for potentially addressing other child health threats, particularly pneumonia. Furthermore, many of the interventions recommended in the updated diarrheal disease guidelines, such as hygiene and handwashing, could directly impact the spread of pneumonia. These considerations will be top of mind as the MOH and NPH work to not only further apply the new diarrheal disease guidelines but look to how this experience can continue to improve the health of Vietnamese children in many ways.

## Education and encouragement at oral rehydration therapy corners

Long a stalwart of diarrheal disease treatment, oral rehydration therapy (ORT) declined among the priorities of health officials in several regions after its initial introduction and subsequent dramatic impact in the 1970s and 1980s. Oral rehydration solution, or ORS, remains the central tenet of ORT, but the approach also encompasses other interventions aimed at replenishing vital fluids lost during acute diarrhea episodes, such as breastfeeding, cereal, and rice water mixed with salt.

One of the most important elements of ORT, apart from its extreme affordability at just pennies for a packet of ORS, is its usefulness in home treatment. However, without awareness among mothers, this essential advantage is lost. Tapping into the potential of ORT corners was a pivotal element of the pilot project's strategy in Binh Dinh Province. In clinics and hospitals, an area of the facility, or "corner," is set aside specifically for education to caregivers on preparing and administering ORT at home, hopefully staving off severe dehydration and altogether avoiding the need for emergency treatment.

An ORT corner session at Binh Dinh Provincial Hospital, representative of similar sessions given one to two times per week at facilities around the province, gathered mothers from throughout the hospital—regardless of whether their children were admitted for diarrhea. After handing out brochures from the MOH, Nurse Nguyen Thi Huong demonstrated how to prepare ORS at home and asked volunteers from among the mothers to assist her. She taught them to recognize symptoms of severe dehydration, particularly in newborns. As is common, mothers followed up with questions on continued feeding during a diarrhea episode. Nurse Nguyen appreciates the dedicated space and time for consultation with the mothers that the ORT corner allows, and she has recognized growing awareness among this important audience.



PATH is an international nonprofit organization that creates sustainable, culturally relevant solutions, enabling communities worldwide to break longstanding cycles of poor health. By collaborating with diverse public- and private-sector partners, PATH helps provide appropriate health technologies and vital strategies that change the way people think and act. PATH's work improves global health and well-being.

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