The Bridgespan Group

# Oral Rehydration Solution

**Widespread adoption of a sugar/salt rehydration mixture by Bangladeshi households resulted in a 90 percent reduction in children's deaths from diarrheal diseases.**

Until the late 1980s, cholera, E. coli, and rotavirus outbreaks led to deaths of millions of Bangladeshi children, primarily due to diarrheal dehydration, which accounted for 20 percent of mortality cases for children under age 5. A simple treatment, first discovered in the 1920s, composed of water, sugar, and salt held potential to dramatically improve outcomes for these children. But it took until the 1990s for a version of this treatment, oral rehydration solution (ORS), to gain widespread adoption in the country.

Today ORS is used by almost 80 percent of households in Bangladesh (and many other developing countries), and the share of deaths due to diarrhea for Bangladeshi children under five had declined to 2 percent by 2011.

How did ORS use eventually become a norm in Bangladesh? Health researchers first tested a glucose and saline anti-diarrheal solution in the 1920s, administering it intravenously in hospitals. While they proved the treatment's effectiveness in arresting dehydration, their trial conditions were hard to replicate where the need was highest, across the sparsely resourced developing world. Clinical work to develop a dramatically simpler and cheaper oral solution began in the 1950s via the International Centre for Diarrhoeal Disease

This case study is part of a series that accompanies The Bridgespan Group article "Audacious Philanthropy: Lessons from 15 World-Changing Initiatives" (*Harvard Business Review, Sept/Oct 2017*). See below for 15 stories of social movements that defied the odds and learn how philanthropy played a role in achieving their life-changing results.

- The Anti-Apartheid Movement
- Aravind Eye Hospital
- Car Seats
- CPR Training
- The Fair Food Program
- Hospice and Palliative Care
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- Motorcycle Helmets in Vietnam
- The National School Lunch Program
- 911 Emergency Services
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- Polio Eradication
- Public Libraries
- Sesame Street
- Tobacco Control

Research (ICDDR) in Dhaka and the Johns Hopkins Center for Medical Research and Training in Calcutta, funded through bilateral and multilateral aid as well as philanthropy. Health workers piloted the resulting ORS in Bangladesh during the cholera outbreak in 1968 and lowered the mortality rate by 90 percent versus untreated cholera.

Beginning in the late 1970s, three projects attempted to scale ORS beyond clinical and outbreak settings. A government program centered around distribution via government clinics largely failed to gain penetration; among other reasons, relatively few Bangladeshis actually used these government clinics for care. A second program run by the country's largest civil society organization, the Bangladesh Rural Advancement Committee (BRAC), instead deployed thousands of women to go house to house and teach mothers about ORS and how to make it. This initiative, which ultimately trained over 12 million households between 1980 and 1990, helped to significantly increase awareness, acceptance, and demand for the solution across the country.

## Philanthropy's Role in Large-Scale Change

Our research shows that breakthrough social initiatives share a set of five practical approaches to large-scale change. In the case of proliferating ORS, philanthropy played a critical role across two of them:

- **Design for massive scale:** Decades of research highlighted the danger of diarrheal disease, and intravenous, hospital-administered trials demonstrated the merit of treatment via a water, saline, and glucose solution as early as the 1920s. But it took the efforts of research institute International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR) in the 1950s and 1960s, funded by the Ford Foundation and bilateral aid from the US, UK, Australia, and Switzerland, along with multilateral grants from the World Health Organization, to develop a treatment that was practical at scale where needs were highest—in developing countries. The work of the ICDDR, whose 1979 budget was equivalent to $26.5 million in 2017 dollars, transposed IV treatment to an orally administered solution practical for the developing world.
- **Drive demand, don't assume it:** In the late 1970s and '80s, BRAC's door-to-door education work (funded by Oxfam, UNICEF, and the Swedish International Development Agency) built a substantial baseline of public awareness and acceptance by teaching 12 million mothers about ORS. The Social Marketing Company (SMC) used a more traditional approach in the 1980s to generate demand (funded by USAID): SMC carefully tested pricing and packaging models with target customers prior to launch and spent millions each year on radio, billboards, and giveaways to prime markets. SMC also used existing distribution systems to great effect: Selling ORS packets at a low price through local groceries, pharmacies, and social businesses like Grameen Bank allowed them to get the packets into the hands of consumers in all corners of the country.

Finally, in 1983, a social enterprise run by Population Services International (PSI), primarily funded by USAID, began an ORS project that, like BRAC's, focused directly on the end-user. PSI's Social Marketing Project sold inexpensive pre-mixed ORS packets through retailers and invested heavily in packaging, marketing, and advertising. They sold 6 million packets in 1989, enough that PSI spun the project off as an independent entity, the Social Marketing Company (SMC). The effective marketing, widespread availability, and ease of use helped SMC to sell 52 million packets in 1997, reaching 60 percent of children under the age of five. Next, SMC began teaching private medical providers about ORS, scaling to 300 million packets sold in 2011. In this same year, the share of child deaths from diarrhea was recorded at 2 percent, a decrease of 90 percent from three decades earlier. In the process, SMC demonstrated the viability of a private market for ORS packets—with more than 30 brands on the market today.

*Researched and written by Consultant Phil Dearing of The Bridgespan Group, based on Bridgespan interviews with Maria May, senior program manager at BRAC, and Emily Mosites, epidemic intelligence service officer for the CDC Arctic Investigations Program, as well as selected sources.*

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**THE BRIDGESPAN GROUP**
**BOSTON** 2 Copley Place, 7th Floor, Suite 3700B, Boston, MA 02116 USA. Tel: +1 617 572 2833
**NEW YORK** 112 West 34th St., Ste. 1510, New York, NY 10120 USA. Tel: +1 646 562 8900
**SAN FRANCISCO** 465 California St., 11th Floor, San Francisco, CA 94104 USA. Tel: +1 415 627 1100
**MUMBAI** Bridgespan India Private Limited Company, 1086, Regus, Level 1, Trade Centre, Bandra Kurla Complex, Bandra East, Mumbai, 400051 Maharashtra, India. Tel: +91 2266289639

www.bridgespan.org contact@bridgespan.org