

ORS Case Study

Sierra Leone

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Disclaimer

Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the key informants, thought partners or reviewers.

1. Context

Approximately 6M people live in Sierra Leone, a country rich in natural resources (diamonds, timber) and situated along the west coast of Africa. The capital, Freetown, is the heart of the largest natural harbor in Africa. Over half of the population was displaced from their homes and were victims of torture and trauma during the 11-year civil war that decimated the infrastructure countrywide. The conflict was driven by a strong sense of political grievances related to corruption among government officials and motivation to access the diamond wealth. An estimated 50,000 people were killed from 1991-2002.

The task of building an honest and capable state in Sierra Leone is a major challenge following the erosion of public institutions. Further, much of the country's wealth is poorly managed, overexploited and illegally exported. Near the end of the war, the average citizen survived on the equivalent of 38 cents (US\$) a day.¹ While international support helped restore many basic services, poor infrastructure is a major obstacle to service delivery and development in Sierra Leone: just 8% of roads are paved (compared to the West Africa regional average 17%), 95% of the population does not have electricity, and basic sanitation, quality education and health care is lacking throughout the country.² The current president ran on a platform of anti-corruption and national development, but Sierra Leone remains one of the poorest countries in the world, with a GDP (PPP) of \$830 per capita.³

Following the controversial government-led resettlement program, displaced Sierra Leoneans have returned to rural areas and homelessness in the urban districts of Freetown (where 38% of the population live) has become a serious problem. The population is very young, with 42% under the age of 15. Children were used as combat soldiers in the war; one in five does not live with a biological parent and 11% of children under 18 years have lost one or both parents.⁴ Under-five mortality in Sierra Leone has declined sharply since 2005 (when it was 267 deaths per 1000 live births and, at the time, the highest in the world) and is estimated at 140 deaths per 1000 live births.⁵ Based on progress since the end of the civil war, MDG4 may be met with sustained and focused effort (**Figure 1**). Over a third of children are moderately stunted (36.4%) and one in five children are severely stunted (20.6%). Maternal mortality was abysmal during the conflict (1800 deaths per 100,000 live births in 2000) and remains appalling: 857 deaths per 100,000 live births in 2008. Fertility rates are high as contraceptives are not widely utilized. The prevalence of HIV is low (<2%) but the country suffers from malaria, tuberculosis, acute respiratory diseases and diarrhea.

Sierra Leone is divided into four major regions, which are divided into 13 districts (size ~400,000-450,000 people/district) and subdivided into chiefdoms. Health services are district-based and delivered through a network of hospitals and peripheral health units composed of community health centers, community health posts and maternal and child health posts. Health services are provided free of charge to pregnant and lactating women and young children as part of the Free Health Care Initiative (FHCI) adopted in 2010.

¹ IDA/World Bank. Sierra Leone: Recovering from Years of Conflict. 2007.

² Concern Worldwide. Sierra Leone Country Profile. 2010.

³ World Bank, WDI, 2009

⁴ Sierra Leone MICS, 2005.

⁵ Sierra Leone DHS, 2008.

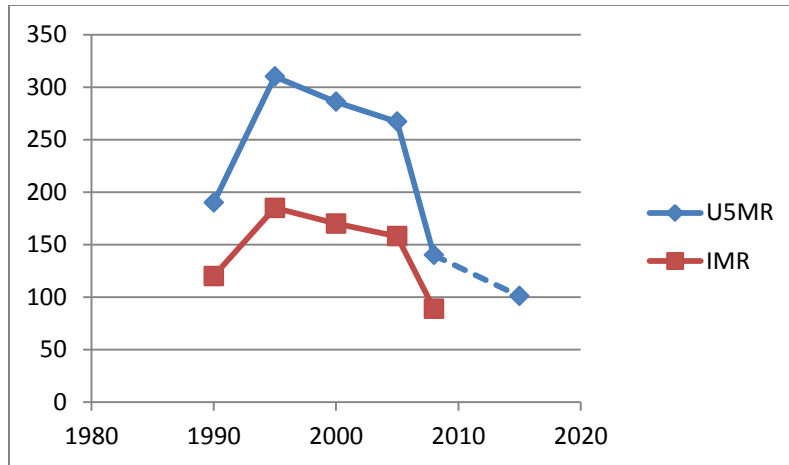


Figure 1. Trends in the under-five mortality rate (U5MR) and infant mortality rate (IMR) in Sierra Leone, 1990-2008 and MDG4 target (2015). (Data: MICS2-2000*, MICS3-2005, DHS 2008.)

* Indirect estimates for 1990 and 1995 reported in MICS2, 2000.

2. Health system successes and failures

After being without a health sector strategic plan for a decade, Sierra Leone is still in the process of rehabilitating the health system and has been heavily supported by international donors. UNICEF has had a strong presence in the country, along with the WHO, USAID, Irish Aid, CIDA, DFID, UNICEF, European Aid, and Global Fund. According to one key informant, as the country emerged from conflict, there was “a period when a lot of goodwill came into Sierra Leone for health.” UNICEF assisted the MOHS in revitalizing the primary health care system, the supply of medical kits and essential drugs, cold chain activities and training health workers beginning in 2000. In the years following, USAID sponsored a primary health care program and a child survival program in two adjacent districts, one of which introduced community case management (CCM); with CIDA funding the CCM program has been expanded to four other districts.

The National Health Sector Strategic Plan (2010-2015) is the first health sector strategic plan in Sierra Leone. In tandem with the development of the national strategic plan, the Basic Package of Essential Health Services was developed in 2010. The basic package provides a comprehensive list of services to be offered at all levels of the health system. A national health facility survey was planned for 2011 (report not available) and data will be collected from a sample of facilities every two years.

Sierra Leone instituted free health care for pregnant and lactating women and children under five in 2010. Although the FHCI is viewed as progressive, it has created other challenges in an already overburdened health system, particularly for health workers facing a higher case load with limited resources to meet the increased demand. There are reportedly challenges in getting commodities in a timely manner and avoiding stockouts.

Although there appears to have been a dramatic decline and recovery in malaria treatment trends, substantial gains were observed in immunization coverage and in the use of ORS for treatment of recent childhood diarrheal episodes, up to 72.6% in 2010 (**Figure 2**). Zinc was introduced in Sierra Leone in 2009 and a year later, 1.3% of children under-five with diarrhea in the two weeks preceding the survey

were treated with zinc (pill or syrup) and 6.1% of children with recent diarrhea received ORS packets and zinc therapy.⁶

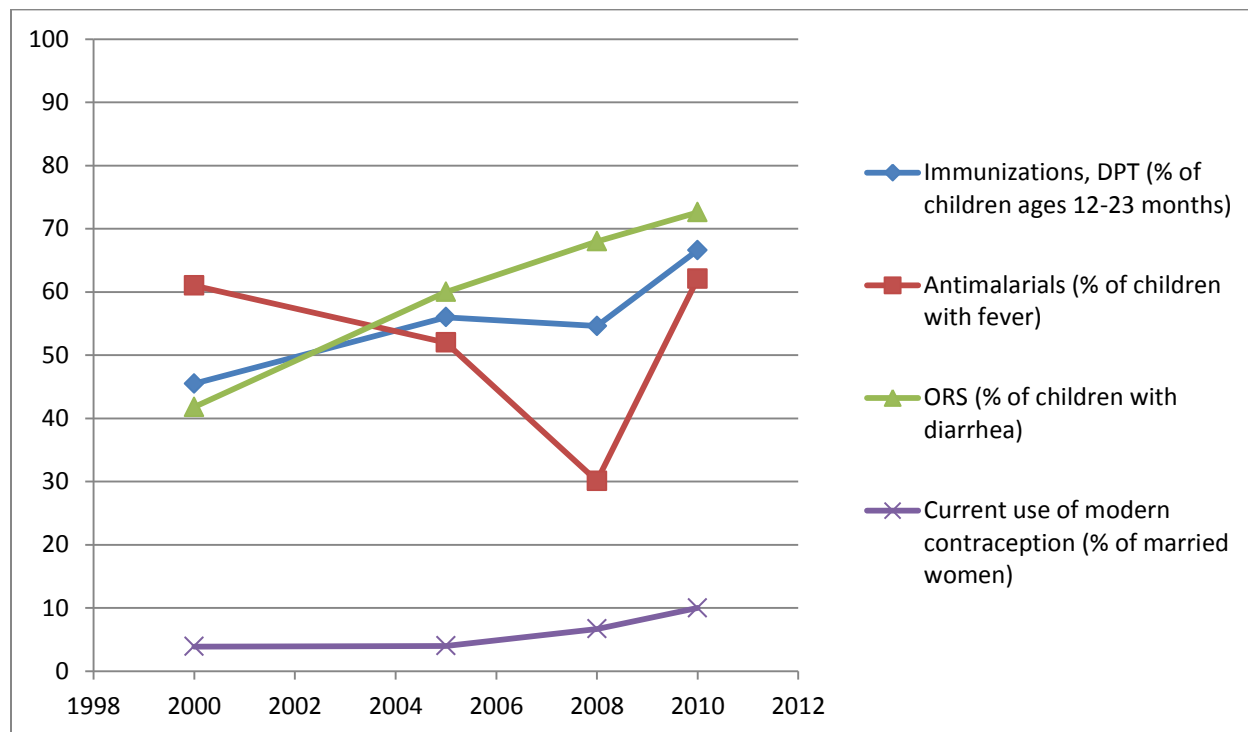


Figure 2. Health services utilization in Sierra Leone, 2000-2010. (Data: MICS2-2000, MICS3-2005, DHS 2008, MICS4-2010.)

3. Approach to scale-up (2 pages)

a. Marketing campaign (incl. approach of major manufacturers and wholesalers)

Over 90% of mothers who had given birth in the last five years in Sierra Leone knew about ORS when surveyed in 2008. One observer explained that ORS packets were available and used: “It was not really a question of making it on your own because sugar and salt, especially sugar, were very expensive.” Knowledge of ORS was associated with cholera outbreaks. Cholera treatment centers equipped with ORS packets and community volunteers called Blue Flag Volunteers (BFVs) were established in camps for internally displaced persons (IDP). In 2001, there were 334,061 registered and approximately 500,000 to 1 million unregistered IDP in Sierra Leone.⁷ ORS packets from UNICEF were widely used in the cholera outbreaks during the mid-1990s and subsequent outbreaks after 2000. BFVs launched a social mobilization campaign for hygiene education and diarrhea control in all IDP camps and involved community leaders in the sensitization process.

“ORS was heavily pushed in camps,” commented one key informant, “in an old-fashioned, talk-at-people-using-a-megaphone-way,” but due to the intensity of the messaging, over many years (some people lived in the camps for up to a decade), there was a population effect. While hardly innovative, this approach got people’s attention. Mothers were aware of ORS and knew it could help, even though

⁶ MICS4, 2010.

⁷ Amowitz LL, et al. JAMA, 2002.

dehydration is not easy to see. Unique to Sierra Leone, in the eyes of one key informant, was the mothers' ability to conceptualize that dehydration is harmful and ORS is not a cure for diarrhea but rather a tool to prevent their child from dying from dehydration.

The Kono Child Survival Program, a five-year collaboration between the Kono District Health Management Team and the International Rescue Committee (IRC), produced and sponsored radio spots and health education sessions at PHUs. Kono District was selected for the high IDP returnee rate, high mortality, very poor water system and lack of protected wells and because it was totally demolished during the war. The radio jingles ran for 10 weeks and played a song about diarrhea prevention and the importance of hand washing on key occasions (after using the toilet, before eating, etc.).

Community-Based Distributors (CBDs) in Kono District were selected by their community members and trained by IRC to provide Community Case Management (CCM) of diarrhea, malaria and pneumonia. The cadre of community health workers also included BFVs (initially trained by the MOHS to treat diarrhea) and vaccinators. The BFVs acted as health promoters and provided behavior change communication (BCC) messages. One of their major tasks was to demystify myths that were common in communities, such as aspiration pneumonia occurs because a child is bewitched rather than attributing it to poor feeding practices. IRC's strategy to promote health and disease prevention included house-to-house visits to provide counseling to mothers, village dramas, and health talks with community and facility health providers.

b. Regulatory change

Three policy documents were developed, adopted and institutionalized: National Medicines Policy of Sierra Leone (2004), National Essential Medicines List for Sierra Leone as part of Basic Package of Essential Health Services for Sierra Leone (2010) and Guidelines for Donations of Medicines to Sierra Leone. ORS (low-osmolarity, orange-flavored) sachets and zinc tablets (20 mg zinc sulphate) are included on the National Essential Medicines List and should be available at PHUs (maternal and child health posts and community health posts) and district hospitals.

c. Development of improved product

As summarized by a key informant, "Unlike treatments for malaria and pneumonia, which have changed and are new, ORS has been around for a long time." Sierra Leone has not developed an improved product but the ORS available through the CBDs is the orange-flavored low-osmolarity formulation. Dispersible, taste-masked zinc tablets are provided by UNICEF (donor) and IRC (implementing agency).

d. Improving public provider knowledge

Following the World Summit for Children held in 1990, the government of Sierra Leone developed a National Program of Action for Children; unfortunately, this wasn't implemented due to the conflict. There are relatively few documents describing early efforts to control diarrhea in Sierra Leone; thus, in keeping with the oral tradition common throughout Africa, much of the history presented in this case study comes from descriptions provided by key informants.

For as long as key informants could remember, Sierra Leone has had a cadre of BFVs who were trained in diarrhea case management at mother health clubs in the 1990s. BFVs live in the community so people have close access to them and hang a blue flag outside their home to show they're qualified to treat

diarrhea. According to key informants, BFVs recommended sugar-salt solution (SSS) and ORS. Historically, there was relatively little government investment in diarrhea control but BFVs were provided with kits and, in turn, provided the population with a point of entry to the health care system. ORT corners were established within the primary health care program in 2002-04 and equipped with rubber cups, spoons and materials to make SSS or to prepare ORS. BFVs were not the only CHWs involved initially; Traditional Birth Attendants, who have an important position in the community and the secret societies, referred children in need of treatment to the PHU. In this sense, the home management of diarrhea was an entry point to IMCI.

The IRC began emergency operations in Sierra Leone in 1999 and is the lead agency in CCM. The MOHS adopted a CCM program and policy in 2006 and changed the context of community health in select districts of Sierra Leone. Through the CCM program in five districts, many BFVs went from being qualified to treat one disease to being trained in case management for three diseases: pneumonia, diarrhea and malaria. The name changed from BFV to Community-Based Distributor (CBD); these CHWs are responsible for CCM and providing messages to caregivers. (Note: Not all BFVs became CBDs. Sometimes a community had a BFV and CBD working in the same community. In other, if the BFV left the community, a new CBD was selected.) Through the program, mothers were taught how to prepare ORS if their child had diarrhea. If ORS was not available, mothers were taught how to prepare SSS at PHUs and clinics.

Nationwide, CHWs are not being taught to treat pneumonia and malaria with antibiotics and anti-malarials but the MOHS is developing a policy and training program for CHWs to incorporate these activities into their scope of work. In the meantime, CHWs are tasked with ensuring that caregivers know the danger signs in their children and seek timely care at a health facility.⁸

IRC led the USAID-funded \$1.5M five-year Child Survival Program (CSP) in Kono District, one of the districts most affected by the conflict, from 2003-2008. CCM activities began in 2006 in 20 peripheral health units (PHUs) in Kono and were extended to all PHUs in the district in 2009, with direct funding from CIDA. IRC launched CCM in two neighboring districts, Koinadugu and Kenema, the same year and in a fourth district, Kambia, in late 2010 and supported by UNICEF, through CIDA. Save the Children also started to implement CCM in Pujehun in 2010, funded by UNICEF. The UNICEF-funded project will expand to Tonkolili and Kailahun in 2012; by the end of the year, CCM will be implemented in seven of the 13 districts of Sierra Leone. No funding is certain for CCM activities in 2013.

The IRC facilitates with the District Health Management Teams and PHUs a six-day training program for CHWs using WHO's IMCI training materials. The CHWs, 30% of whom are illiterate, are nominated by their communities. IRC has a network of peer supervisors who are literate and conduct home-based supervision of CHWs each month (90% rate) where they complete a supervision checklist and assess core competencies, oversee management of drugs and supplies, observe care and treatment provided by CHWs and provide corrective supervision. Peer supervisors are paid 100,000 Leones (~USD 25) each month and oversee 8-16 CHWs. As of April 2012, there are 78 supervisors in Kono and 75 in Kenema. CHWs are uncompensated financially. CHWs earn their living through subsistence farming. Many CHWs are supported by their communities on an annual basis, by the entire community coming to work on their farm or swamp for a day. According to a key informant, CHWs often lack cash to pay workers during the harvest season, and there was more community support for helping CHWs with their farm work during the first year of the project, but it waned in the subsequent years. Despite this challenge,

⁸ Basic Package of Essential Health Services for Sierra Leone, 2010.

CHWs are still willing to fill the role because they want to serve their communities and generally feel supported by their communities. Each CHW covers a population of about 200-500 people.

CARE implemented a USAID Child Survival Project entitled, “The Health of the Child” from 2003 to 2008 in Koinadugu district, with a target population of nearly 50,000 children. The project activities focused on EPI, nutrition and malaria treatment and the introduction of a maternal and newborn care component, but did not appear have a strong diarrhea component. The former Child Survival Technical Support (CSTS+) project (now MCHIP) provided technical assistance to CARE and IRC to assess and measure sustainability.

e. Increasing availability of supply in the public and private sector (incl. procurement)

Initially, UNICEF provided ORS; now it is also ordered from abroad. ORS was available for sale in individual shops and small stalls, but the source and quality of the products is unknown. The results of a national survey of 199 health facilities (17% of all health facilities in Sierra Leone) conducted in April 2011 indicate that ORS had the lowest rate of stock-outs among the six drugs that all facilities are expected to always have in stock: ORS was available in 90% of facilities; 31% of facilities stocked zinc.⁹ In the same survey, 71% of staff had been trained in IMCI in the past two years and two-thirds of facilities had IMCI guidelines posted.

In districts implementing CCM, CHWs are stocked with essential medicines, including ORS and zinc, in two ways: (1) when CHWs submit their monthly reports and their monthly CHW meeting held at the PHU or (2) peer supervisors carry drugs with them during their monthly visits and can re-stock CHWs’ supplies. After CCM had been implemented for just 4-12 months in three districts, IRC conducted a mortality survey in November 2010 and identified that drug stockouts were underreported by CHWs because “stockout” was not clearly defined. According to a key informant, CHWs thought that they had a “stockout” only when they didn’t get their drugs because they missed a monthly meeting. In response, IRC made a change in the program to define “stockout” as not having drugs for a minimum of one day.

In 2001 the government bought drugs at the central level and sold them to districts but this was seen as not working because more participation in the process was needed from PHC. There was a period of time around 2004-05 when, in response to decentralization of government, local health councils were mandated (and empowered) to buy drugs. Local councils began buying medicines in small quantities.

One key informant recalled that ORS packets were widely available in the past two decades in Sierra Leone, even in remote villages, which was very different from other countries such as Liberia and Senegal. People were willing to pay for it, up to 500 Leones (~ USD 0.11), prior to the introduction of CCM and free health care. According to one key informant, “People in Sierra Leone love ORS,” and view it as a ‘magic bullet’ that is widely used by adults for a variety of ailments, including malaria, vomiting and fatigue. It can be purchased from ‘mobile pharmacies’ – vendors on bicycles and motorcycles.

BRAC Sierra Leone started an Essential Health Care Program (EHC) in 2008 to make primary health care available to the communities where BRAC has an established microfinance group. BRAC trained 220 women community health volunteers (CHV) in 2009 to provide basic health services, including diagnosing and treating diarrhea.¹⁰ Each CHV visits 150-200 households per month (all within 1 km of

⁹ MOHS. Sierra Leone Service Availability and Readiness Assessment 2011 Report. 2012.

¹⁰ BRAC. <http://brac.net/content/where-we-work-sierra-leone-health> Accessed June 19, 2012.

her home). CHVs earn a small income from selling health care products such as ORS, mosquito nets, sanitary napkins, contraceptive pills and soap. BRAC has a revolving fund supplying CHVs with kits.

In January 2012, the MOHS launched a partnership for safe medicines initiative aimed at ensuring quality, efficacy and safety of all medicines and promotion of rational use of medicines among healthcare providers and patients. The government is preparing to establish a central national pharmaceutical procurement unit to improve medicines and other supplies procurement and supply chain; updating key policy documents.¹¹

f. Improving private provider knowledge

Marie Stopes International established the BlueStar Healthcare Network franchise in Sierra Leone in 2008. The clinics provide family planning services but not ORS/zinc and MCH services.¹² BRAC in Sierra Leone started an Essential Health Care program in October 2008. BRAC identifies and trains female members from their microfinance groups to become community health promoters (CHP). BRAC has 660 CHP working in 9 districts and covering more than 700,000 households. CHP were “oriented” (no further details available) on how to prepare homemade ORS and started selling ORS to the population. But based on the government and District Health Management Teams’ feedback (details of the feedback and timing not specified) they stopped selling ORS by CHP (personal communication, July 2012).

g. Financing- source and mechanisms

IRC procures ORS from UNICEF. The FHCI is funded largely by DFID and UN agencies. DFID pledged \$22.6M over three years for FHCI from a total allocation of \$70M for the 10-year-long Reproductive and Child Health Care plan, and provided \$7M to UNICEF to provide medicines under the program.¹³

h. Pricing

Prior to the FHCI, all drugs for children under five in Kono were provided free of charge through the CCM program in the five districts.

5. Impact (0.5 page)

i. How efforts change usage

ORS use increased steadily over the past decade since CCM programs have been in place, with no evidence of a reversal in this trend. The final evaluation report on the child survival program in Kono District suggested that 86% of children with recent diarrhea were treated with ORS and 57% received zinc. Nationally, knowledge of ORS is high and antibiotic use (41%) is half that observed in Tanzania.

j. Whether change was sustained

¹¹ WHO and MOHS (Directorate of Drug and Medical Supplies), 2012.

¹² <http://globalhealthsciences.ucsf.edu/sites/default/files/content/ghg/hsi-social-franchising-compendium-2009.pdf>

¹³ Johnson, KS. Sierra Leone boosts infant health care. Global Post. April 27, 2010. Accessed June 20, 2012. <http://www.globalpost.com/dispatch/africa/100426/sierra-leone-boosts-infant-health-care>

For five years (2005-2010) ORS coverage rates were greater than 60% and the most recent data demonstrate that usage has risen to over 70%.

k. Cost of scale-up effort

The cost of ORS has been subsidized by UNICEF and CIDA. Figures are not available for the cost shared by the government with the FHCI in Sierra Leone. While it's almost certain that the private sector had some role in filling any unmet need in the public sector, it's not clear that it was organized by anyone. A big factor may have been that a large portion of the population was in camps and had prolonged exposure to ORS and messages about ORS. If that's the case, perhaps focus on the messaging and worry less about organizing the private sector, which can do so itself when there is demand.

Table 1. Diarrhea case management in Sierra Leone, 2008. (Data: DHS, 2008)

Practice or treatment provided	%
Knowledge of ORS (% of women who gave birth in past 5 years)	90.9
ORS (% of children with diarrhea)	68.0
Increased fluids (% of children with diarrhea)	55.1
Care-seeking for diarrhea (% of children with diarrhea taken to health facility or provider)	47.0
Antibiotic (% of children with diarrhea)	41.0
Increased fluids and continued feeding (% of children with diarrhea)	37.9
Recommended home fluids (% of children with diarrhea)	14.1
Zinc (% of children with diarrhea)	2.0

6. Conclusion (0.5 page)

Sierra Leone appears to have succeeded in scaling up ORS coverage through the process of rebuilding the health system following the conflict. It is unclear to what exactly one can contribute its success. Mothers were exposed to messages, and were able to grasp the concept, in IDP camps that ORS could effectively treat dehydration. At the same time, ORS gained popularity as a “cure-all” treatment that was nicely packaged, widely available, easy to use and considered effective by the population – and not just for diarrhea. An unprecedented 68% of recent childhood diarrheal episodes were treated with ORS in 2008.

It seems that availability and awareness of ORS were key factors driving the product's uptake. ORS was much more available in Sierra Leone than in other countries and the population was highly aware of the product and its intended effect. “The technical aspect became so simple, with WHO's efforts, and UNICEF and partners provided the ORS. The communities were receptive to its use and packaging was very user-friendly. ORS was available everywhere,” according to a key informant. The recent survey showing 90% availability of ORS supports this.

According to a key informant, the IRC Child Survival Program is considered a success in scaling up ORS coverage due to the following five factors: (1) secured funding (from CIDA), (2) communities were very cooperative and carried messages down to village level, (3) the field team had very strong support from

the technical unit, (4) the program, and CCM, was embraced by the MOHS and communities, and (5) excellent program design that was adaptable to lessons learned from the field.

One key informant suggested that ORS success could be defined as much higher than current levels, and zinc coverage should match ORS coverage. “The population is primed,” recognizing that there are obstacles to overcome in making diarrhea treatment more visible using information technology and mobile phones, taking information systems to the next level to track ORS and zinc. Integrated delivery systems and information platforms are needed to take these to scale.

Summary

Component	Degree of success	Drivers of success/failure
Development of improved product (including pricing)	Medium	<ul style="list-style-type: none"> • Subsidy from development partners and Free Health Care Initiative
Marketing campaign	High	<ul style="list-style-type: none"> • Promotion of ORS through community health workers • Targeted effort in IDP camps • Emphasis on using ORS packets because too expensive to make SSS
Regulatory change	High	<ul style="list-style-type: none"> • Included on National Essential Medicines List
Improving private provider knowledge	Unclear	<ul style="list-style-type: none"> •
Improving public provider knowledge and increasing supportive supervision	Medium	<ul style="list-style-type: none"> • Identification of volunteers in the community (BFVs) who were initially trained only to treat diarrhea • Strong supervision component of CCM programs in four districts, including checklists and routine visits to provide corrective supervision
Increasing availability of supply in the public and private sector	High	<ul style="list-style-type: none"> • Very active community promoters (BFVs and CBDs) • Districts and communities in charge of ordering supplies • Peer supervisors facilitate re-stocking ORS in CBDs' kits • MOHS increasing intensity of tracking supplies
Financing of scale-up	High	<ul style="list-style-type: none"> • Lots of donor support to restore infrastructure and health services