UNIVERSITY OF WASHINGTON GLOBAL HEALTH START PROGRAM
REQUEST FROM BILL & MELINDA GATES FOUNDATION
JANUARY 20, 2015

JORDAN ORS CASE STUDY

Acknowledgements

We greatly appreciate the input on these case studies from several key informants, thought partners and reviewers from multiple organizations involved in the promotion of ORS and zinc.

The Bill & Melinda Gates Foundation and UW START would like to thank the following individuals for their contribution to this case study:

Henry Walke, CDC

Camille Saade, FHI360

Mahendra Sheth, UNICEF

Disclaimer

Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors (UW START and Skye Gilbert, Saul Morris, and Shelby Wilson of the Bill & Melinda Gates Foundation) and do not necessarily reflect the views of the key informants, thought partners or reviewers.

OVERVIEW

Status:	Unsustained Success
Major players:	UNICEF, Ministry of Health, USAID, PRITECH, Al-Hikma Pharmaceuticals
Financing:	UNICEF, USAID, product sales
Price:	Exact price unknown
Regulatory change:	Attempted ban on importation & production of anti-diarrheals without success

FIGURE 1: KEY FEATURES OF JORDAN ORS SCALE-UP

Jordan has been classified as an example of unsustained success in the scale-up of an ORS program. Dehydration due to diarrhea was a substantial cause of childhood mortality in Jordan until the early 1980s when infrastructure improvements in drinking water and solid waste sanitation greatly reduced the incidence of diarrheal diseases. Scale-up involved funding and technical support from the United Nations Children's Fund (UNICEF) and the United States Agency for International Development (USAID)'s Technologies for Primary Health Care program (PRITECH), with high level support from the Ministry of Health (MoH). The most inexpensive and popular brand of ORS was Aquasal® which was first produced by the local pharmaceutical company Al-Hikma in 1987. Aquasal®'s first television and radio marketing campaign, supported by UNICEF, targeting the public was unsuccessful in promoting sale of ORS because failed to influence the gatekeepers of ORS distribution—private pharmacists. PRITECH worked with Al-Hikma, UNICEF and MoH to refocus the marketing campaign, harnessing the influential private pharmacy syndicate, which still remains a powerful economic and political force in Jordan.

In the Jordan Population and Family Health Survey's most recent assessment in 2007, awareness of ORS treatment was nearly universal among mothers of young children, but use of either ORS packets or recommended home fluids to treat diarrhea has hovered between 20-40% since the early 1990s. Diarrhea remains prevalent among young children, but it is no longer among the top 3 causes of infant mortality (Khoury and Mas'ad 2002).

TABLE 1: KEY CONTEXTUAL INFORMATION ABOUT JORDAN

Statistic	Estimate	Source
Total population	6.5 million	(CIA 2012)
Under 5 population	823,000	(UNICEF 2012)
Under 5 mortality rate	22 per 1000	(UNICEF 2012)
Human Development Index (HDI) ranking	95/187	(UNDP 2011)
Gross National Income (GNI) per capita	$5,970	(The World Bank 2012)
Life expectancy	80.1 years	(CIA 2012)

CONTEXT

Jordan is a landlocked constitutional monarchy with 6.5M inhabitants of predominantly Arab descent. It is among the smallest countries in the Middle East and, due to insufficient supplies of water, oil and other natural resources, is heavily reliant on foreign assistance as well as remittances from Jordanians working in surrounding countries. Jordan's purchasing power parity (PPP)-adjusted GDP per capita stands at $6,000, higher than that of the World Bank Middle East and North Africa (MENA) region ($3,597), excluding Gulf states (The World Bank a 2012, The World Bank b 2012). Jordanians are largely

employed in the industry (mining, manufacturing, construction, etc.) (20%) and service (77.4%) sectors (CIA 2012). In 1999, chronic high rates of poverty, unemployment, inflation and budget deficits led King Abdullah to implement economic interventions aimed at spurring growth through foreign investment by opening trade, privatizing state-owned companies and eliminating fuel subsidies. However, the global economic slowdown and regional turmoil continues to depress Jordan's GDP growth and Jordan relies on foreign assistance, particularly from Gulf states, to offset its growing budget deficit (CIA 2012).

Jordan's population is predominantly urban (79%), and the urban proportion of the population increased by 1.6% per year from 2010-2012 (CIA 2012). Life expectancy is 80.2 years, 78.8 and 81.6 years for males and females respectively. The literacy rate is 92.6% of the population above age 15 (95.8% for males and 89.2% for females) (CIA 2012).

Jordan's health care system has improved dramatically over the past 2 decades and the country now enjoys one of the most efficient systems in the region (US Embassy Jordan 2012). Uniquely, Jordan's health needs are met by a high number of medical personnel per capita. For every 10,000 Jordanians, there are 28 doctors, 10 nurses and certified midwives, 7 dentists, 9 pharmacists and 16 hospital beds. Jordan's only extant health personnel shortage is in trained, local nurses. The main provider of health services in Jordan is the public sector with 1,245 primary care centers and 27 hospitals, accounting for 37% of all hospital beds in the country. International and charitable organizations such as the United Nations Relief and Works Agency (UNRWA), non-government organizations (NGOs), and other charitable societies also operate in the country, providing free healthcare with a particular focus on refugee health (US Embassy Jordan 2012). Jordan also has a strong network of private pharmacies which often serve as the first point of care throughout the country, accounting for the syndicate's influence at economic and political levels (Camille Saade 2012). The market for private healthcare continues to grow, making Jordan one of the few Middle Eastern countries to generate more income than expenditures through the healthcare system (Hazimeh 2012). The World Bank estimates that within the next five years medical tourism expenditures will rise from $45 billion to $100 billion (Hazimeh 2012). The private healthcare sector has seen the number of foreign patients increase around 10% annually since 2004 (Hazimeh 2012).

Conflicts in the Middle East region are a major current public health issue in Jordan. According to UNRWA, Jordan has a long history of accepting refugees dating back to the Arab-Israeli wars in 1948 and 1967 (UNRWA 2012). Transnational conflicts have resulted in 1,979,580 Palestinian and 29,286 Iraqi refugees registered in Jordan as of 2012 (CIA 2012). Jordan has responded by creating a Department of Palestinian Affairs (DPA) as well as establishing 10 official Palestinian refugee camps (UNRWA 2012). The geo-political climate of the region has affected other aspects of public health in Jordan. After the recent "Arab Spring", Jordan's food prices increased, with the cost of staple foods doubling in some cases (2012). These geo-politically driven fluctuations have created food shortages and protests across the region, although no violence has been reported in Jordan (2012).

HEALTH SYSTEM SUCCESSES AND FAILURES

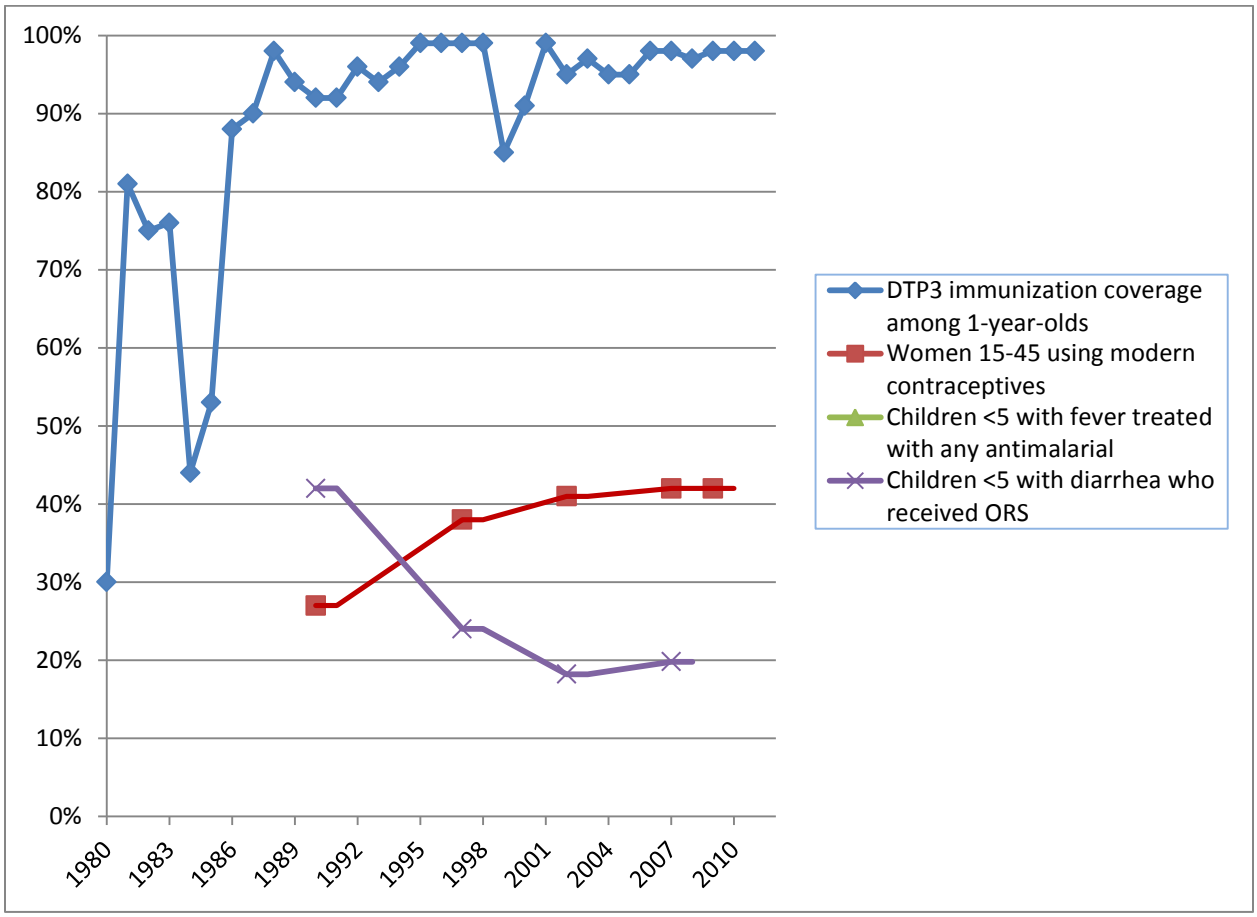

FIGURE 2: KEY HEALTH INDICATORS OF CHILD SURVIVAL IN JORDAN

*JPFHS 2009 Interim Report does not include ORS indicators; The JPFHS does not include antimalarial indicators

Infant mortality in Jordan declined from 32 to 18 deaths per 1000 live births between 1990 and 2010 (UNICEF 2012, US Embassy Jordan 2012). The infant mortality rate among Palestinian refugees was 22.6 per 1000 live births in 2008, the same as Jordan that year. Both groups achieved the country's Millennium Development Goal (MDG) benchmark for reduction in infant mortality (Riccardo, Khader et al. 2011). Under 5 mortality rates followed a similar trend; dropping from 38 to 22 per 1000 between 1990 and 2010 (UNICEF 2012). The Jordan Population and Family Health Survey (JPFHS) 2007 found mortality rates were slightly higher in rural than urban areas and childhood mortality decreased as women's education increased (Department of Statistics 2008). Jordan achieved universal child immunization by 1988 (US Embassy Jordan 2012). According to the 2007 JPFHS, 87% of Jordanian children aged 12-23 months had received all recommended vaccines-one dose of BCG, measles and 3 doses each of DPT and polio. Excluding BCG, which was only added to the recommended vaccines list for Jordan in recent years, 94% of children had received all the basic vaccinations (Department of Statistics 2008) (See Figure 2).

Sixteen percent of Jordan's women are married by age 18 and half are married by age 22. National surveys such as JPFHS 2007 and 2009, which restrict family planning indicators to ever-married women, report that. 42% of ever-married women are using a modern method of contraception; with intrauterine device (IUD) being the most popular (23%) followed by birth control pills (8%). The JPFHS 2009 reports that women have an average of 3.8 children, although women living in the poorest households have nearly twice as many children as women who live in the wealthiest household (4.9 and 2.7 children, respectively) (Department of Statistics 2010).

According to the JPFHS 2009, 8% of children show evidence of chronic malnutrition or stunting, and 2% present with severe stunting. Rural children are more likely to be chronically stunted than urban children (12% versus 7%). Nearly all (99%) Jordanian households have an improved sanitation facility, defined as a flush toilet, a ventilated pit latrine or a pit latrine with a slab. Additionally, almost all households (98%) have access to improved drinking water (Department of Statistics 2010).

STATE OF ORS DISTRIBUTION ACTIVITIES PRIOR TO SCALE-UP EFFORT

The efforts in Jordan to control diarrheal diseases (CDD) go back to the early 1980s. In the 1970s, 40% of childhood deaths were due to diarrhea, according to doctors at Al-Bashir Hospital, the main government hospital in Amman (Spain and Saade 1989). In 1980 USAID invited Dr. David Nalin, whose groundbreaking research in Bangladesh first pioneered oral rehydration therapy (ORT), to Jordan to introduce new concepts of diarrhea management using ORT. An ORT unit was established in Al-Bashir Hospital as an immediate result of that visit (Spain and Saade 1989). A cholera outbreak in 1981 demonstrated conclusive effectiveness of ORT as compared to other therapies in Al-Bashir Hospital (Spain and Saade 1989). Jordan's CDD activities accelerated following that outbreak through the 1980s, although a locally manufactured ORS product was not available until 1987 (Spain and Saade 1989).

The key players in Jordan's ORS scale-up were UNICEF, USAID (later PRITECH), MoH, and Al-Hikma Pharmaceuticals. UNICEF was the main driver of the MoH's national ORS guideline development and continued to be a key player in ORS scale-up and implementation (Camille Saade 2012). USAID provided funding for water and sanitation infrastructure improvements in Jordan throughout the 1980s and later involved their PRITECH program (Spain and Saade 1989). PRITECH began in 1982, supporting diarrheal disease control and ORS worldwide as part of USAID's child survival program and provided technical assistance in Jordan in the late 1980s (USAID 2006). Al-Hikma was the sole manufacturer of Jordan's local ORS product and also played an important role in the later stages of the ORS marketing campaign (Slater and Saade 1996).

APPROACH TO SCALE-UP

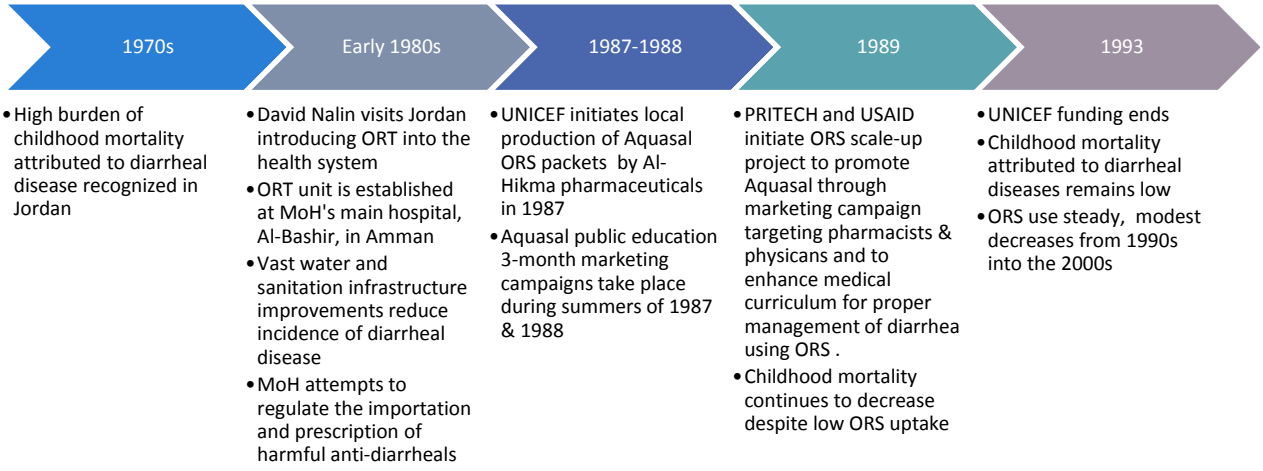

FIGURE 3: ORS SCALE-UP TIMELINE

SCALE UP

Jordan's UNICEF and USAID-supported ORS scale-up consisted of 3 main activities: marketing campaigns promoting a local ORS product, implementation of WHO's diarrheal disease control curriculum, and collaboration with the private sector. ORS scale-up through the 1980s and into the early 1990s was driven mainly by UNICEF and the MoH, with technical assistance from USAID (later through PRITECH). In the mid-1980s, UNICEF pushed for Al-Hikma Pharmaceuticals to produce a locally manufactured ORS product (Camille Saade 2012). Production began in 1987 and UNICEF worked with Al-Hikma to create an extensive public education campaign during the summers of 1987 and 1988 in support of the local ORS product, Aquasal® (Spain and Saade 1989) (See Figure 3). There was adequate effort put into developing the media campaign and promoting Aquasal® amongst the public, but implementation of the scale-up fell short of goals due to fragmented interests within the health system. Doctors felt that diarrheal disease was no longer a serious problem or priority in Jordan, and this view was supported by reports of low morbidity and mortality due to diarrhea (Cutting 1989). According to a June 1988 WHO review, childhood mortality due to diarrhea declined from 5 to 1 per 1000 between 1985 and 1988 (Spain and Saade 1989). Information from the country's main hospital, Al-Bashir, in-patient medical records reported that pediatric deaths due to diarrheal diseases dropped from roughly 40% in the 1970s to 11% by 1987 (Cutting 1989). At the time of the initial Aquasal® campaign, there was approximately only 1 admission for diarrhea daily to Al-Bashir Hospital (Cutting 1989). Doctors did not feel the need to prioritize ORS due to the sentiment that diarrhea was no longer an urgent issue, which contributed the unsustained success of the initial marketing campaign (Spain and Saade 1989).

By 1989, the Ministry of Health's CDD program had introduced ORS in public health facilities, but the government had not yet disseminated an explicit policy on diarrhea case management (Spain and Saade 1989). PRITECH consultants were concerned that the lack of official policy would be a barrier to proper management of diarrhea and inhibit ORS scale-up and advised the implementation of WHO's diarrheal disease curriculum for medical students (Spain and Saade 1989). Incorporating the WHO curriculum into medical pre-service and continuing education became another facet of the ORS scale-up driven by PRITECH's technical assistance. Doctors from the public sector affirmed that Jordan's medical education

adequately prepared medical students to manage diarrhea, but feared that private practitioners, including pharmacists, managed diarrhea improperly (Cutting 1989). During the initial campaign, Al-Hikma and UNICEF had run seminars for private pharmacists and doctors, but it was reported that the market for Aquasal® was driven more by "pull" from the public than "push" from private pharmacists and doctors (Spain and Saade 1989). Aquasal® was inexpensive, running counter to the profit incentives of private pharmacists and doctors. There were reports of over-prescribing antibiotics and anti-diarrheals other than ORS, driven by competition and financial incentive for selling the more lucrative products. Private practitioners often tried to upsell patients with more expensive brands of ORS such as Pedialyte and Hydralyte (Cutting 1989). At that time, private practitioners reportedly made up 60-70% of the doctors in Jordan (Cutting 1989). UNICEF and Al-Hikma revisited the Aquasal® marketing campaign with technical assistance from PRITECH to develop a more effective approach (Spain and Saade 1989). As a result of market research undertaken by PRITECH consultants, a refocused marketing campaign was designed to target the very influential pharmacists of Jordan to increase dispensing of Aquasal® (Camille Saade 2012). Since ORS was exclusively available for free at MoH facilities, in addition to private pharmacies at cost, healthcare providers played a pivotal role as gatekeepers in ORS uptake (Cutting 1989, Camille Saade 2012)

Awareness of Aquasal® and knowledge of the need for oral rehydration was prevalent in the public and medical profession at the time of PRITECH's assistance; however use of ORS was much lower than expected considering the prevalence of diarrhea cases and the low-cost of Aquasal® (Camille Saade 2012). The JPFHS (1990), which was conducted in the midst of UNICEF's ORS scale-up funding, reported that 42% of children with diarrhea received ORS packets as treatment (Department of Statistics 1992). The same JPFHS (1990) reported nearly all mothers of children under 5 experiencing diarrhea (99%) said they knew about ORS packets (Department of Statistics 1992).

MARKETING CAMPAIGN

Two marketing campaigns for Aquasal® occurred throughout the scale-up of ORS in Jordan:

The first campaign was conducted by UNICEF to support the Al-Hikma's sale of Aquasal®. Television and radio spots aired for three months during the summers of 1987 and 1988 and messages were aimed at educating the public, mainly parents of children, about the product's use for diarrhea management (Spain and Saade 1989). Although product sales increased during the campaign due to increased demand among the public, sales dropped immediately after ads were discontinued.

The drop in sales was attributed to pharmacists blocking the sale of Aquasal® because they had not been made aware of the product and were not made part of its promotion (Camille Saade 2012). After hearing or viewing the advertisements, individuals would request Aquasal® at private pharmacies, but many pharmacists refused to sell the product and in some cases returned Aquasal® supplies back to Al-Hikma (Camille Saade 2012). Because of the lack of financial incentive, Al-Hikma wanted to stop production of Aquasal®, spurring UNICEF to seek technical assistance (Camille Saade 2012). Motivated by the success of Bolivia's ORS scale-up marketing campaign, Jordan's country director of UNICEF at the time requested technical assistance from the principal officer responsible for Bolivia's successful campaign, Camille Saade (Camille Saade 2012). PRITECH consultants were brought to Jordan to employ marketing strategies for Aquasal® similar to those used in Bolivia to create sustained sales.

The PRITECH consultants' market research discovered that physicians and pharmacists had felt that the original media campaign ignored their role, so they refused to recommend the product to their patients

(Slater and Saade 1996, Camille Saade 2012). Given the strong syndicate network of pharmacies in Jordan, PRITECH felt the original campaign's focus on health literacy among end-using patients, without providing education for medical personnel, was responsible for its failure (Camille Saade 2012). PRITECH worked with MoH, Al-Hikma and UNICEF to develop a refocused marketing campaign that recognized the very important role of pharmacists in the distribution of Aquasal® (Camille Saade 2012). The importance of pharmacists within the context of Aquasal® marketing was further highlighted by the fact that, outside of MoH facilities, Aquasal® was solely available in pharmacies (Camille Saade 2012).

In the second marketing campaign, Al-Hikma's own detailing[1] team of medical representatives were enlisted to help create demand for Aquasal® among private physicians and pharmacists (Slater and Saade 1996). This was achieved by regularly visiting private providers and distributing brochures, posters and other educational materials as well as verbally promoting Aquasal® (Camille Saade 2012). PRITECH saw pharmacists as a full-fledged economic force in Jordan and strategized to harness their influence to move the Aquasal® product in the population (Camille Saade 2012). The detailing team successfully incorporated Aquasal® into their regular provider outreach. Unfortunately, no formal evaluation of the refocused marketing campaign was conducted and there are no recorded outcomes of the intervention (Camille Saade 2012). However, Aquasal® remains in Al-Hikma's product portfolio to this day (Al-Hikma Pharmaceuticals 2012).

REGULATORY CHANGE

In the mid-1980s, Jordan's MoH attempted to ban importation and production of pediatric anti-diarrheals and antibiotics specific for diarrhea, other than ORS, in accordance with WHO advisories. The full ban was not approved, but the efforts did reduce the availability of some non-ORS anti-diarrheals and antibiotics that were being used for diarrhea management (Spain and Saade 1989).

FINANCING

The ORS scale-up in Jordan was funded by UNICEF, USAID, and Al-Hikma Pharmaceuticals. UNICEF funded the initial media campaign targeting public awareness about Aquasal® (Slater and Saade 1996). Funding for the technical assistance to design a refocused ORS scale-up marketing campaign in Jordan came from USAID through the PRITECH project, which was managed by Management Sciences for Health (MSH) (Spain and Saade 1989). Production, distribution and implementation of the re-focused marketing campaign for Aquasal® came directly from Al-Hikma (Camille Saade 2012).

PRICING

According to PRITECH consultants' reports, Aquasal® was inexpensive compared to other diarrhea management products such as Pedialyte and Hydralyte available on the market (Cutting 1989). The actual price of Aquasal® in monetary units is unknown.

[1] *Detailing is an educational activity by sales representatives (known as 'detailers') from pharmaceutical companies or manufacturers to provide information on a product's potential uses, benefits, and side/adverse effects in hopes that the physician will prescribe or the pharmacist will dispense the company's products more often.*

IMPACT

In the 1997 JPFHS survey, 99% of women with children less than 5 years of age were familiar with ORS. 24.0% of children who had diarrhea were treated with ORS, 7.7% received RHF at home, and 28.8% received either ORS or RHF. 71.9% received increased fluids. 22.0% did not receive any ORT (which includes ORS, RHF, and fluid increase). Use of ORS packets was higher in rural areas (30.9%) compared to urban areas (22.2%), and children with diarrhea in rural areas were more likely to be taken to a health facility (54.9%) compared to those in urban areas (48.3%) (Department of Statistics 1998).

According to the JPFHS 2007, 16% of children under age 5 had experienced diarrhea in the 2 weeks preceding the survey. Among those children who had experienced diarrhea, 55% received treatment or advice from a health provider. Almost all mothers (94%) with children born in the last 5 years knew about ORS packets, but only 20% of children with diarrhea were treated with ORS packets or recommended homemade fluids. Many more (46%) were treated with increased fluids alone. Almost half of such children received antibiotics and 22% received no treatment at all (Department of Statistics 2008).

Low uptake of ORS is reported for episodes of child diarrhea in both the JPFHS 1997 and JPFHS 2007 (See Figure 2); suggesting sustained low uptake of ORS in Jordan. Every JPFHS has reported a major discrepancy between awareness of ORS and uptake since 1990 (Department of Statistics 1992, Department of Statistics 1998, Department of Statistics 2008).

CONCLUSIONS

Childhood mortality attributed to diarrhea dropped significantly from the 1970s to the late 1980s due to infrastructure improvements in water and sanitation. Although diarrhea still remained a common illness among children in Jordan, it was no longer considered a serious problem during the ORS scale-up. Priority given to diarrheal disease diminished drastically in the medical community beginning in the early 1980s, when it was last seen as a leading cause of childhood mortality. Awareness of ORS has remained nearly universal since the ORS scale-up, but is currently used in only 20% of childhood diarrhea cases; approximately half the level it was at the time of the ORS scale-up activities of the late 1980s (Department of Statistics 1992, Department of Statistics 2008). The precise reason why Jordan's ORS uptake remained stagnant throughout the scale-up remains unknown. However, the information from the marketing campaigns paired with the reported sentiment among care providers at the time and reduction in amount of diarrheal disease suggests that fragmented interests within the health system may have played a key role.

APPENDIX 1:

EVALUATION OF ORS SCALE-UP EFFORTS ACROSS SIX KEY COMPONENTS

Component	Degree of success (H/M/L)	Drivers of success/failure
Development of improved product (including pricing)	H	• Local manufacturing of Aquasal® by Al Hikma Pharmaceuticals
Marketing campaign	L,H	• Television campaigns during 2 consecutive 3 month summers when childhood diarrhea was most likely to occur • Targeted end-users, did not target prescribers and other healthcare provider • Al Hikma's campaign refocused to target pharmacists and physicians using detailing team
Regulatory change	L	• Government of Jordan moved to ban importation of anti-diarrheals and antibiotics for diarrhea management. Though a full ban was unsuccessful, availability of harmful drugs was reduced
Improving private provider knowledge	L,H	• Al Hikma's detailing team incorporated Aquasal® into their regular promotional visits to pharmacists and physicians
Improving public provider knowledge and increasing supportive supervision	H	• Educational curriculum for medical students on management of diarrhea was supported and implemented during the scale-up • Government supported effort with regulatory help from public medical institutions within the Ministry of Health
Increasing availability of supply in the public and private sector	L,H	• Manufactured locally since 1987 and continually promoted by regular detailing team
Financing of scale-up	L	• USAID, Al Hikma, UNICEF

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