

# ORS Case Study

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Senegal

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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.

## Context

### a. Country demographics

Senegal is one of the most stable countries in West Africa. It has a population of 12.8 million, which is growing at a rate of 2.8%. Nearly a quarter of the population resides in Dakar, the capital city. French and Wolof are the predominant languages spoken. Religion plays an important role in the life of Senegalese men and women; the majority (94%) of the population is Muslim, 5% are Christian and 1% hold indigenous beliefs.

### b. Population health

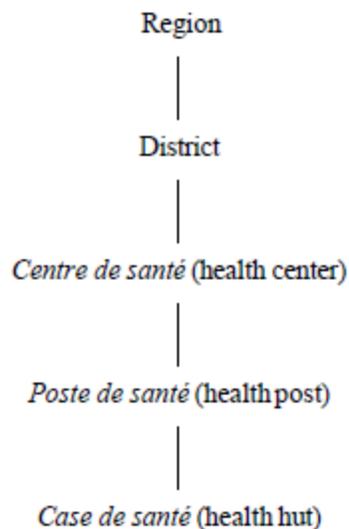
Malaria, neonatal causes, pneumonia, diarrhea, measles are major causes of infant and child mortality. While the under-five mortality rate decreased from 121 deaths per 1,000 live births in 2000 to 72 deaths per 1,000 live births in 2010, it is anticipated that Senegal will not meet MDG4 according to the latest *Countdown to 2015* report. More than one-quarter (27%) of Senegalese children under age five are stunted but the prevalence varies widely across regions. Like other West African countries, stunting is more common in rural areas of Senegal than in urban areas (31% versus 19%). In addition, while the majority (94%) of the urban has access to improved water source, just two thirds (65%) of the rural population does. Senegal has one of the lowest modern contraceptive prevalence rates (12.1%) and there has been little increase over the past five years. The HIV prevalence in adults has been <1% for over a decade.

### c. Health system

Administratively, Senegal is divided into 14 regions and 46 departments. Each of the 14 regions has a Regional Chief Medical Officer and the system is further decentralized into 75 health districts that are led by District Chief Medical Officers in conjunction with a District Health Management Team. Together, they oversee the District Health Center and staff at peripheral facilities. Health facilities include 22 hospitals, 78 health centers, 986 public health posts, and 144 private health posts.

Each district serves a population of 150,000 to 300,000 people, with at least one health center (*centre de santé*, covering about 175,000 people) and 15 to 30 health posts (*postes de santé*, covering approximately 10,000 people) attached to a health center. Nearly 80% of the population lives within 5 km from a health center or health post.

In some districts, there is a more peripheral clinical structure, called a “health hut” (*case de santé*), run by a volunteer community health worker (CHW) and attached to a health post. Over 75% of these huts are supported by USAID and meet “functional” criteria. The huts have CHWs (who are supervised by nurses at the nearest health post), trained birth attendants (*matrones*) and health educators/communicators (*relais*).



**Figure 1.** Structure of the health system in Senegal (US Global Health Strategy)

While Senegal is less dependent on donor resources for health than other countries in sub-Saharan Africa, USAID has had a steady, consistent presence. USAID has been working in Senegal for over 50 years and more than half of the mission budget goes toward health. Significant donor contributions have been made for malaria.

The government is implementing the recently approved National Health Plan 2009-2018 (PNDS in French). The purpose is for all individuals, households, and communities to enjoy universal access to quality curative and preventive services without exclusion. The primary objectives are the reduction of maternal mortality, child morbidity and mortality, and total fertility. Additionally, improving health sector performance, health system sustainability, and health sector governance are top priorities. The Food, Nutrition and Child Surveillance Division (DANSE in French) directs the Ministry of Health's nutrition activities and diarrhea control program, which is now part of the Integrated Management of Childhood Illness (IMCI). Senegal has a national policy promoting the use of ORS and zinc supplements for the treatment of diarrhea. The national Nutrition Reinforcement Program (PRN in French) promotes the provision of zinc supplements to children during diarrheal episodes, when authorized by a health provider.

The pharmaceutical sector is administered and regulated by the Pharmacy and Medicine Direction (DPM in French). Responsibilities include authorizing drug regulation in the private market, registering private pharmacies and depots, inspecting pharmacies and controlling prices in the private sector. The DPM revises and issues the essential drugs list (EDL) and standard treatment guidelines every two years. The National Control Laboratory for Drugs oversees the quality of products. There are 600-700 registered pharmacists in Senegal; 60% of pharmacies are in Dakar. Most (85-90%) drugs are imported (MSH, 2002), primarily from France.

The government's central medical store, the National Supply Pharmacy (PNA), purchases drugs and supplies and distributes drugs in the public sector. The majority of drugs are purchased through international tender every two years and delivery takes approximately six months (MSH, 2002). The distribution of drugs through the private sector is through three wholesalers (Cophase, Laborex and Sodipharm) who import 80-90% of drugs. A third sector for drug distribution includes traditional sector and mobile vendors, and the Touba and Keur Serigne Bi sectors, which are organized parallel systems offering wholesale and retail drug outlet services (prices tend to be 30% lower than in private sector, but up to one third of samples were found to be placebos in a study by Guimer and Candau in 2001).

d. Other meta-facts important to know (conflict, etc.)

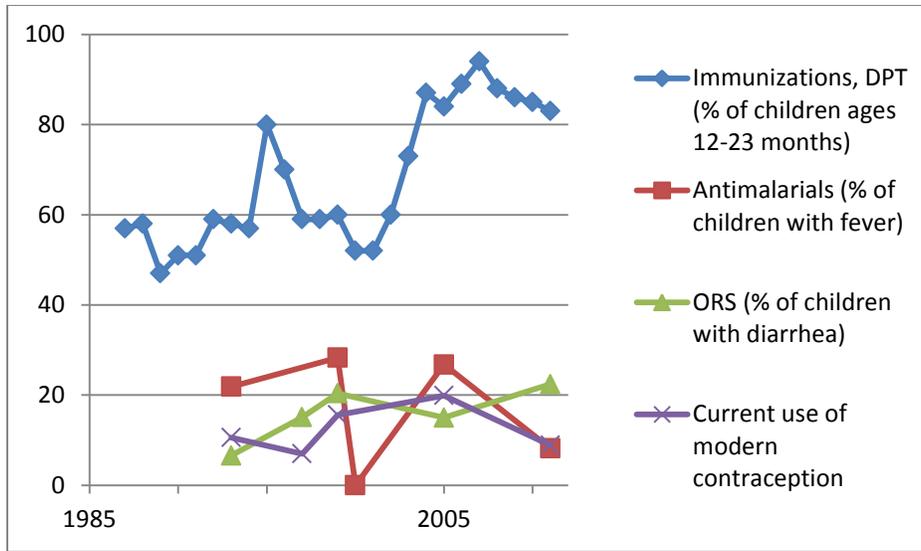
Over the past decade, Senegal has suffered from a lack of transparency and accountability among its leadership. During his two terms, former President Abdoulaye Wade amended Senegal's constitution a dozen times to increase executive power and to weaken the opposition. The inauguration of newly elected President Macky Sall earlier this year represents to Senegalese a new era and the appointment of Dr. Awa Marie Coll Seck as the Minister of Health bodes well for increasing political commitment to health equity and improving child health.

**Health system successes and failures**

The use of ORS was very low in the early nineties (6.6% in 1992-1993) but has only shown modest improvement over time, with coverage ranging between 15-20% in 1997-2005. Coverage is the highest it's ever been, but only 22.1% of children with diarrhea are treated with ORS. Key informants attributed the low coverage of ORS to: (1) promotion of home fluids instead of ORS, (2) poor acceptance of ORS (too salty, thus taste a barrier to its use), (3) lack of ORS availability, (4) no community/household component of IMCI, and (5) insufficient training, supervision and monitoring of health agents (only health agents in health structures were trained, whereas many providers in *cases de santé* (community health workers) were never trained and quality of care was poor).

Senegal has an erratic history with routine immunization. There has been improvement since the coverage rate of 51% in 1990, but in recent years, there has been a sharp decrease, from 94% in 2007 to 70% in 2010. The use of antimalarials in children under the age of five has steadily been declining, from 36% on 2000, to 8% in 2010-2011. However, less than half of children receiving antimalarials were being prescribed ACT therapy. The use of antibiotics for children under the age of five who present with pneumonia symptoms has not been well documented in Senegal. Twenty years ago, 18% of children with suspected pneumonia were receiving antibiotics (1992-1993).

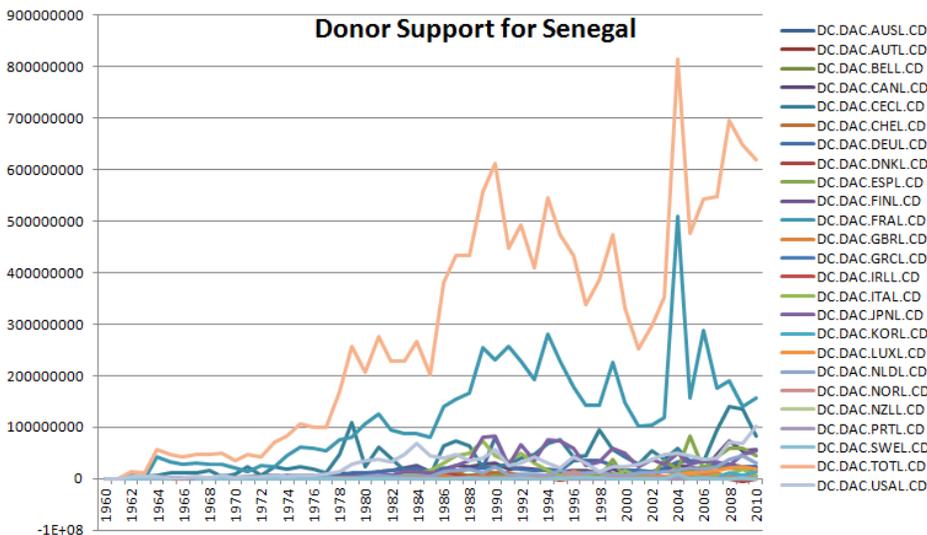
Use of a modern method of contraception remains low. Higher levels of education and living in urban areas increases chance of usage. The rate has only increased by 2% since 2005. Twenty-nine percent of Senegalese women have unmet need for family planning. Among women not using contraception, 89% did not discuss family planning with a health worker.



**Figure 2.** Health services utilization in Senegal, 1986-2011. (Data from UNICEF and the Senegal DHS.)

e. Describe meta-trends that explain overall trends across commodities

**Changes in trends based on overall donor funding.** Many trends in commodities have been closely tied to funding from different organizations and countries. For example, DPT3 coverage trends seem to mirror funding patterns, with a slight lag.



**Figure 3.** Donor Support for Senegal. *Data source to be confirmed with JHU/MCHIP.*

**Improvements in specific, targeted causes.** Large improvements have been seen in areas where there is significant donor funding. For example, after WHO recommended universal parasitological confirmation of suspected malaria prior to treatment, significant donor funding allowed for the wide-scale use of rapid diagnostic tests in all public health facilities. One study showed that, as a result, the prescription of

ACT dropped from 73% to 32% (Thiam et al. 2011). As mentioned above, large amounts of funding for malaria have allowed for significant improvements in this area of Senegal's health system.

**Difficulties in areas that require continued primary care.** Senegal has a very limited health workforce, making areas of health that require continued primary care, including immunizations and contraception extremely difficult. Furthermore, the majority of doctors (more than 60%) live in Dakar, even though it only as 25% of the country's population (WHO Bulletin, Zurn et al., 2010). There are 0.6 doctors per 10,000 population, 4.2 midwives/nurses per 10,000 population and 0.1 pharmaceutical personnel per 10,000 population (WHS 2011).

**General challenges as described by US Global Health Strategy**, as follows:

- Persistent health *status* challenges- contraception rates have remained stagnant, immunization coverage has been declining and measles/polio have been a problem, malnutrition persists
- Inconsistent access to high *quality* health services- high costs, poor quality, low use of services in some areas- not perceived as meeting the needs and demands of the intended clientele (ex. inconvenient times)
- Persistent health *system* challenges- chronic problems with human resources, nominally functional health information management, weak governance, challenges in decentralized management of health districts and pharmaceutical supply chains.

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#### **State of ORS + Zn prior to scale-up effort**

Currently, ORS is only used in 22.1% of diarrhea cases in children under the age of five and only 0.2% of children with diarrhea receive zinc supplementation. Using recommended homemade fluids is also rare and only used in 7.8% of cases (DHS 2010-2011). According to the 1991 DHS, 45% mothers knew about ORS, 31% used ORS and just 6.6% children with diarrhea were treated with ORS – not surprising when examining the gap between ORS in stock and the quantity needed: in 1995, PNA had 700,000 packets in stock (all from UNICEF) and the estimated need was 3.5 million. (USAID 1995)

The use of ORS to treat diarrhea remains very low; in the last two years, Senegal's MoH has initiated several changes in its diarrhea treatment policy to adopt the new WHO/UNICEF guidelines for diarrhea treatment, including zinc and low-osmolarity ORS. Canadian partners the Micronutrient Initiative, the Government of Canada and Teck (mining company) launched a major project with the Senegal MoH in May 2012 that aims to reduce childhood deaths from diarrhea. The Zinc Alliance for Child Health (ZACH) project in Senegal will scale up the use of zinc supplementation and oral rehydration salts (ORS) to treat diarrhea across the country. Minister of Health Dr. Coll Seck voiced her commitment during the ZACH launch in May "to ensure that every child with diarrhea is treated correctly and efficiently through the use of zinc in combination with oral rehydration therapy." (Micronutrient Initiative, 2012)

#### **Approach to scale-up**

One key informant described the history of ORS in Senegal in three phases: (1) prior to 1980, oral rehydration therapy (ORT) was not really addressed; (2) during the 1980s, focus on ORT; and (3) during the 1990s until present, focus on IMCI and, currently, promoting low-osmolarity ORS and zinc.

A national diarrhea treatment program was established by the MoH in Senegal in the late 1980s. UNICEF, USAID, PLAN International, World Vision, World Bank, Africare, and Counterpart were the MoH's major partners in diarrhea control program. Diarrhea treatment activities over the past 25 years were largely funded by USAID.

### **PRITECH (USAID), 1985-1993**

ORS was introduced in 1985 through the PRITECH (USAID) project. The product was donated by USAID and UNICEF to the Ministry of Health, which distributed it free of charge. PRITECH promoted sugar-salt solution before ORS and adapted the WHO module for the prevention of dehydration to the Senegalese context.

### **BASICS (USAID), 1994-2006**

BASICS followed PRITECH and continued to promote ORS and ORT. Community case management of pneumonia with integration of diarrhea and malaria management was a priority. USAID/BASICS implemented a comprehensive technical assistance (TA) program designed to scale up critical interventions for infant and child survival in 22 of Senegal's 75 health districts, spanning four health regions (Thies, Louga, Kaolack, Ziguinchor). Activities in a fifth region, Fatick, began in 2007. BASICS provided TA to MoH and Dakar University (ISRP and IPS) for tools development, advocacy, planning and coordination efforts in a zinc/ORS country assessment.

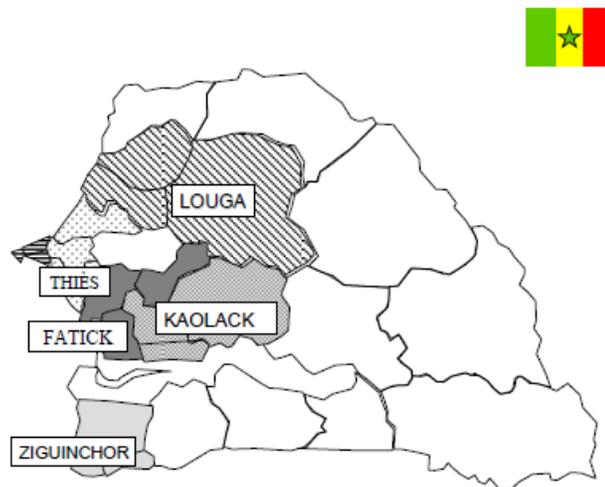


Figure XX. USAID/BASICS Intervention Districts in Senegal, 1994-2006 (USAID/BASICS, 2006)

The MoH (DANSE) led operations research at district level to support introduction of zinc and low-osmolarity ORS for diarrhea treatment; USAID/BASICS trained the trainers and CHWs, and provided supervision; UNICEF supplied vehicles/supplies for EPI, equipment for health huts for CCM, provided TA for child survival and EPI programs; FAD II (AfDB health project) trained 96 district-level staff in IMCI; and WAHO financed activities for scale-up of child survival interventions.

### **Child Survival Program (USAID), 1998-2002**

Plan International Senegal worked with the MoH in districts of Nioro and Louga to improve health status of children under 5 years of age and their mothers (total beneficiary population of 58,075). The project strategy addressed five key child survival issues, including diarrheal disease control.

The three primary objectives were: (1) Empower existing community-based organizations; (2) Promote MoH institutional capacity to improve the quality of child survival services delivered in project sites; and (3) Sensitize and educate child caretakers and influential community members on child survival interventions and promote increased use of appropriate services. The project was successful in increasing knowledge of ORS preparation: the percentage of mothers who know theoretically how to prepare ORS went from 20.4% to 78%. ORS packets, however, were not available at the community/household level and often were not available regularly at the health post. The project staff explained that children do not like the taste of ORS salts so caregivers prefer not to buy them and, as a result, health posts often have expired ORS packets.

### **Fatick Partnership (USAID), 2007-2009**

The objective of the two-year Fatick Partnership (USAID) with the MoH was to coordinate child survival activities in Senegal after the BASICS project expired in 2006. Fatick district (one of seven districts in the Fatick region) was selected to take part in the introduction phase of zinc and low-osmolarity ORS for diarrhea treatment at the community level.

### **Community Health Program (USAID), 2006-2011**

The Community Health Program was implemented by consortium of six NGOs (ChildFund, Africare, Plan, World Vision, Catholic Relief Services and Counterpart International) to strengthen access to primary health care services in previously underserved rural communities across the country. The approach was to revitalize and staff existing but underutilized network of health facilities where patients would be provided with a *paquet de services de base* (basic package of preventive and curative services that would response to primary health care requirements), including maternal, newborn, and child health care. This included equipping and staffing a network of rural *cases de santé* (2-3 room structures) that were built under previous projects with support from USAID, other donors, and community members- but were understaffed, underutilized, and often closed down. The MoH lacks its own resources to support these facilities but considers them the base of the health care pyramid. Funding: \$13M for original five regions; after expanded to 13 regions valued at \$26M (further expansion to “virtual” national coverage planned in a new five-year phase).

### **Tostan Program, 1998-present**

Tostan is an NGO based in Senegal, established in 1991 to empower communities to bring about sustainable development and positive social change. In 1998-1999, Tostan started a capacity-building program in three regions, Kolda, Thies, and Fatick. Tostan works outside state-sponsored educational systems, often with adolescents and adults who have never been to school. Health topics are integrated into Tostan’s Community Empowerment Program; as part of the curriculum, teachers use illustrations that teach the steps involve in preventing dehydration from diarrhea. No formal evaluation is available.

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

There was no real plan for communications; both mass and interpersonal communications were very limited.

- b. Regulatory change

The MoH approved ORS inclusion on the essential medicines list in 1995.

- c. Development of improved product

All ORS in Senegal is imported (now low-osmolality, flavored) and no improved product has been developed in-country.

- d. Improving public provider knowledge

Community case management dates as far back as 1967 in Senegal when Pikine, a suburb of Dakar, began organizing a mobile health team of mothers to provide basic preventive care to the population (Fassin D, 1986). In Senegal, IMCI was adopted in 1996 and the national personnel training plan was developed by MoH/DANSE. IMCI was implemented by district health management team (ECD), head nurse (ICP) and community health workers (ASC). Training and refresher training on child survival provided by DANSE to regional and district health management teams and nurses and midwives but only 16% of qualified personnel used the IMCI approach on a regular basis, per an IMCI evaluation in 2008. Only 53 of 1465 children (3.6%) were seen by a provider who followed proper IMCI guidelines. The most frequently reported reason for non-use was the “unwieldiness of IMCI procedures” and the significantly longer amount of time required for patient consultations using the IMCI protocol (10-15 minutes/patient) rather than usual care (5 minutes/patient) (Camara, 2008).

While national coverage of ORS has been low (~20%), some districts reported higher coverage in the Drug Management for Childhood Illness Assessment in 2001. Regardless of the presence of IMCI in six districts assessed in 2001, 60% of diarrhea cases (of 779 patient records reviewed) reportedly received ORS and 64% received antibiotics. ORS was available in 67% of facilities. Of 27 simulated cases of simple diarrhea in the private sector none were recommended or sold ORS. In the private sector, ORS was not licensed to be sold in private pharmacies nor classified as a medicine because it does not have a “visa”. Survey results identified a wide variation in the prices of drugs sold in the public sector due to lack of following protocols and a need to improve prescribing practices. Recommended store management tools (reporting forms, stock cards) available for use in storage facilities and health facilities (Drug Management for Childhood Illness Assessment, 2001).

A community Drug Management for Childhood Illness Assessment (2002) reported much lower coverage: only one fifth of children were receiving ORS, while a fifth of diarrheal cases were receiving antibiotics for uncomplicated diarrhea. Several recommendations were made in the report, including: (1) Communicate messages about diarrhea/ORS aimed at changing the behavior of caregivers through the media, local community groups of village leaders, women’s groups, community health workers (*relais*), community organizations, and caregivers themselves; (2) Extend IMCI training of health workers

to reach national coverage; (3) Train staff of public health facilities in store management to ensure availability of drugs- including ORS; (4) Strengthen supervision and the semiannual monitoring by district health teams of health facilities to monitor drug availability and use; (5) integrate messages promoting use and explaining preparation of ORS into other activities of health post, such as prenatal care; and (6) Develop an accredited drug outlet system (a level below pharmacy) where the seller is trained in recommending and selling certain appropriate drugs, such as ORS and antipyretics. It appears that these recommendations have not been systematically implemented.

With funding from CIDA, UNICEF implemented the Accelerated Child Survival and Development (ACSD) program in 11 countries, including Senegal, from 2001 to 2005, with the goal of reducing under-five mortality through delivery of critical interventions, including improved integrated management of children with pneumonia, diarrhea and malaria at facility, community and family levels. The endline mortality data from Senegal, however, were not of adequate quality so the JHU-led retrospective evaluation of the program was not conducted in Senegal. Instead the evaluation was conducted in the other West African ACSD countries: Benin, Ghana and Mali.

USAID reports that Senegal has been successfully implementing iCCM (including for acute respiratory illness [ARI], diarrhea, and malaria) since 2003. As of mid-2010, the program covered more than 1,600 community sites in 58 of 69 districts (Raharison et al, 2011).

An IMCI 2006 Health Facility Survey, referred to in the 2009–2018 Senegalese National Health Development Plan,<sup>12</sup> reports that the most common diseases managed through IMCI are malaria (72%), ARI (47%), and diarrhea (23%). The study showed health worker performance for the management of malaria was satisfactory, with 95% managing it correctly. The performance indicators were much lower, however, for ARI (35%) and diarrhea (56%).

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

UNICEF supplied all ORS in Senegal from about 1985 to 2000. In the early 1990s, UNICEF briefly stopped donations due to budgetary restrictions and a focus on EPI (USAID 1995). The highest volume of use was in 1988-1989 (400,000) but plummeted to 125,000 by 1993. A weak distribution system (described below) that caused frequent shortages and stock-outs likely played a large role (USAID 1995), as follows:

- Dakar – SANAS (Food and Applied Nutrition Service of Senegal) controlled stocks (stored at the government’s central medical store, PNA) and distributed to the regions and districts by request.
- Regions – BRAN (Bureau of Food and Applied Nutrition) requested approval for new quantities from SANAS, secure transportation to region, and store packets.
- Districts – Needs submitted to BRAN and same system applied. Small quantities distributed through private charity network.
- Health facilities – ORS given for free to patients.

The Senegal Drug Management for Childhood Illness (DMCI) assessment conducted in 2001 assessed drug availability (in public sector) and use (public and private sectors) of essential drugs and medical supplies for acute respiratory infections, diarrhea and malaria (Rational Pharmaceutical Management or RMP, MSH 2002). The sample size was 30 facilities (5 from each selected district) and data collection

methods included conducting outlet surveys (n=51 public drug stores), patient record reviews (n=3115) and mystery client/simulated purchases (n=27 for diarrhea treatment) to assess dispensing in private pharmacies. At the time of the survey, Senegal IMCI treatment protocols did not follow the national essential drugs list (EDL) and standard treatment protocols. Procurement was generally efficient, with prices lower than median international prices (90% of prices) but harmonization of guidelines and drug lists was cited as a problem. The availability of essential drugs was highest at the storage facilities and decreased to the more peripheral health facilities (weak supply chain management).

The assessment showed that although some drugs, such as chloroquine and co-trimoxazole are available, ORS availability in the public sector was poor and ORS was not found at all in private pharmacies. Half of caregivers surveyed felt that ORS was available in their locality, more than the actual availability. Awareness of the product ORS appeared to be low among the caregivers surveyed. Only one fifth of children were receiving ORS, while a fifth of diarrheal cases were receiving antibiotics for uncomplicated diarrhea. Caregivers, in general, were not managing diarrhea well with increased fluids and/or ORS. Pharmacies in Thies and Kaolack, 96% of pharmacies had antidiarrheals in stock but no ORS.

The main problems found in the MSH survey (2002) were as follows: cold chain, selection of drugs (essential medicines were not those as recommended on the IMCI list), low stock, inadequate stock management and record-keeping, excessive use of antibiotics for diarrhea and low ORS use, inadequate communication of how to administer drugs to patients and other information.

The vast majority of providers in health facilities and health huts recommended ORS in the 2002 C-DMCI survey (>80%), but less than 10% of pharmacists and other vendors recommended ORS.

#### f. Improving private provider knowledge

In 1995, despite ORS distribution occurring for a decade, SANAS had not systematically provided training or information to the private health sector (USAID 1995). MSH's SPS Program (2008-11) addressed private sector pharmacies and training pharmacists on new IMCI guidelines (and Senegal's policy change) to include low-osmolarity ORS and dispersible zinc because common prescribing practices were antidiarrheals and antibiotics. Trainings included traditional healers, pharmacists and physicians as well as drug sellers.

#### g. Financing- source and mechanisms

As mentioned above, USAID has contributed significantly to the health budget for Senegal, particularly child survival programs over the past 25 years.

#### h. Pricing

The price of ORS has changed little over the past three decades (attribute any change to change in value of currency). Median price of ORS sachet was ~US\$0.18 (87.5 CFA, range: 50-180 using n=6 public sector facilities) in 2001 survey (MSH, 2002). The central medical store, PNA, sold ORS at a public price of 50 CFA/sachet (~US \$0.10 today) in 1991. The government started to examine the possibility of selling ORS

in private sector because the majority of care sought in private sector. ORS remains more expensive in private pharmacies (brand name ORS).

### **Impact**

#### i. How efforts change usage

Despite USAID's ongoing presence and partnership with the MoH and a consortium of NGOs, there appears to be little change in ORS use since the mid-1980s and coverage remains low (~20%). In Fatick (a partnership between USAID/BASICS and MoH, through 2009) only 18% of cases received zinc and ORS (21% of malaria cases were not classified, 15% of children diagnosed with pneumonia did not receive appropriate antibiotic treatment). Key issues of quality of care that ill children received through IMCI.

#### j. Whether change was sustained

ORS coverage has remained consistently low. While stock-outs mid-way may have contributed to the decline in use over the past three decades, low availability is not the only bottleneck.

#### k. Cost of scale-up effort

USAID invested \$26M in the five-year Community Health Program (2006-11) which showed little change. There remains insufficient funding for IMCI through the national health system. While integration is at the heart of IMCI and the procedures were developed to integrate service delivery, the resources for malaria weren't integrated into IMCI.

### **Conclusion**

#### l. What about context and approach was predictive of impact

The strong reliance on external donor funding, most notably from USAID, limited the need for the MoH to account for community case management of diarrhea in the budget and resources. The limited scope and scale of projects (only in the five "*regions de l'USAID*" as referred to by a key informant) and program evaluations provide experience for just a few regions. The MoH's capacity to monitor community coverage has been weak, and the government has relied heavily on NGOs to generate data, often of variable quality. Efforts among NGOs appear to have been uncoordinated and not strategic.

#### m. Whether it was a 'good buy' or not

Diarrhea has suffered from a lack of prioritization compared to other diseases (e.g. malaria). With the new formulation of ORS (low-osmolality, flavored) imported into Senegal, and with the advent of zinc therapy for diarrhea, the country is repositioning diarrhea treatment with a new strategy and support from the MoH and partners to launch ZACH.

#### n. What could have been done differently

Key informants cited the need to focus on treatment of diarrhea at home and in community; a question of vision and strong direction from leadership that was lacking, as evidenced by the strong reliance on

donor funding. The contribution of research partners and conduct of program evaluations is needed, but the quality of evaluations has been variable. Stronger communication at all levels – while mass communication is warranted, really can't underscore the value of interpersonal communication as a way to reach mothers/caregivers with information; question of access to the population (CREN/UROs are only in health centers which are not easily accessed by majority of population so need to fill gaps between health centers, health huts/cases and ASCs/CHWs to reach people in their homes.)

The new ZACH program provides an opportunity in the future to improve ORS (and zinc) use in Senegal. One key informant is optimistic about this program as an opportunity to bring about change, in contrast to previous programs that have had limited success, because 1) the support (\$20M, public-private partnership between MoH, MI, CIDA and Teck), 2) collaboration between all relevant actors and strong leadership, 3) clear plan for all aspects perceived as relevant (communications, training, evaluations, pharmacy, supply, etc.), 4) using low-osmolarity ORS (better taste) and dispersible zinc, and 5) plan for scale (50 districts in 2012, nationwide in 2013).

## Summary

Component	Degree of success	Drivers of success/failure
Development of improved product (including pricing)	Medium	<ul style="list-style-type: none"> <li>• Orange-flavored low-osmolarity ORS available but not imported, not produced by local manufacturer</li> <li>• Private sector supply (brand) not affordable to the majority of the population</li> </ul>
Marketing campaign	Low	<ul style="list-style-type: none"> <li>• Promotion limited to five USAID regions</li> <li>• High knowledge of ORS among mothers, but low utilization</li> <li>• Unclear if mixed messages (SSS, ORT, ORS) through various NGO programs were poorly understood</li> </ul>
Regulatory change	High	<ul style="list-style-type: none"> <li>• Low-osmolarity ORS and zinc included on national Essential Medicines List and as part of IMCI guidelines</li> </ul>
Improving private provider knowledge	Low	<ul style="list-style-type: none"> <li>• No program launched by MoH to specifically address private sector</li> <li>• Only recently (2008-11) private providers addressed through MSH program</li> </ul>
Improving public provider knowledge and increasing supportive supervision	Low	<ul style="list-style-type: none"> <li>• IMCI adopted nationwide but little investment in training, supportive supervision and monitoring, even in five USAID regions</li> <li>• No diarrhea focal person within MoH (while other programs like vitamin A supplementation, growth monitoring, etc. had focal person)</li> <li>• Limited community IMCI and engagement of community health workers</li> <li>• Dependent on NGOs and their data</li> </ul>
Increasing availability of supply in the public and private sector	Low	<ul style="list-style-type: none"> <li>• Insufficient supply, especially in public sector facilities</li> <li>• Dependent on UNICEF</li> </ul>
Financing of scale-up	Low	<ul style="list-style-type: none"> <li>• Limited government spending on efforts</li> <li>• Heavily reliant on USAID</li> <li>• Despite donor support in country, relatively little focused on diarrhea and mostly uncoordinated and/or focused on malaria</li> </ul>

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