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ASSESSMENT FOR THE INTRODUCTION OF ZINC AND THE REVITALIZATION OF DIARRHEA CASE MANAGEMENT IN MADAGASCAR

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Acronyms

ADRA	Adventist Development and Relief Agency
AMM	Agence du Medicaments de Madagascar (Drug Regulatory Authority)
ARI	acute respiratory infection
ASOS	Action Santé Organisation Secours (Action Health and Relief Organization)
BCC	Behavior change communication
CCMS	Comité de Coordination de Mobilisation Sociale (Committee for Coordination and Social Mobilization)
CHD	Centre Hospitalier de District (District Hospital)
C-IMCI	Community-integrated management of childhood illnesses
CSB	Centre de Santé de Base (Health Center)
CHW	Community health worker
DHS	Demographic and Health Survey
DPLMT	Direction de la Pharmacie, des Laboratoires et de la Medecine Traditionnelle (Directorate of Pharmacies, Laboratories, and Traditional Medicine)
DULMT	Direction des Urgences et de la Lutte Contre les Maladies Transmissibles (Directorate of Emergency Medicine and the Fight Against Infectious Diseases)
DSF	Direction de la Santé de la Famille (Directorate of Family Health)
EML	Essential Medicines List
GAIN	Groupe D'action Intersectoriel Pour la Nutrition (Intersectoral Group for Nutrition Action)
HKI	Helen Keller International
HMIS	Health management information system
IEC	Information, education, and communication
IMCI	Integrated management of childhood illnesses
MCDI	Medical Care and Development International
MINSANPF	Ministère de Santé et du Planning Familial (Health and Family Planning Ministry)
MIS	Management information system
MOH	Ministry of Health
NGO	Nongovernmental organization
ORS	Oral rehydration salts/solution
OTC	Over the counter
PCIME	Prise en Charge Intégrée de la Maladie de l'Enfant (IMCI)
PhaGcom	Pharmacie à Gestion Communautaire (Community Pharmacy)
PhaGdis	Pharmacie de Gros de District (District Depot)

PSI	Population Services International
RPM Plus	Rational Pharmaceutical Management Plus
SALAMA	Central d'achat des Médicaments (Central Pharmacy Agency)
SALFA	Health agency for the Lutheran Mission in Madagascar
SIECMS	Service de l'Information-Education-Communication et de la Mobilisation Sociale (IEC and Social Mobilization Service)
SIG	Système d'information et Gestion (Management Information Systems)
SOW	Scope of work
SPC	Service des Participations Communautaires (Community Participation System)
SSSa	Service des Statistiques Sanitaires (Service of Health Statistics)
SSD	Service de la Santé de District (District Health Service)
SSEA	Service de la Santé de l'Enfant et de l'Adolescent (Service of Child and Adolescent Health)
U5	Under five years old
UPSM	Unité de Production des Solutes Massifs (Unit for the Production of High Volume Solutions)
USAID	United States Agency for International Development
WHO	World Health Organization

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Executive Summary

A five-person team visited Madagascar from September 27 to October 7, 2005, to assist the Ministry of Health (MOH) and its partners in moving forward with the introduction of zinc for the treatment of diarrhea. The team met with key stakeholders in the MOH, donor community, UNICEF, the World Health Organization (WHO), cooperating agencies and projects, and the private sector; conducted field visits to Tuléar II and Toamasina; and met twice with the Zinc Technical Committee to develop a draft action plan for zinc introduction in the next year.

Diarrhea prevalence and treatment

The prevalence of diarrhea reported for a two-week period in children under 5 years of age in Madagascar is 10 percent (DHS [Demographic and Health Survey] 2003). There was substantial variation in reported prevalence across provinces, the highest being Toliara (21%) and the second highest being Toamasina (11%). Antananarivo and Fianarantsoa had the lowest prevalences (6%). Use of health facilities for diarrhea treatment is low; only about one-third of children who were reported as having diarrhea were taken to a health facility for treatment. Use of prepared oral rehydration salts/solution (ORS) is also low (only 12% of all children with diarrhea were treated with prepared ORS), while use of home-prepared solutions (*solutions maison*) is about three times as high as ORS. Survey data did not report on the use of antibiotics or other medications for diarrhea treatment. However, in the team's visits to both formal health facilities and private pharmacies, these inappropriate treatments often seem to be preferred.

Opportunities for introducing zinc in the treatment of diarrhea exist in the expansion of integrated management of childhood illnesses (IMCI), the anticipated inclusion of treatment and preventive C-IMCI (community-IMCI) in the roles of community health workers, and the potential role of the private sector. Sixty percent of health workers have been trained in IMCI, which has been introduced in 101 of 111 health districts. ORS is available in 80 percent of the sites. In the near future, follow-up training is planned for the IMCI district point persons, who ensure the retraining and updating of health workers previously trained in IMCI. Revision of the IMCI curricula and other training materials should include changes in treatment guidelines for zinc, malaria, and HIV/AIDS. Numerous service delivery points exist, including public health facilities, private providers, and social marketing channels. The potential for adding zinc and ORS to the existing line of subsidized, socially marketed products appears to be especially strong.

Health information system

Madagascar has a district-level, computerized health information system operational that includes health facility and hospital data. For diarrheal diseases, the system is currently restricted to data on the number of cases treated and ORS stock. The system was recently revised to incorporate different program data needs on fewer reporting forms, and there is space on these revised registers to accommodate new data such as quantity of zinc stocked and used for diarrheal disease case management at health facilities.

Pharmaceutical management

Including zinc on the Essential Medicines List and registering it as an over-the-counter (OTC) medication are necessary first steps in implementing a zinc policy in Madagascar and ensuring its availability through the currently available procurement and distribution channels. Based on the established procedures existing in the country, this should be feasible in a relatively short timeframe. Procurement procedures and practices exist at SALAMA, the public sector pharmaceutical procurement agency, to ensure that sufficient stocks of zinc and low osmolarity ORS are available at the central level for distribution to district depots. Weak capacity at the district and health facility levels for quantification of zinc and ORS requirements and for inventory and store management may affect the availability of these products at the peripheral level health facilities. Training of district depot managers and dispensers at the health facilities in good pharmaceutical management practices is required. The private not-for-profit sector in the country is fairly strong, with a nationwide network that complements the services available in the public sector, and is the only sector that currently distributes pharmaceutical products at the community level. The private commercial sector is stronger in urban areas compared to rural areas, but dispensing practices within this sector may be problematic. It may be necessary to strengthen the capacity of the Directorate of Pharmacies, Laboratories, and Traditional Medicine (DPLMT) and the Drug Regulatory Authority (AMM) to provide the required regulatory oversight of the pharmaceutical sector.

Behavior change communication

Madagascar has developed innovative approaches to addressing multiple causes of child mortality through behavior change communication (BCC) and community mobilization. These strategies support the delivery and use of a package of integrated services and improved family practices. BCC is an inherent component used by the MOH and its partners, who have communications departments responsible for producing materials, such as radio spots, TV ads, and posters relating to vitamin A supplementation, malaria, and so on. For example, Population Services International (PSI) is involved in various social marketing campaigns (such as bed nets and Sur'eau) and has in-house layout specialists and graphic designers who produce state-of-the-art communications materials. Materials present at the national level include a booklet with the IMCI algorithms for actions for children aged two months to five years, several posters on diarrhea prevention and treatment, the child health card, counseling cards, and gazettes that are published with different themes relating to child health and nutrition. There are several main messages and corresponding pictorial images for diarrhea prevention and treatment that are specified in the IMCI materials as well as in the counseling cards, that are used by all organizations producing BCC materials.

The national coordination mechanisms, district, and community-level BCC capacity in BCC provide an opportunity to effectively introduce zinc therapy. District-level health facilities are equipped with the materials (posters, counseling cards, and IMCI algorithms), and there is a wealth of nongovernmental organizations (NGOs) active in child health and nutrition activities, with a strong capacity for social mobilization (such as ASOS [Action Santé Organisation Secours (Action Health and Relief Organization)], ADRA [Adventist Development and Relief Agency], and so on). In a review of the IMCI program conducted in 2000, one of the advantages of activities aimed at improving community- and family- level practices is that various information, education, and communication (IEC) materials exist at the community level. Field visits during this assessment found that the counseling cards are available at the community level, and mothers observed at the health facilities had their child health cards. There are a myriad of community-level NGOs using innovative BCC

approaches. These include MCDI (Medical Care and Development International), ASOS, and ADRA. One of the most innovative approaches is the *Kominina Mendrika* or Champion Community approach, spearheaded by Santénet and currently in use by many of its partners.

Action plan highlights

- There is a strong MOH commitment to rapidly move forward with the registration of zinc as an over-the-counter drug on the essential medicines list.
- The stakeholders agreed to phase in the introduction of zinc in three districts in the three regions of Madagascar with the highest prevalence of diarrhea.
- The MOH will finalize the draft action plan, develop budgets for specific action steps with partners, and seek donor support to begin this pilot in three districts.
- The pilot implementation will be carefully monitored and evaluated so that lessons learned can be used to inform scaling up zinc treatment.

1.0 Introduction

In April 2005, USAID/Madagascar requested technical assistance from the BASICS Project for the introduction of community-based treatment of pneumonia and diarrhea, and of zinc for the treatment of diarrhea. In preparation for this assistance, Dr. Adam Slote, child health advisor in the Global Health Bureau, visited Madagascar in May 2005 to conduct a preliminary assessment of the need and feasibility of introducing both interventions, to increase understanding of the interventions within the MOH and its key donor and implementation partners, and to propose recommendations for next steps in the introduction process. Dr. Emmanuel Wansi, BASICS senior technical officer for ARI (acute respiratory infection)/CDD (control of diarrheal disease), followed with a visit that resulted in the creation of a subcommittee to lead the introduction of the two interventions.

While these visits were focused on community-based treatment, it was evident that Madagascar is a promising candidate for population-level introduction of zinc for the treatment of diarrhea:

- The MOH is eager to proceed and is willing to lead the process. Towards this end, it created two committees: a Child Survival Steering Committee (chaired by the Minister of Health or, in his absence, the Secretary General) and a Technical Committee (focused on zinc and community treatment of ARI, and chaired by the Director of Family Health);
- The President of the IMCI Ethics Committee—the most senior pediatrician in the country—has indicated her support for zinc for treatment of diarrhea. This support is likely to be shared by the remainder of the pediatric community;
- The donor community (USAID, UNICEF, WHO, and the World Bank) has indicated its commitment to supporting the MOH for this intervention; and,
- Numerous service delivery points exist, including public health facilities, private providers and social marketing channels. The potential for adding zinc and ORS to the existing line of subsidized, socially-marketed products appears to be especially strong.

Several steps have already been taken:

- Zinc is referred to in the national nutrition policy and the MOH has expressed a desire to add it to the child health policy;
- UNICEF had formed a task force to develop a protocol to study issues related to the introduction of zinc in public health facilities; and,
- UNICEF has pledged to purchase a sufficient supply of zinc and low osmolarity ORS to last for the first few years of implementation.

With the advocacy phase largely complete, the purpose of the zinc assessment was to assist the MOH and its partners in moving forward with the introduction process. The specific objectives of the visit were to:

1. Strengthen the capacity of the Madagascar MOH and its key partners for introduction of zinc for treatment of diarrhea;
2. Assist the MOH and its key partners in developing a strategy, plan and timeline for introduction of zinc; and,
3. Develop a draft zinc assessment tool for future use in other country settings.

The team was expected to produce a final report, including comprehensive assessment and recommendations, as well as a draft zinc assessment tool for future use in other country settings.

2.0 Methodology

2.1 Participants

The assessment was a collaborative effort between a team of external technical assistants and the Madagascar ad hoc technical committee for child survival. Eric Swedberg and Emmanuel Wansi from BASICS (team leaders) jointly led the external assessment team, working in conjunction with Grace Adeya from the Rational Pharmaceutical Management Plus (RPM Plus) project, Micheline Ntiru from Helen Keller International (HKI), and Philip Harvey from MOST/A to Z. Jane Briggs of RPM Plus played an active role throughout the process. Dr. Rahantanirina Perline, director of the MOH's Family Health Division, led the Madagascar technical committee for child survival. Dr. Rakotomanga Raymond, head of the Child and Adolescent Health Unit, coordinated the smaller MOH team working closely with the external technical assistants.

The Madagascar team included:

- *MOH Child and Adolescent Health Division*
  - Dr. Rakotomanga Raymond, Division Head
  - Dr. Vony Soa Hanitra, Head of the Child Health Unit
  - Dr. Ravelomanantsoa Félicie, point person for the Zinc/ARI project
- *MOH Nutrition Division*
  - Dr. Rakotonirina Simon, Chef de Service de la Nutrition au Ministère de la Santé
- *Other Government of Madagascar Stakeholders*
  - Dr. Tafangy Philémon, Malaria/Directorate for Emergency Medicine and the Fight Against Infectious Diseases (DULMT)
  - Dr. Noro, Directorate for Health District Development
  - Prof. Serge Gottot, National Institute of Public and Community Health
  - Prof. Ravelomanana Noeline, Director of the Antananarivo Mother and Child Teaching Hospital
  - Prof. Raobijaona Honoré, University Hospital Center, Mother and Child Unit
- *Technical and financial partners*
  - Dr. Razanatsoa Angeline, WHO
  - Dr. Rabarijohn Norolala, UNICEF
  - Dr. Raharison Serge, SantéNet
  - Dr. Priscilla Raoelina, LINKAGES
  - Dr. Joséa Ratsirarson, MCDI
  - Dr. Rakotomalala Rémi, CRESAN

The most active members of the national team included the Child and Adolescent Health Service, SantéNet, and PSI.

2.2 Activities

The assessment scope of work (see annex 5) specified the key questions to be addressed during the assessment. The assessment process and team's activities are described in sections 2.2.1 and 2.2.2.

2.2.1 Preparation

Assessment preparations began in early September 2005 and the in-country activities took place between September 25 and October 7, 2005. Preparations included activities carried out by the Madagascar country team and those by the external team. The external team developed the approach and data collection tools and provided input to the country team. The country team conducted the desk review, selected areas for the field visit, and prepared a plan of activities, including setting appointments for the key informants to be interviewed. The external team held a conference call with the Washington DC-based team members, who gathered at the BASICS office and exchanged communication regularly through email and phone calls with the country team. The teleconference covered briefing team members on Madagascar health systems and relevant activities to the assessment, reviewing the scope of work (SOW), distributing assessment sections among team members, and agreeing on next steps.

Most team members had read the report from a similar assessment in 2005 in Tanzania and maintained contact with the authors, Rolf Klemm and Peter Winch. Grace Adeya from RPM Plus also spoke to Karim Smine of USP, who had extensive information on Madagascar. During the preparatory phase, some team members attended a meeting in Washington, DC, with Nutriset, the main manufacturer of zinc dispersible tablets.

The extended team also held two teleconferences with the team in Madagascar on September 19 and 23. The first included a discussion of sites for the field visits, identifying key informants (a suggested list was sent to the country), the status of the desk review (questions were sent to guide the desk review), developing the questionnaire (a draft was sent for the in-country team to provide feedback), and other logistical issues. The second conference call dealt with the status of the desk review and finalization of planning for the site visits. The team decided to visit two sites based upon the following selection criteria:

- High diarrhea prevalence
- Areas of poor accessibility to services
- Ease of accessibility by the team
- Partner presence to facilitate logistics and planning.

The combined team members developed a draft data collection tool in preparation for the in-country interviews and field visits. This tool included guidelines for: (a) group discussions, (b) in-depth interview questions for key informants, and (c) a desk review. The assessment explored: MOH policies and the legal framework related to current and potential product availability in country; key diarrhea prevention and treatment issues and standard treatment guidelines; pharmaceutical management, including procurement, distribution, inventory management; IEC/BCC approaches, including mass communication, community mobilization, education and counseling; human resources, including training (pre-service, in-service), supervision, quality improvement, health

information systems, and opportunities and needs for operations research; the private sector's role, including for-profit, subsidized social marketing, and non-profit; as well as financing and sustainability (see annex 7).

Assessment Steps

- Assembling the assessment team
- Planning activities prior to in-country visits
- Undertaking a desk review of epidemiology and service statistics
- Developing a checklist and topic guide
- Collecting central level data
- Collecting data in peripheral sites
- Validating field site findings
- Analyzing data
- Presenting team findings and developing a draft action plan
- Debriefing donors and completing the report

In addition to the conference calls, contact between the external and country assessment teams was maintained through e-mail. The Chemonics bilateral project, Santénet, played a leading role in setting up the teleconferences and also centralizing e-mail exchange with the MOH. This was important because the MOH has limited access to the Internet and limited resources to print materials. Communication difficulties prevented the participation of the HKI team member during the conference calls.

2.2.2 In-country Activities

On the first day, the external team members met the key members of the MOH Division of Family Health. The week's schedule of visits, including the field visits, was finalized and is presented in annex 2. Courtesy visits were made to WHO, UNICEF, and USAID to improve planning and data collection. Annex 1 contains the list of stakeholders from these and other organizations who were met during the assessment team visits in Antananarivo. Following these initial visits, the external team and in-country team members divided into subgroups, largely according to their areas of expertise. Grace Adeya focused on pharmaceutical management, Micheline Ntiru focused on the BCC component, and Phil Harvey focused on case management. Eric Swedberg and Emmanuel Wansi focused on health information systems, financing, human resources, and other general issues.

The sequence of activities in Madagascar was as follows: interview of key informants in Antananarivo; a first meeting with the technical committee to discuss the strengths, weaknesses, and opportunities for the introduction of zinc treatment; travel to the regions; additional interviews in Antananarivo; discussions of findings; and planning of next steps (see annex 2 for the schedule). This sequence was chosen to enable the team to collect any additional information prompted by the field visits and to catch up with any major key informants that might have been missed during the first round in Antananarivo. In all situations, key informants were informed before the arrival of the

team. In almost all cases, nationals accompanied external team members. Except for the field visits, the nationals regularly changed because of concurrent activities that required their participation.

Group discussions organized during the first week to collect information from members of the Child Survival Technical Committee generated very good information on the strength, weaknesses, and opportunities of the system for control of diarrhea activities. The director of Family and Child Health, head of the Child Survival Committee, led the meeting (see annex 3 for a list of participants). The committee members were divided into three subgroups based on area of expertise to discuss and present their findings on: (1) case management; (2) pharmaceutical management; and (3) advocacy and behavior change. There were more than 30 members and resource persons present.

For the field visits, the external assessment team was divided into two groups each including a MOH representative and guided by a local staff member. At the peripheral level, the team had discussions with the persons in charge of the regions, districts, CSBs (*Centre de Santé de Base* or health center), NGOs, and Fokotany (the lowest administrative division of the community) in three districts of Tamatave and two districts of Toliary. Where possible, they visited PhaGdis (district depots) and PhaGcoms (community pharmacies). At the community level, focus group discussions were held with village health workers, community leaders, and parents. In-depth interviews started at the regional level, then moved to the district level, and finally continued at the community level, where the team met various players, including users, leaders, providers, and NGO staff supporting community-based activities. Translation into Malagasy was required at the community level, though some volunteers could speak French. (See annex 1 for a list of persons interviewed.) Whenever possible, a debriefing was provided to the district and regional team. In fact, one regional team requested a presentation on zinc. There were questionnaires for each category of facility or actors.

Upon return to Antananarivo from the field visits, team members conducted more interviews to complement information from the field, as well as with some key informants who had not yet been interviewed. The team also undertook a series of meetings with key staff at the DSF (Directorate of Family Health) to discuss and validate their observations and conclusions from the field.

On October 6, the assessment team presented preliminary findings to the Zinc Technical Committee. This meeting was attended by 30 persons at the Santénet office conference room and included representatives from the MOH, UNICEF, USAID, and NGO partners (see annex 4 for a list of participants). Following a discussion of the team's findings, an outline of the main steps to consider for the introduction of zinc in Madagascar was presented. These steps were divided into: (1) pharmaceutical management; (2) case management of diarrhea; and (3) advocacy and behavior change. The larger group divided into three smaller working groups to discuss the approach for each component and then presented their recommendations to the larger group. Groups proposed solutions to address problems and concrete actions to introduce zinc. During the plenary session, a work plan was developed, including a timeline and responsible persons and agencies. The next step will be report dissemination, followed by detailed planning for implementation. Detailed implementation planning will take place after the MOH has identified funding sources for the introduction. One issue to be addressed is the cost of zinc. MOH partners have diverging views on the cost of and access to zinc, some being in favor of free treatment. The team ended the mission with a debriefing to USAID.

2.3 Observations on the Methodology and Recommendations for Next Application

Desk review timing and resources
The desk review needed extensive work that MOH staff could not carry out. In the future, it is recommended that a consultant or a partner with experience, time, and communication resources be identified to do the desk review. It is important to start the review very early so that the assessment team can effectively use the information for planning field visits.

Condensing the interview guides
One of the assessment objectives was to develop a draft zinc assessment tool which can be adapted for future use in other countries. The team began by developing questionnaire guides for interviews and field visits. The team first developed questions for each topic area based upon the SOW and then merged these questions, as appropriate, for persons and organizations concerned with multiple topics. For example, district health officers had in-depth interviews covering several topic areas. Merged question guides turned out to be lengthy. Merged questions for a single respondent or to be asked by a single interviewer should be reduced to the strict minimum (not more than 1 hour). Although there was an attempt to limit the data to be collected in a merged questionnaire, more reduction is needed.

Planning for presentations
Contrary to what had been anticipated, there was interest in the field in knowing more about zinc and its effects. No presentation or materials were ready for the peripheral level and, accordingly, no time was planned for the presentations. However, the team was requested to make presentations in the field and respond to technical questions. In the future, the assessment team should include these presentations in the planning phase and prepare technical materials for handouts.

Interview organization
Most health facilities were run by one health staff member, who then had to answer most of the questions. In such a case, only one questionnaire could be covered at a time, making the second member of the team less productive. In similar cases, team members should work separately; one could go to the community while the other is working at the health facility. This would have been possible in Madagascar because facilities play a limited role, if any, in community-based activities and, if there is another health facility staff member, it would also be possible to supervise community-based activities.

Selection of field sites
Criteria to select areas for field visits were not specific and best performing districts were selected, thus providing information that cannot be generalized across different districts. In fact, a health facility not initially planned for the visit, but randomly selected, provided information much different from those obtained from the facilities scheduled for visits. Seeing the best facilities is important, but visiting the less-performing ones is equally important because they provide complementary information.

Scheduling of site visits

Concurrent activities affected the availability of material and human resources for the assessment. Planning in advance with some flexibility, but also monitoring the scheduling of some important events is necessary to avoid conflicting activities and also to take advantage of scheduled activities. For example, a meeting of all regional health and key MOH officers was planned around the assessment. This was a golden opportunity to inform and learn from key personnel in the field.

3.0 Findings

3.1 Diarrhea Prevalence and Treatment

3.1.1 Prevalence

Data on the contribution of diarrhea to morbidity and mortality in Malagasy children are available from the government's routine health information system, DHS, and MICS. The *Annuaire des Statiques du MINSANPF* (Ministère de Santé et du Planning Familial [Health and Family Planning Ministry]) in 2003 indicated that 14 percent of consultations at public health facilities for children under 5 years of age were for diarrhea treatment. Malaria and ARI were more common reasons for consultations (34% and 22% respectively). Diarrhea was the second highest cause of mortality among children in hospitals (18%) following malaria, which resulted in 25 percent of the mortality.

The prevalence of diarrhea reported for a two-week period in children under 5 years of age in the 2003-2004 DHS survey was 10 percent, compared to 13 percent in the 2000 MICS survey. As is common, the highest proportion was in children age 6 to 11 months (19%) and 12 to 23 months (17%). There was substantial variation in reported prevalence across provinces, with the highest being 21 percent in Toliara and the second highest in Toamasina (11%). Antananarivo and Fianarantsoa had the lowest prevalences (6%). Among children 6 to 24 months of age in Toliara and Toamasina, it is likely that more than one-third and one-fifth, respectively, experienced diarrhea during the two-week period covered in this survey. Given geographic disparities in diarrheal disease prevalence, the zinc intervention should prioritize those areas with the highest prevalence rates.

Previous DHS surveys were undertaken in the country in 1992 and 1997. The reported prevalence of diarrhea in the two weeks prior to the survey was higher in 1997 than either of the other two surveys. The comparison of overall prevalences of diarrhea reported in three DHS surveys is not valid because the 1997 survey sampled younger children than in the other two surveys (under 3 years rather than under 5 years). Because younger children experience more frequent episodes of diarrhea, the overall rate in 1997 can be expected to be higher than the other two surveys. However, comparing age-specific rates across the three surveys (see table 1) indicates that diarrhea was more common in 1997 than in either of the other two surveys.

Table 1. Prevalence of reported diarrhea in the two weeks preceding the DHS and MICS surveys in 1992, 1997, 2000, and 2003, by age group

Age in months	Prevalence of reported diarrhea in two weeks preceding interview			
	1992	1997	2000 (MICS)	2003
< 6	12	15	9	6
6–11	23	33	25	19
12–23	20	33	19	17
24–35	12	25	11	10

3.1.2 Treatment of Diarrhea

Nationally in the 2003-2004 DHS survey, about two-thirds of mothers were aware of ORS for the treatment of diarrhea. The lowest level of knowledge by far was in Toliara (38%). As expected, there were strong associations of this knowledge in mothers with higher levels of education and urban residence.

Table 2 shows information about the treatment of diarrhea in the 2003-2004 DHS survey. About one-third of children sampled (32%) in the latest DHS survey who were reported as having diarrhea were taken to a health facility for treatment (table 2). Of the children with diarrhea, only 12 percent were treated with prepared ORS while about one-third were treated with home-prepared solution (*solution maison*).

Table 2: Percentage of young children reported as having diarrhea in the previous two weeks who were taken to a health facility for treatment and who were treated with either sachets of ORS or with home-made rehydration solution (DHS 2003)

Characteristic	% Taken to Health Facility	Oral rehydration solution	
		Sachet	Home Solution
Total	32	12	32
Male	27	16	30
Female	38	8	34
Urban	41	23	27
Rural	30	10	33
Toamasina	29	10	10
Toliara	35	10	53

Comparisons with previous DHS surveys on the treatment of children with diarrhea are made difficult by circumstances in which the data were either collected differently in each survey or the results were presented differently in each report. For example, in 1992 the reported result is the “percentage of children with diarrhea taken to health facility or a doctor.” In 1997, in addition to surveying younger children, the result presented is the “percentage of children with diarrhea for which a consultation (was made)." In 2003, it was the “percentage of children taken to a health facility.”

The use of ORS sachets and home-prepared solutions was standardized across the surveys. However, comparing these results does not reveal a clear trend. For ORS sachets, there was little difference between 1992 and 2003, but its use in 1997 was substantially higher. On the other hand, use of the homemade solution was substantially higher in 2003 than in the two previous surveys. It is remarkable that more than half the children with diarrhea in Toliara province were treated with *solution maison*. Also remarkable are the very low rates (almost zero) reported in 1997. But these numbers, together with the higher rates of ORS sachets reported in 1997, give some cause to

question the validity of these data, or at least suggest that they warrant further exploration to establish validity.

Table 3: The treatment of diarrhea with ORT reported in the MICS 2003 survey and three DHS surveys in U5 children in 1992 and 2003, and under 3 years in 1997 for the entire country and for the two regions with the highest diarrhea prevalence visited during the assessment

Characteristic	Oral rehydration therapy							
	ORS Sachet				Other Home-based Solutions			
	1992	1997*	2000	2003	1992	1997*	2000	2003
Total	14	23	22	12	15	1	11	32
Male	15	23	21	16	16	1	10	30
Female	13	23	24	9	14	0	11	34
Urban	23	42	29[1]	23	23	2	13	27
Rural	13	18	21	10	14	1	9	33
Toamasina	11	28	19	10	6	0	5	10
Toliara	10	15	22	10	10	2	5	53

* Children aged 0–35 months only.

Rehydration with either factory-prepared oral rehydration salts (ORS) or homemade sugar-salt solutions has long been the standard diarrhea treatment. The product was manufactured locally by UPSM, a government agency that ceased production a few years ago. Since then, supplies have usually been procured through UNICEF-Copenhagen, and are believed to be generally adequate to meet current demand. There are currently efforts being made to restart production at the UPSM facility.

The challenge for introduction of zinc treatment of diarrhea is that there is low use of oral rehydration salts (12%) and although there is a higher use of home-based solutions (32%) for diarrhea therapy, less than 50 percent of diarrheal disease episodes currently receive ORS or ORT. Furthermore, less than 1/3 of children with a diarrheal disease are taken to a health facility for care. To successfully introduce zinc for children in need, it is necessary to better identify cases of diarrheal disease and ensure that these children receive appropriate care.

3.1.3 Recent Initiatives and Issues: Control of Diarrheal Disease

In 1995, Madagascar became the first francophone African country to adopt IMCI, building on previous gains made in the control of diarrheal disease. IMCI evolved from an initial pilot in 16 sites in two districts between 1996 and 1998, and then went to scale in all sites in 20 districts under Jereo Salama Isika and LINKAGES. The protocols for treatment of diarrhea in children are specified through the IMCI program. The IMCI program introduced the components of training, health systems, and community. The

[1] Other urban areas besides the capital city.

assessment team examined the case management findings according to medical facilities, the private system, and community level. The assessment team also examined the health information management system with regard to diarrheal disease case management and explored the issue of financial access to treatment.

Facility treatment

The facility-based training component was introduced nationally in 1999 and has now been implemented in 101 of 111 health districts. Initially, an 11-day training curriculum was instituted, but this was found to be too long to be sustainable. In January 2000, the MOH suspended all forms of formal health worker training, including IMCI. Reasons for suspension included the prolonged absence from health centers already short in staff (a problem that was further aggravated by the introduction of cholera to Madagascar, requiring 24-hour availability of health staff at their facilities), and the high costs associated with formal training (US$ 500 of direct cost per trainee). An assisted self-learning approach, *Auto Apprentissage Assisté*, was introduced for health workers in 2000. Key steps were taken to address reduced time for practice, e.g., spacing courses over several months and extending monthly sessions from one day to 3–5 days to provide more time for practice.

A six-day training curriculum is currently being implemented. Pre-service training in IMCI protocols has been implemented in medical schools since 2000 and in nursing schools since 2002. A second review of the IMCI program undertaken in April 2005 estimated that 60 percent of health workers have been trained in IMCI. For the remaining 40 percent of health workers, a more in-depth training in diarrheal disease management is needed in addition to the zinc-specific training component. In the decentralized health system in Madagascar, the districts are responsible for ensuring that health facility staff receive training in IMCI, and the central level IMCI focal point arranges for technical support if requested. In the near future, follow-up training is envisioned for the IMCI focal points of the districts (111), who will then be responsible for the retraining and updating the skills of health workers previously trained in IMCI. Revision of the IMCI curricula and other training materials is envisioned to include changes in treatment guidelines for zinc, malaria, and HIV/AIDS.

Facility-level supervision is supported by a guide for standard IMCI supervision. Follow-up supervision of IMCI training has been coordinated by provincial IMCI coordinators in the past. Now the districts are responsible for the ongoing IMCI supervision (action plan, financing). Due to these changes in supervision responsibilities, supervision has been weak, and the recent IMCI review noted that district management teams were not properly supervising health facility IMCI activities. This lack of supervision is a concern because the introduction of community case management, including the community based treatment of diarrheal diseases, requires close supervision from the health facility, especially during the early phases of implementation.

The assessment team found that the application of IMCI standards was inconsistently applied in the sites visited by. For example, the assessment team observed the use of Cotrimoxozole for treating simple diarrhea and a low-use of ORS for the treatment of dehydration. In the sites visited, there was also weak functionality of ORT corners even when the material for the corners existed.

Private sector

Numerous service delivery points exist beyond public health facilities, including private providers and social marketing channels. The potential for adding zinc and ORS to the

existing line of subsidized, socially marketed products appears to be especially strong. PSI collected information on mothers' knowledge of causes of diarrhea in its national health behavior tracking survey in December 2004. They found that 65 percent knew that contaminated water was a cause of diarrhea (75% in urban and 62% in rural areas). This survey also assessed knowledge of and behaviors related to the PSI water-purifying product, SurEau. Results indicated that knowledge of the product was high, but that women in urban areas were much more likely than rural women to know where to purchase it (83% versus 47%) and to have used it (39% versus 21%). This rural/urban discrepancy is likely due to differentials in education, access to information, number of delivery points, and economic access to SurEau.

Community

There are numerous programs and organizations supporting community health volunteers in Madagascar. Almost all of these community programs promote the use of rehydration therapy as a first approach to treating children with diarrhea. Training curriculums for community health promotion exist and were validated nationally in 2003. Separate curriculums exist for training community health volunteers in the use of Palu-Stop in the treatment of malaria, family planning products, and SurEau. According to the recent IMCI review, 19 percent (337/1999) of health centers are implementing a preventive C-IMCI approach There are several messages for diarrhea prevention and treatment that are specified in the IMCI materials, as well as the counseling cards, which have corresponding pictorial images. These can be summarized as: (1) mother/caretaker continue to breastfeed; (2) boil water; and (3) give your child foods, particularly those they prefer. In addition, the danger signs that necessitate a health clinic consultation are described as presence of blood in the stool, child unable to drink, has lethargy or vomiting, or has diarrhea for three consecutive days.

Revision of the curriculum for training community agents is envisaged. Supervision of IMCI includes C-IMCI, however there is no guide for monitoring community health workers (CHWs). The assessment team noted weak quality assurance (absence of observation and supervision of CHW performance). However, clear standards for certain activities exist and there is support for volunteers, including meetings and visits on the ground.

Financial access

Several initiatives have been introduced in Madagascar to improve financial access to health services, ranging from insurance-type schemes to the Bamako initiative. The Swiss aid agency has operated a network of cooperatives in which member contributions were used to purchase drugs. The government is currently establishing a system of equity funds to address the financial access issues of the poorest segment of the population. A small portion (3/135) of the income of routine medicine sales from health facilities is to be put into a separate bank account. This fund may also be supplemented by other fundraising at the village level. The village leaders or mayors then establish a list of indigents. The people on the list or emergency cases can then purchase their medications with a voucher (*bon de service*). At the end of each month, health centers are reimbursed for vouchers they accepted by the management committee treasurer who oversees the equity fund. During the field visits the assessment team noted that these funds are newly established in some sites, but are not yet fully functional. Until these funds are fully functional, they will not improve financial access to zinc and ORS.

Health management information system

Madagascar has a health information system that has been partly computerized since 1998. The system has four components:

1. Vital data and family planning activities data
2. Routine activities data
3. Epidemiologic surveillance data
4. Administrative data, including human resources

Vital data are those mostly collected throughout the system, including the community level (*Fokotany*), where births and deaths are registered. Family planning is the only community-based activity in which data are incorporated into the health center report. It is possible to build further data including community-based treatment of diarrheal diseases into the health center reports in a similar fashion.

Routine facility data are used for monthly reports and epidemiologic surveillance. Monthly reporting forms are standard for all facilities of the same level, public or private. New programs have created forms for their needs. An evaluation showed that a health facility completed 18 reports per month. There is an effort to integrate all the data needs into the monthly report form. The commission tasked with reviewing the forms recently modified the contents and guidelines, and nationwide refresher training is planned to update health personnel on data collection requirements and forms. Presently, data is collected on the number of diarrheal disease cases treated and the ORS health facility stock. This data should be supplemented to include the number of diarrheal disease cases treated with zinc and the health facility zinc stock. It would be ideal to make these additions to the collection forms and training curriculum prior to the nationwide training of health personnel, so as to avoid an additional training uniquely for zinc.

For epidemiologic surveillance, routine data are analyzed for any abnormal increase that triggers investigation. Medical officers were trained to analyze the data. Epidemiological cut points have been determined for each disease in the list of 22 that includes diarrhea, cholera, malaria, and ARI. In fact, epidemiologic surveillance pointed to increased cases of diarrhea in the period preceding a 2001 cholera outbreak in Majunga. Similarly, there were higher figures before a 2002 flu outbreak in Fianarantsoa. In case of an outbreak, the district has to immediately inform the regional and central levels by any possible means. The surveillance network is made up of a multidisciplinary team from the various programs. The supervision of epidemiologic surveillance was recently moved to the director of Emergencies and Disease Control.

Every month, each health center and facility completes one reporting form for the archive and two for distribution to the district. Most of the health centers' reports are brought to the districts during monthly monitoring meetings. These meetings provide a systematic opportunity to discuss service issues and to conduct refresher training. The district enters the data into a custom-designed application and forwards one of the two copies as well as its synthesis to the province/region. Provincial and regional syntheses are sent to the Service of Health Statistics by e-mail or, for new regions not yet connected to Internet, on diskette. Each district is equipped with at least two computers.

The district monitoring and evaluation officer analyzes data and makes recommendations to health facilities through quarterly feedback. There is no defined format for the report, but there is a list of elements to cover. There are indicators defined by level (health center, district, and region). Feedback on the reports is sent by mail. The

regional and central levels previously provided feedback biannually, however this was stopped in 2002 for financial reasons. About 90 percent of private and public facilities complete monthly reports. Facilities in major cities account for most of the missing reports. The 2003 and 2004 annual statistical reports have not been printed due to lack of resources. An evaluation of the statistics system showed that 12 percent of facilities computed indicators but did not use them. ORS stock-out was reported by about 20 percent of health facilities. While the system provides data on cases treated and ORS stock management, these reports do not contain sufficient information for health management information system (HMIS) officers to assess the quality of staff case management. Furthermore, since the forms were recently revised, they are reluctant to change them in the near future. However, there is space on the registers that can accommodate new data such as quantity of zinc stocked and used for diarrheal disease case management at health facilities.

Computer applications

Health centers and district hospital monthly forms are computerized. However, the application designed in 1997 (with Access 3.0) is now outdated. Furthermore, some indicators have changed. A major overhaul is required. Two national MOH staff members were trained in the maintenance of the application and can do some limited work to meet updated needs. The application produces a health map showing health facilities and resources. The European Union will fund the development of applications for regional and specialized hospitals.

3.1.3 Group Work Recommendations for the Action Plan

Representatives from different ministerial, NGO, and UN agencies that are part of the zinc technical committee discussed the above points and outlined the following action points that will form the principal case management activities related to the introduction of zinc as an adjunct therapy for diarrheal treatment (see the draft action plan in section 4.0 of this report for more details):

- Revise the IMCI algorithm to include zinc;
- Develop training curriculum for utilization;
- Select pilot sites, identify staff, and provide training;
- Revise data collection forms and IMCI supervision forms to include zinc stock and utilization; and
- Develop and implement rigorous monitoring and evaluation plans for pilot sites.

3.2 Pharmaceutical Sector Requirements for the Introduction of Zinc

3.2.1 Policy and Regulatory Requirements

Registration
In Madagascar, the decision on whether to register zinc as a medicine or as a nutritional supplement is important because it determines which organization would have oversight of its use. All medicines for use in the country, whether imported or manufactured locally, must be registered by the Drug Regulatory Agency, A*gence de Médicament de Madagascar* (AMM). While the regular registration procedures require that the company seeking to introduce the product in the county submit the request for registration to the AMM, a fast-track registration process exists for products required for MOH programs. This process requires that the product be included on the Essential Medicines List (EML) and the request for registration must be submitted on behalf of the supplier.

As a new MOH program product, zinc would be eligible for the fast-track registration process (the process for obtaining this fast-track registration is outlined in the action plan in section 4 of this report). No zinc products are currently registered by the AMM. At the planning meeting on October 6, 2005, the technical committee made the decision to register zinc as a medicine rather than a food supplement. During the meeting, it was also decided that zinc should be classified as a "Table C" product, which can be dispensed without a prescription, allowing for community distribution and for sale in the private sector. ORS products have already been registered by the AMM as Table C products and are available for sale in both the public and private sectors.

EML
The EML is revised every two years with the next revision scheduled for 2006. Between scheduled revisions, MOH programs can request temporary authorization for the inclusion of a product on the EML, which can be granted from the Division of Pharmacy and Laboratories (DPLMT— *Direction de la Pharmacie, des Laboratoires et de la Médicine Traditionnelle*). SALAMA, the public sector procurement agency, is only authorized to procure products on the EML; hence, the importance of including all essential pharmaceuticals on this list if they are to be available in public sector health facilities. Products procured through SALAMA are tax-exempt. ORS is on the EML, however, no zinc products are currently included. To get zinc on the EML, the DSF needs to submit an official request for its inclusion to the DPMLT, which will then issue the required temporary authorization.

Quality assurance
The AMM is responsible for ensuring the quality of all pharmaceuticals during the registration process and after their introduction into the market, as well as for developing and maintaining a pharmaco-vigilance system to monitor any adverse events that occur. However, the AMM's capacity for providing this oversight is constrained by insufficient equipment and limited financial and human resources (e.g., the pharmaco-vigilance department is currently limited to one individual based at the central level). Due to the AMM’s currently limited capacity, it is especially important to import zinc from a reliable source with high quality standards.

3.2.2 Procurement and Distribution

Public sector
All public sector procurement and distribution is done centrally through SALAMA, a non-profit organization that has been contracted by the MOH to fulfill these roles. SALAMA is only authorized to procure items (both medicines and pharmaceutical supplies) on the EML. Procurement is normally done once a year through international open tenders. SALAMA develops the tender documents in consultation with the DPLMT and is responsible for selection of the successful bidders. It takes approximately six weeks from the time a tender is advertised to the selection of a successful bidder. After placing an order, the lead-time to delivery is approximately four months. Procurement of items that are not included on the EML can be only done after submission of a special request to SALAMA by the MOH. All procurement done through SALAMA is tax-free.

The procurement of pharmaceuticals for use in the public sector is financed by the MOH through a budget that the DPLMT holds and oversees on behalf of public sector health facilities, and by the use of funds generated as part of the cost-recovery process at the district level. Each financial year, the DPLMT receives a predetermined budget from the government for the purchase of pharmaceuticals, which it uses to maintain a line of credit at SALAMA on behalf of the health facilities. The DPLMT is responsible for determining the credit line that will be available for each health facility from this budget. When the health facility purchases a product that is on the EML from SALAMA, they draw down their credit line. The responsibility for determining how to allocate the credit line to cover all the required EML products is the responsibility of each health facility, with oversight from the district health teams and the DPMLT. The health facilities can also use the money they generate as part of the cost recovery process to make additional purchases from SALAMA (and this is usually the only option available to them to make purchases at SALAMA once they have exhausted their credit line). All medicines dispensed at public health facilities are sold at a margin of +35 percent of the SALAMA price.

As ORS is already on the EML,[2] it is available for purchase by the health facilities through SALAMA using either of the financing processes outlined above. Currently, the low osmolarity ORS is not yet available through SALAMA. If zinc is included in the EML, then SALAMA would be able to procure it through the process outlined above, and it would also be available for purchase using the EML budget line or the cost recovery funds, as occurs with other products on the EML. SALAMA is also authorized to sell to the private not-for-profit sector, including SALFA (the Lutheran Mission agency).

A distribution plan for delivery of pharmaceuticals to all 111 district depots is developed every December by SALAMA, in consultation with the PhaGDis and the district health teams. Distribution occurs every three months to the PhaGDis in accessible areas and every six months to the PhaGDis in non-hard-to-reach to private transport companies. These private transport companies are also identified through annual tenders.

Private not-for-profit sector
Two private sector agencies are involved in the procurement of pharmaceuticals for the private NGO sector, SALFA and PSI.

[2] Introduction of the low osmolarity ORS is possible without any changes in the EML.

SALFA is the health agency for the Lutheran Mission in Madagascar. It is the only other major agency involved in procuring and distributing pharmaceuticals to a defined network of health facilities. The SALFA network consists of 27 health facilities nationwide. Procurement of pharmaceuticals is done through the head office in Antananarivo. Most of its procurement consists of direct purchases from pre-identified suppliers. Among these, IDA is its cheapest and most common supplier. Currently, all the products they procure are taxed at the entry point. The tax is approximately 10 percent. SALFA has applied to the Ministry of Finance for tax-free status, which requires designation as an "agency of public health importance." Only the Red Cross and the Scouts currently have this designation.

SALFA sells its supplies directly to the health facilities in its network at a +15 to 25 percent margin. The SALFA central warehouse at Antananarivo has limited storage capacity, equivalent to approximately a two-month supply. Receipts are distributed to the health facilities as soon as possible after they arrive. This also means that SALFA does not have the capacity to sell to health facilities outside the network. Deliveries to the health facilities are contracted out to private transport companies, but SALFA also has a vehicle that is used occasionally for some deliveries.

PSI procures a limited number of products for distribution through its social marketing programs. It has classified these products in two main groups, depending on whether a prescription is required prior to dispensing the product:

1. **Prescription-only pharmaceuticals**—PSI currently procures sexually transmitted infection (STI) kits and Depo-Provera on behalf of the MOH and other donor programs for distribution to private sector providers at a subsidized price. The items are distributed to NGOs, private sector pharmacies, and private doctors through PSI-contracted pharmaceutical wholesalers. PSI determines the margins at which these items are sold to the consumers by these private providers.
2. **OTC products**: PSI currently procures Pilplan (oral contraceptive), Palustop (prepackaged Chloroquine), Sur Eau, condoms, and long lasting insecticide treated nets that are targeted for sale at the community level. These products are distributed through identified commercial wholesalers at the central level that are responsible for re-distribution to regional wholesalers. The regional wholesalers sell directly to the NGOs and other third-party vendors primarily for sale at the community level. PSI provides training to the vendors to ensure that the items are sold as recommended.

PSI appears to be the main supplier of pharmaceuticals to the community through the social marketing programs described above. PSI is not currently involved in the procurement or sale of ORS or zinc; however, it is exploring the development of a diarrhea kit that includes these two products for sale at the community level. Such a kit will potentially increase standardized treatment of diarrheal diseases at the community level, and adoption and subsidization at the national level will ensure that a sufficient dose is provided for every diarrheal disease case treated with the kit.

Private-for-profit sector

Several commercial private sector wholesalers and pharmacies are involved in the procurement and distribution of pharmaceutical products at the central and regional levels. Most of these private sector providers are located in the major urban centers and their distribution networks are limited to these areas. These wholesalers and pharmacies

should be encouraged to sell zinc and ORS, and sales assistants should be trained in the proper use of zinc and ORS for the management of diarrheal diseases. Including the private-for-profit sector in efforts to introduce zinc will improve access especially in urban areas.

3.2.3 Quantification

Accurate quantification of requirements was identified as one of the major challenges to introducing zinc in the public pharmaceutical sector. The pharmaceutical supply system in Madagascar is a "pull" system. Therefore, each health facility is expected to estimate its requirements and submit this to their PhaGDis. The PhaGDis collates the requirements for all the health facilities it supplies and submits the requirements to SALAMA, with a copy of the requests sent to the DPLMT. SALAMA has developed forms to support consumption-based quantification, and these forms have been distributed to health facilities and PhaGDis by the DPMLT. However, to date, none of the PhaGDis have correctly filled in these forms or been able to accurately quantify their requirements. Therefore, SALAMA has been unable to use the data provided for procurement decisions. DPMLT is responsible for the training the public sector pharmaceutical workers in procedures of product management and quantification, but have not been able to do this. No separate pharmaceutical MIS (PMIS) exists to collect specific data relevant to pharmaceutical management that may assist in developing these estimates. The HMIS only collects stock-out data.

Given the challenges outlined above, SALAMA is doing its own estimates of need on the basis of past sales and data of expected disease incidence obtained through the HMIS. This has led to inaccurate estimates of pharmaceutical requirements, including ORS. At the time of the visit, SALAMA was concerned that most of its ORS stock was about to expire, as they were not selling the quantities expected in their original estimates.

Estimating zinc and ORS requirements

Given the challenges outlined above, an accurate estimation of the requirements for the first year of implementing the zinc policy may not be possible. To obtain a rough estimate of the zinc and ORS requirements for the first year of implementing the new policy, certain assumptions about the population of children aged zero to four, the annual population growth rate, expected episodes of diarrhea per child per year, and expected care-seeking behavior were made. These assumptions are summarized in table 1, below. The estimated mid-year population of children age zero to four in 2004 was obtained from the U.S. Bureau of the Census international database. The estimated number of diarrhea cases per child per year and the estimates of the percentage of patients seeking care in the public and private sectors were extrapolated from the results of the 2003 – 2004 DHS assessment.[3]

In this analysis, the use of the private sector includes anyone who sought care in the formal private sector health facilities and the informal private sector health facilities including retail outlets and traditional practitioners.

[3] An explanation of the extrapolation was done can be obtained from Phil Harvey at the Academy for Educational Development (AED).

Table 4: Assumptions used to estimate the 2006 annual requirements for zinc

Base mid-year population for 0–4 age group in 2004[a]	3,111,179
Annual population growth rate	2.8%
Number of diarrhea episodes per year per child	2.6
Percent of population with diarrhea targeted for ORS	100%
Percent of population with diarrhea targeted for treatment with zinc	100%
Number of ORS sachets per treatment episode	2
Number of zinc tablets per treatment episode	10
Percent of cases seeking care in private sector	15%
Percent of cases seeking care in public sector	21%
Percent of cases with no care-seeking or seeking care in other sectors	64%
Estimated cost per ORS sachet	US $ 0.0524
Estimated cost per tablet on zinc salt	US $ 0.0190

a. Source: The U.S. Bureau of the Census international database at http://www.census.gov/ipc/www/idbprint.html; Table 094: Midyear population by Age and Sex.

Based on these assumptions, the estimated requirements for the 20 mg zinc tablets for the first year of implementation are approximately 85 million tablets at an approximate cost of US $1.62 million (see table 5). An estimated 64 percent of the 85 million tablets are the requirements for those who do not currently seek any treatment for diarrhea and represent the potential target for any community-based intervention.

The estimated ORS requirements, based on the expected incidence of diarrhea in the population and assuming two ORS sachets are given for each diarrhea episode, are approximately 17 million sachets for the first year of implementation. This may be an overestimation of requirements because current ORS consumption is very low. Based on the analysis of DHS data, only 12.6 percent of those who had diarrhea received ORS. Only 2.2 percent of those seeking care for diarrhea in the private sector received ORS and only 7 percent in the public sector.

Table 5: Estimation of the requirements for zinc and ORS in the first year of implementation

Care Seeking Sector	ORS (2 sachets)		Zinc salt (20mg tablet)	
	Requirement	Est. Cost (US$)	Requirement	Est. Cost (US$)
Public Sector	3,530,328	$ 184,989	17,651,643	$ 341,081
Private Sector	2,564,518	$ 134,280	12,822,594	$ 243,629
Other	10,941,942	$ 573,358	54,709,708	$ 1,039,484
All Sectors (National)	*17,096,788*	*$ 895,872*	*85,483,945*	*$ 1,624,195*

The current plan for implementing the zinc policy is to begin introduction in a few pilot districts, with additional districts phased in systematically until national coverage is achieved. Table 5 gives an estimate of the total national requirements, but additional analysis would be required to make initial orders for the selected pilot districts and for phasing in additional districts. At this time, the pilot districts have not been selected and the plan for phasing in the remaining districts has not yet been developed. Depending on data availability, several methods, can be used to estimate requirements once the pilot districts have been selected. If district-specific diarrhea incidence rates, health facility

utilization rates, or district-specific population figures are available, these can all be used to calculate estimates. The accuracy of each of these methods would depend on the accuracy of the data available. The estimated requirements for zinc for each district using available population figures are included in annex 6. Table 6 below gives an example of estimated zinc needs and costs for one district in the region of Toamasina for a one-year period. Applying the assumptions and calculations detailed above to the Brickaville district population of 25,777, the total cost to purchase sufficient zinc is $13,718.

Table 6: Estimated zinc requirements and costs for Brickaville District, 2006 (population = 25,777)

	Public	Private	Other	All
Estimated Requirements (Number of 20 mg. tablets)	151,617	108,298	462,070	721,984
Estimated costs	$2,881	$2,058	$8,779	$13,718

The extent to which IEC campaigns and the training of care providers will increase uptake of ORS and zinc is uncertain at this time. For this reason, these potential increases in zinc uptake have not been taken into account for the purposes of the estimated zinc requirement calculations. It is recommended that a proper quantification exercise be completed three to six months after the implementation of the new strategy for more accurate estimates of ORS and zinc tablet requirements.

3.2.4 Storage and Inventory Management

The PhaGDis, which function as the district depots, are run by NGOs or other private sector providers under contract from the MOH. The contracts are issued to successful bidders following national open tenders and are awarded every three years. The DPMLT is responsible for overseeing the activities of the successful contractor. The contractors' performance is evaluated based on the specifications in the contract, which provide a general outline of the financial and operational requirements that the contractor is expected to follow. The DPMLT has not developed standard operating procedures to serve as guidelines for inventory management or storage practices expected of the contractors.

At the health center level, a community pharmacy (PhaGCom) serves as the dispensary. A community health team that sits at the local government level manages the PhaGCom. PhaGCom staff generally have some high school education. Other than an orientation when hired, there does not appear to be any additional training provided to them.

As a result, the standards for inventory management and storage appear to depend on the contractor managing the PhaGDis or the staff and management team managing the PhaGCom. During the field visits, only one of the four PhaGDis visited was functioning

well. Some of the problems identified included: poor record keeping, insufficient stock, excess stocks, products close to expiration, products left on the floor (despite the presence of empty shelves), and poor security of both the stock and the cash collected from the sale of the products. Given the small sample of PhaGDis visited, it is not clear how widespread these problems are. However, such shortcomings would need to be addressed in the long term to improve the provision of services in the public health sector and ensure the new zinc program's success.

At the community level, good inventory management practices appear to be more difficult to achieve. Most community health workers are provided neither with a box nor cupboard to store their products. They are not given advice on how best to store these supplies, nor is there adequate supervision of their activities or practices. Thus, it is easy to understand why they are not implementing good inventory management practices. CHW training curriculums should include pharmaceutical management for childhood illnesses.

3.2.5 Rational Use

Public sector
Although most of what is meant by rational drug use is dealt with under the section on treatment of diarrhea and IMCI, dispensing practices are also an important part of ensuring rational use of pharmaceuticals. The limited training and knowledge of the dispensers at the PhaGCom level is evident in the dispensing practices observed. During the visits to a few PhaGComs, dispensers provided no counseling to patients on the use of the medicines given; they simply sold the products prescribed to the patients. At some of the health facilities visited, the medicines were dispensed in rolled up pieces of paper with no written information, such as the name of the medicine, or written or pictorial instructions on how to take them. Pre-packaged medicines would be a solution.

Private sector
The limited number of trained pharmacists in the country[4] and the absence of trained pharmacy technicians mean that untrained individuals run most private pharmacies. This creates a problem in ensuring appropriate dispensing practices.[5] Medicines are also available from unregulated and undocumented outlets. The DPLMT has oversight of the private sector providers' activities, but it does not always have the capacity to provide the required supervision.

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[4] The Schools of Medicine do not have a pharmacy department; therefore most of the pharmacists are trained in other countries.

[5] During the visit to the Mahaboboka CSB in Tulear, an example of the poor and potentially dangerous dispensing practices by private practices was observed. A child with diarrhea had received a prescription from the doctor at the CSB two days earlier. As the PhaGCom was closed at the time, the mother of this child had attempted to fill the prescription at a private pharmacy. The prescription was for ORS, Cotrimoxazole, Paracetamol, and Chloroquine (Total cost at PhaGCom: approximately 272 Ariary). The private pharmacy had altered the prescription and sold to the mother Smecta (diosmectita), Metoclopromide hydrochloride, chloramphenicol and an unidentified yellow tablet (Total cost: 2300 Ariary). The mother had returned to the CSB because her child was not showing any improvement.

3.2.6 Local Production

FARMAD is a local private manufacturer. Import taxes on raw materials have affected its manufacturing activities, which it is now phasing out. It currently functions mainly as a wholesaler, working with manufacturers in Germany, China, Holland, and Romania to produce products with the FARMAD brand for the local market. They have been working with PSI on its social marketing programs. FARMAD is responsible for the prepackaging of PSI products—particularly PaluStop—and distribution to wholesalers and private pharmacies. FARMAD is currently not importing or manufacturing ORS or zinc.

The MOH has a unit in charge of producing pharmaceutical solutions, the *Unité de Production des Solutés Massifs* (UPSM). They have just restarted production of the standard ORS formulation using raw materials they had in storage from the production of ORS in the past. The aim is to use these raw materials before they expire next year. The first ORS delivery to SALAMA was sent the week of the visit (although it was not accepted by SALAMA because it did not meet labeling requirements). UPSM currently has the capacity to produce 700,000 ORS sachets per year and expects to increase this production capacity in 2006. It also plans to start producing low osmolarity ORS. UPSM has not produced any tablets in the past. However, as part of its expansion strategy, it is interested in doing so in the future. UPSM has also expressed an interest in producing zinc. Given their lack of experience with the production of tablets, it is not clear what assistance they will need to get this production process moving.

3.2.7 Group Work Recommendations for the Action Plan

Representatives from different ministerial, NGO, and UN agencies who are part of the Zinc Technical Committee discussed the above findings and outlined the following action points that will form the principal pharmaceutical activities related to the introduction of zinc as an adjunct therapy for diarrheal treatment (see the draft action plan in section 4.0 for more details):

- Take steps to include zinc on the EML and register it as a medicine;
- Estimate needs for the pilot sites;
- Determine funding modalities; and
- Identify the appropriate supply mechanism for the initial pilot districts (likely the public system for the national roll-out).

3.3 Behavior Change Communication

Madagascar has developed innovative approaches to behavior change and community mobilization, addressing multiple causes of child mortality. These strategies have supported the delivery and use of a package of integrated services, and improved family practices. This section describes the assessment team findings that will be the basis for the introduction of zinc therapy.

3.3.1 National Level

At the national level, there is a wealth of personnel responsible for BCC, and the production of IEC materials. A Nutrition Service (*Service IEC*) with its coordinating committee (CCMS) is responsible for the coordination and validation of all IEC materials relating to health and nutrition. In addition, each technical department of the MOH has an IEC coordinator. Furthermore, the national radio is used frequently to disseminate health and nutrition messages, and nutrition and health campaigns are often conducted (e.g., for vitamin A supplementation, polio, and malaria) with MOH coordination.

Most international agencies working in nutrition and child health have personnel or departments responsible for BCC. Care International, PSI, and Santénet all consider BCC as an inherent component of their activities, and Catholic Relief Services and UNICEF have a department in Antananarivo responsible for communications and producing materials, such as radio spots, TV ads, and posters relating to Vitamin A supplementation, malaria, and so forth. PSI is involved in various social marketing campaigns and has in-house layout specialists and graphic designers who produce state-of-the-art communications materials. The *Groupe d'Action Integrée pour la Nutrition* (GAIN), a multisectoral body representing nutrition agents from the local and international NGOs, various ministerial departments, and the UN, is another BCC coordination mechanism.

In addition, various materials were developed at the national level and disseminated to the district level, including a booklet with the IMCI algorithms with actions for children aged two months to five years, several posters on the prevention and treatment of diarrhea, the child health card, counseling cards, and gazettes that are published often with different themes relating to child health and nutrition. The gazettes were previously produced by JSI, but it could not be established which organization is currently responsible for producing them. There are several main messages for diarrhea prevention and treatment that are specified in the IMCI materials, as well as the counseling cards, which have corresponding pictorial images. These can be summarized as: (1) mother/ or caretaker continue to breastfeed; (2) boil water; and (3) give your child foods, particularly those they prefer. In addition, the danger signs that necessitate a health clinic consultation are described as the presence of blood in the stool, child unable to drink, has lethargy or vomiting, or has diarrhea for three consecutive days.

The MOH is currently recommending the use of ORS salts, as well as frequently-consumed liquids, such as coconut water, *rano vola* (a brownish liquid prepared by adding water to remnants of cooked rice and boiling this liquid), and rice liquid (a creamy white thick ricewater liquid produced by boiling rice in large quantities of water). The home-prepared ORS, known as *1/9* or *solution maison* is not recommended because the MOH has realized that most mothers do not prepare these in the right proportions.

3.3.2 District Level

Each district has a BCC specialist. In addition, BCC specialists of the former provinces will now be made available to the regions. In Tulear, the BCC coordinator oversees BCC activities for the district and communicates with the MOH to inform them of the districts' needs. At the time of the visit, she was involved in preparations for the polio campaign, and hence the team did not get to interview her. District- and health facility-level personnel interviewed mentioned that radio spots are one of the most effective communication tools, as everybody has access to a radio. In addition, the BCC coordinator in Tulear District cited mobile video spots as a successful method of

effectuating behavior change. Currently, written materials, such as banners and posters, are produced at the central level and then transported to the districts, which are free to translate them into different dialects. In Tulear, the BCC coordinator mentioned that her resources were limited and she could not translate these materials; rather, she preferred to be involved in the conception of these materials in the district so as to develop them in the local dialect. In Tamatave, the director of health of Toamasina II Region was of the opinion that written materials should not be in the local dialect, but should be in the official dialect. Most MOH staff shared this view, noting that all those who read Malagasy are able to read the official Malagasy dialect. Further information on dialect preferences and their impact on the effectiveness of BCC efforts need to be obtained with a larger sample of informants.

District-level health facilities were equipped with the materials (posters, counseling cards, IMCI algorithms) previously mentioned. However, it was feasible to observe only one counseling session between a health provider and a mother with a child with diarrhea (at the CSB in Andrianavory). During the visits, the teams also observed a few educational sessions. These observations reflected a wide range of competencies that may be representative of the situation in the country, but it is not possible to draw any firm conclusions in this regard. However, it is very likely that counseling skills will reflect the amount of training received and that this is an area that will need extensive support. At the district level, there is a wealth of NGOs that are active in child health and nutrition activities, with a strong capacity for social mobilization (such as ASOS and ADRA).

3.3.3 Community Level

In a review of the IMCI program conducted in 2000, it was noted that one of the advantages of activities aiming to improve community- and family- level practices is the existence of various IEC materials exist at the community level.[6] Field visits also found that counseling cards are available at the community level and that mothers observed at the health facilities had their children's health cards. However, we found that other materials (posters and gazette) were limited to the health centers. Community health workers expressed interest in receiving these materials, particularly the gazette.

There are a myriad of community-level NGOs that use innovative BCC approaches. These include MCDI, ASOS, and ADRA. One of the most innovative approaches is the *Kominina Mendrika* or Champion Community approach, spearheaded by Santénet and currently in use by many of its partners, including ASOS. In this approach, communities set measurable, realistic, and achievable objectives and indicators around specific child health themes. Then the approach is implemented through a 10-step cycle involving introducing the theme, training community-based agents, monitoring, supervision, evaluation, and awarding prizes if the theme has been adopted successfully. This approach has just been introduced to communities. Therefore, the level of its success could not be assessed. However, because *Kominina Mendrika* has strong BCC-focused elements, such as toolkits in marketing, mass media, and interpersonal communications that are made available the communities, it is hoped that it will be successful. The assessment team members had brief discussions with Santénet about this approach and would like to use it in the introduction of zinc for diarrheal treatment.

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[6] Ministère de la Santé, Direction de Medicine Preventive, « Rapport sur la revue d'évaluation de l'introduction de la PCIME à Madagascar, » april 17-21, 2000.

Another promising approach is *Reny Limy*, which means *five mothers*, and that MCDI is practicing in Tulear. In this approach, a community member volunteers to identify five mothers who are carrying out a practice that could use improvement, then assists the mother in improving the practice (through household visits, nutrition education sessions, and so on). If the mother succeeds, the volunteer repeats this process for four other mothers, using the first mother as a witness that the new practice works. The volunteer is responsible for completing her task with a total of five mothers and is under no obligation to stay on as a volunteer. This approach has worked successfully in the promotion of family planning, vaccination, and exclusive breastfeeding.

An important factor at the community level is the engagement of local authorities, such as the presidents of the communities (*chefs des fokontany*), mayors, and other administrative leaders. Highly revered by community members, these leaders are extremely knowledgeable about health and nutrition conditions in their communities and should be involved in planning health and nutrition programs.

Although there are successful strategies in place, structured interviews with key health staff at the national level highlighted three factors at the community level that need improvement. These factors were also noted during the field visits and include: (1) weak coordination among the different actors; (2) weak supervision of BCC activities; and (3) the absence of motivation systems for community-level agents, which may mean that activities will not be efficient and sustainable.

The assessment team noted a number of findings during the field visits that should be considered in developing a behavior change strategy for zinc. Community-level focus groups with men in Sakarahi demonstrated a high knowledge of certain health and nutrition messages relating to optimal treatments for malaria, diarrhea, and ARI. In addition, the men were keen to receive the gazette, which was not available at the time in their village. However, there was a mixed level of knowledge about the best diarrhea treatment by women interviewed, with some women mentioning Cotrimoxozole and Paracetemol as ideal treatments. This finding was not surprising because the health personnel in the clinic catering to this village (in the CSB in Andrianavory) provided these medicines as part of the treatment for diarrhea. Some other negative practices that were mentioned by village health workers and mothers include providing plants for treatment of diarrhea, as well as beliefs that diarrhea is due to sorcery, and that a child with diarrhea should only receive breastmilk from one breast. Using plants as medication was the practice mentioned the most often during focus group discussions.

Other assessment findings should be considered in choosing communication channels in specific regions. Women turn to the authorities in the extended family structure, such as the mother-in-law and the grandmother, for advice on how to look after infants and young children. Thus, any BCC approach should consider targeting these influential people and guiding them to accept optimal practices. In one community, five out of six men, and two out of five women (Andrianavory) had a radio and used it as a major source of information. All listened to *Radio Sakaraha,* and women liked the dedication programs.

3.3.4 Group Work Recommendations for the Action Plan

Representatives from different ministerial, NGO, and UN agencies that are part of the Zinc Technical Committee discussed the above points and outlined the following action points that will form the principal BCC activities related to the introduction of zinc as an

adjunct therapy for diarrheal treatment (see section 4.0 for more details on the action plan):

- Inform all the personnel at all levels on the introduction of zinc for diarrheal treatment;
- Conduct qualitative research to develop messages concerning zinc for diarrheal treatment;
- Modify existing materials and curricula, as appropriate;
- Produce new material, such as radio spots, leaflets, and so on;
- Train health workers at all levels on behavioral change for the acceptability of zinc;
- Involve all local authorities in social mobilization; and
- Organize an official launch of the introduction of zinc as part of diarrheal treatment.

3.4 Summary of Key Findings

1. There are gaps in diarrheal disease case management even among health workers trained in IMCI. This can, in part, be attributed to a general lack of supervision and support following training. The introduction of zinc provides an opportunity to improve the management of diarrheal diseases at the facility level by strengthening IMCI activity supervision and addressing training needs of health workers not previously trained in IMCI.
2. Through decentralization measures, the peripheral level of the health system has greater responsibility for the implementation of programs such as the introduction of zinc and new ORS. This shift in financial and programmatic decision-making from the central to the peripheral level should make funding more accessible to the districts for the introduction of zinc and ORS.
3. Supervision of IMCI practices at the facility and community levels is lacking, and the introduction of zinc and ORS provides an opportunity to renew and make improvements to regular supervision.
4. Financial barriers to treatment for diarrheal diseases are significant despite insurance-type schemes and voucher initiatives to assist the poor. Further development of measures to improve financial access to services is key to ensuring that cases are appropriately treated with zinc and ORS.
5. The country's current capacity to ensure drug quality is limited, hence, it is important to register zinc as a drug and import it from a reliable source with high quality standards.
6. Comparing rural and urban areas, there is a discrepancy in knowledge of and access to diarrheal disease treatment. Rural areas are at a disadvantage and should therefore be targeted for BCC interventions. Community case management will also help to close this gap by improving access to treatment in rural areas.
7. Access to zinc and ORS in urban areas can be improved through the use of the private sector (both for-profit and not-for-profit) agencies. The strategy to introduce zinc and new ORS should include private sector training and encouragement for the use of these products.

8. Madagascar is very invested in improving the national health information system. With an increase in the amount and quality of data collected, health officials and care providers need training on the use of this information.
9. The quality of pharmaceutical management at the district level is variable and in most cases, it is in need of improvement. Best practices should be identified and shared through training at the facility and vendor level to foster good management of zinc and ORS.

4.0 Action Plan for the Introduction of Zinc for IMCI in Madagascar

Steps	Activities	O	N	D	J	F	M	A	M	J	J	A	S	Responsible and technical support
Delivery with or without a medical prescription	Zinc will be an OTC drug.													
Drug or nutritional supplement	It is a drug classified under Table C.													
Inclusion of zinc in the Essential Medicines List and Registration of Zinc	DSF send a letter requesting inclusion of zinc on the EML and a tax waiver to DPLMT.	X												DSF
	DPLMT delivers a temporary authorization for inclusion on the EML and submits this to the Ministry of Finance to obtain the tax exemption.		X											DSF and DPLMT
	UNICEF, WHO, USAID, and other partners provide technical support to develop the zinc registration application request and the technical specifications and application submitted to the AMM.		X											SSEA
	Response on the registration request received from the AMM		X											AMM
	Revision of the list of essential drugs in 2006							X						DPLMT

4.1 Logistics

Steps	Activities	O	N	D	J	F	M	A	M	J	J	A	S	Responsible and technical support
Funding modalities	To be discussed be the Child Survival Technical Committee. The key questions are? (1) If subsidized, who will provide the subsidy? (2) Will zinc be provided free to patients? Through which mechanism?		X											Child Survival Technical Committee
Estimation of needs at the health facility and the community site level	Select districts with high diarrhea prevalence to serve as pilot sites. Refer the decision for estimating the requirements (based on treatment dosage and duration) to the child survival technical committee with support from technical partners	X												SSEA and SSSa BASICS and RPM PLUS
Identification of supply mechanisms for use to ensure supply at community level	Refer this issue to the Child Survival Technical Committee for discussion with relevant agencies including NGOs (such as PSI and others).		X	X										To be determined with SALAMA UNICEF

4.2 Case Management

Steps	Activities	O	N	D	J	F	M	A	M	J	J	A	S	Responsible and technical support
Selection of pilot sites	1 SSD/ Region/ 3 provinces: Toamasina, Mahajanga, Toliara Questions. Compliance, respect of standards, types of health facilities (rural, urban, remote) public and private	X												SSEA and SSSA
Revision of algorithm	General revision (integration) One scenario – permanent guidelines		X X											IMCI focal point
Development of training curricula	Permanent guidelines and materials		X											IMCI focal point
	Updating (quarterly reviews)			X										
	Training for health providers, community workers and drug providers			X										
Identification of staff to train	Information / sensitization/ orientation Regional and districts			X										

Steps	Activities	O	N	D	J	F	M	A	M	J	J	A	S	Responsible and technical support
	Training of service providers Heads of CSB and district hospitals Assistants of the CSB or CHD (Centre Hospitalier de District [District Hospital]) heads Drug providers			X X										
Revision of data collection form (MIS)	Specific instructions to develop (message to the District Management Teams) Table 2 in the Monthly Activity Report	X												SSSa
Revision of the IMCI supervision form	Update the form (zinc)		X											
Methodology for monitoring and evaluation of pilot sites	Reports Stock management (Monthly activity report) Compliance to standards (supervision) Sentinel sites (university)		X											University with the support of BASICS

4.3 IEC/BCC/Community Mobilization

Steps	Activities	O	N	D	J	F	M	A	M	J	J	A	S	Responsible and technical support
Inform all staff at all levels	Develop tools: (protocol and rationale) — Job aid for health workers — Brochure: other targets Disseminate information after pre-test		X X	 X	 X	 X								SSEA SIECMS-CCMS Partners Zinc technical committee
Carry out qualitative survey	Carry out qualitative household surveys		X	X										MoH + consultants + National Statistics Institute + Zinc Technical Committee
Modify existing materials and curricula	Make an inventory of existing IEC materials and update them with the key messages			X	X									SSEA CCMS Partners (finance)
Produce new materials	Integrate zinc in the training curriculum for: — Community workers — Health workers				X	X								Zinc technical committee, SSEA, CCMS, SPC, (partners)
	If needed, and based on the findings of the survey, produce new materials													

Steps	Activities	O	N	D	J	F	M	A	M	J	J	A	S	Responsible and technical support
Training of health workers at all levels	Train health and community workers in BCC techniques as part of integrating zinc						X	X	X					
Involve local authorities in social mobilization	Advocacy. - Develop an advocacy kit (document + zinc sample + IEC materials) for all decision-makers (mayors, head of villages, religious leaders, regional and communal authorities		X											All the levels of MoH and partners
	Organize the official launching of zinc introduction in diarrhea management								X	X				Other sectors/ Ministries The general population Zinc technical committee Partners Others

Annex 1: Stakeholders Met During Assessment Team Visit

Antananarivo

Name	Job Title	Organization
Alexandre Andrianaivoarisoa		Surveillance, Epidemiology, and Management of Health Information in MOH
Ambinintsoa Raveloharison	National Coordinator	National Nutrition Office
André Ndikuyeze	Representative	WHO
Andrianantoandro Ravelojaona Voahirana	Coordinator of Regional Programs	Santénet
Blanchard Andriamparany	National Director	Seecaline
Daudet Randrianasolo		Surveillance, Epidemiology, and Management of Health Information in MOH
Douglas Call	Representative	Population Services International
Elysée Ramamonjisoa	Specialist in Community Mobilization	Santénet
Eric Yvon Razafindralambo	Service Chief	Surveillance, Epidemiology, and Management of Health Information in MOH
Hanata Razafitseheno	Director	UPSM
Harilalao Razafimandimby	Responsible for IEC	Seecaline
Henri Rakotonirainy	Commercial Director	Farmad
Hortense Rakotonirina	Service Pharmacopée et Médecine Traditionnelle	DPLMT
Jean Louis Razafimahatratra	Adjoint Technique	Service des Statistques Sanitaires, Management of Health Information in MOH
Jeanine Rasafiarisoa	Commercial Attaché	SALAMA
Jennie Rakotondrazafy	Responsible for Community Nutrition Program	Seecaline
Josoa Samson Ralaivao	Specialist in Access to Health Services	Santénet
Justin Ranjalahy Rasolofomananana	General Director	National Institute of Community & Public Health
Mamy Ralaivita	Technical Coordinator	SALFA
Nicole Mahavany	Head of Inspectorate Service	AMM
Norolala Rabarijohn	Health Program Administrator	UNICEF
Olga Rakotondrasolo	Responsible for School Nutrition Program	Seecaline
Perline Rahantanirina	Director, Family Health	Ministry of Health and Family Planning
Rasata Andriananajavelo	Pharmacy Inspector	AMM
Rasata Andriananjavelo	Pharmaceutical Inspector	Ministry of Health and Family Planning
Serge Christian Raharison	Deputy Director	Santénet
Voahirina Andrianantoandro	Coordinator of Regional Programmes	Santénet

Tulear Region

Name	Job Title	Organization
André Noel	HIS officer	Regional Health and Family Planning Department- SW
Claude Marcel Andrianantenaina	Adjoint technique	SSD Sakaraha
Dr. David	Doctor	CSB near Madrosoa
Dr. Mayef	Adjoint Technique	SSD tulear II
Dr. Ndrasana	IEC Coordinator, Tulear Region	Reference Hospital, Tulear Province
Edouard Razafimaherison	Responsible SISG	SSD Sakaraha
Honore Mbola	Responsible Nutrition and Malaria	SSD Sakaraha
Iharlilalao Rasolondraibe	Doctor	
Jean Martin Rakotovoa	Dental Surgeon	CHDI
Jeanne Francoise	Responsible du SIG	SSD Tulear II
Jeannette Valikara Soanomena	Pediatrician	Reference Hospital, Tulear Province
Josea Ratsirarson	Coordinator	Medical Care Development International (MCDI)
Lanto Rahamelosoa	Chef CSB II	CSB II
Louis Antoine Raisminandresy	Doctor	CHDI
Marie Claudia	Medecin Inspecteur	Regional Health and Family Planning Department- SW
Mme Revasa	Community volunteer	CSB2 of Miary, Tulear II
Philippe Ratolojanaharyveloson	Chef de service médico- sanitaire	Regional Health and Family Planning Department- SW
Ramihajaninina Andriamahanandry	Chef CHD I	CHD I
Raymond Daniel	Director, Regional Reference Hospital, Tulear	Regional Health and Family Planning Department
Respev Randrianarison		SSD Sakaraha
Roger Rafananatanantsoa	Adjoint Atif	SSD Sakaraha
Rosa Rakotoarisa	Child survival Officer	MCDI
	Medecin chef du CSB2 de Miary	SSD Tulear II
	Medicin Chef	CSB Mahaboboka

Toamasina Region

Name	Job Title	Organization
20 mothers		Tamabao Village
Animators & Mothers	Antetezambaro Village	ADRA & Community
Annick Randriamaro	Technical Coordinator	ADRA - Moramanga
Antoinette	Responsible for HIS	
Antonia Razafindranosy	Health Responsible	ASOS - Brickaville
Bahaly	Subregion Coordinator	ADRA - Moramanga
Camille Pamaka	Regional Coordinator - Toamasina	Santénet
Céléstine	Subregion Coordinator	ADRA - Moramanga
Claude Rajaonah	Technical Responsible	ASOS - Brickaville
Clement Bruno Ramiarimanana	Technical Deputy	Moramanga District MOH
Community Health Volunteers	ADRA supported program	Village near Moramanga
Davie	Subregion Coordinator	ADRA - Moramanga
Dr Alberthe	Clinic In-charge	CSBII at Antetezambaro
Dr Intsiraka	Medical chief of the district	Brickaville
Dr. Iharimanana	Responsible for PhaGDis	Moramanga District
Dr. Julienne	Responsible for IMCI	Moramanga District MOH
Gisèle Vololoniaina	Data Entry Coordinator	MOH - Toamasina
Hervé Razakambololona	Equity Fund Coordinator	MOH - Toamasina
Ilda Rajovoarivelo	Deputy Coordinator	ASOS - Brickaville
Jacques Ratsara	Medical chief of the district	Toamasina II - MOH
Jeanne Vao	Data Entry Coordinator	MOH - Toamasina
Julie Honisoa Norovoahangy	HIS Coordinator	MOH - Toamasina
Noella	Subregion Coordinator	ADRA - Moramanga
Roda Beuoil	President of fokotany & health volunteer	Ampasimpotsy:
Suzanne Rasoanindrina	Regional IMCI Coordinator	MOH - Toamasina
Zohra Bayant	Regional Director of Health	Eastern Region - MOH
	Pharmacy Manager	District Pharmacy depot (Phagedis)
	Pharmacy Manager	ASOS - Brickaville
	Depot Manager	Toky pharmacy in Ampasimadianike
	ASOS volunteer	Marovola Village

Annex 2: Mission Activity Schedule

Date	Activity
Sunday, 25 September	Arrival of External Team
Monday, 26 September	Meetings with SSEA, WHO, USAID, INSPC and SIG
Tuesday, 27 September	Meetings with DSF, UNICEF and Child Survival Technical Committee
Wednesday, 28 September	Sub-Team travel to Tamatave
Thursday, 29 September	Sub-team travel to Tuléar
Friday, 30 September	Visits in Regions
Saturday, 1 October	Visit to ASOS in Brickaville; Return of Tamatave team to Antananarivo
Sunday, 2 October	Return of Tulear team to Antananarivo
Monday, 3 October	Meetings with PSI and Santénet
Tuesday, 4 October	Meetings Santénet Staff
Wednesday, 5 October	Meeting with National Nutrition Office
Thursday, 6 October	Meeting with Child Survival Technical Committee
Friday, 7 October	Debriefing with USAID

Annex 3: Child Survival Technical Meeting Participants Sept. 27, 2005

Present:	***Position/Organization***
Mahavany, Nicole	Service de l'Inspection Agence de Médicament
Rakotonirina, Hortense	Service Pharmacopée et Médecine Traditionnelle / DPLMT
Andriamiarana, R. Rolland	Service d'Approvisionnement des Districts et des Hôpitaux de Référence
Adeya, Grace	MSH
Call, Douglas F.	PSI Madagascar
Vony Soa, Hanitra	Service de Santé de l'Enfant et de l'Adolescent, MOH
Ramiadanarivelo, Lalasoa	Direction Régionale de la Santé et du Planning Familial, Analamanga
Rabarison, Tinha	PSI Madagascar/Sur'Eau
Ntiru, Micheline	HKI/Consortium Santénet
Ralijaona Rasoanaivo, Léone	MEM/SG/SMS
Razafiarisoa, Jeanine	SALAMA
Johanesa, Naivoson Abel	OSTIE
Ratsirarson, Josea	MCDI
Rabarijohn, Norolala	UNICEF
Rasamihajamanana, Eugénie	Responsible Suivi/Evaluation, Direction de la Santé Familiale, MOH
Dr. Thierno, Mariama	Santénet
Dr. Rahantanirina, Perline	Direction de la Santé Familiale, MOH
Dr. Ramilison, Hajarioela	Service Pédiatrie, HJR Befelatanana, CHU Antananarivo
Harvey, Philip	MOST/USAID
Pr Ravelomanana, Noëline	Group Hospitalier Mère- Enfant CHU-Antananarivo
Dr. Rakotonirina, Simon	Service Nutrition, MOH
Dr. Ranivomiarana, Hanta	Service Pédiatrie, HJR Befelatanana, CHU Antananarivo
Dr. Razafiarivelo, Odette	Service des Districts, MOH
Raharison, Serge	SantéNet
Rakontondrazafy, Jennie	Office National Nutrition / Antananarivo
Wansi, Emmanuel	BASICS
Swedberg, Eric	BASICS

Annex 4: Child Survival Technical Meeting Participants Oct. 6, 2005

Present	***Organization***
Raharisoa, Bernedette	Service de Santé de l'Enfant et de l'Adolescent, MOH
Vony Soa, Hanitra	Service de Santé de l'Enfant et de l'Adolescent, MOH
Wansi, Emmanuel	BASICS
Swedberg, Eric	BASICS
Johanesa, Naivoson Abel	OSTIE
Ribaira, Eric	UNICEF
Rasoalivola, Faranirina	SAF/FJKM
Rakotondrazafy, Jennie	Office National Nutrition /SEECA LINE
Adeya, Grace	MSH/RPM+
Solondraibe	Interpreter
Harvey, Phil	A to Z/USAID
Randriantsalama, Laza Oninjaka	PSI Madagascar
Andriamiarana, R. Rolland	Service d'approvisionnement des Districts et des Hôpitaux de Référence, MOH
Ramiadanarivelo, Lalasoa	Direction Régionale de la Santé et du Planning Familial, Analamanga
Ralijaoina Rasoanaivo, Léone	MEM/SG/SMS
Rabarisoa, R Roger	Service des Districts, MOH
Razafimahatratra, Jean Louis	SSS / Direction de l'Etude et de la Planification, MOH
Razanatsoarilala, Helene	Service de Santé de l'Enfant et de l'Adolescent, MOH
Rabetaliana, Lala Harisoa	Service Pédiatrie, HJR Befelatanana, CHU Antananarivo
Razanadraliza, Josephine	Service Santé de la Reproduction / Maternité Sans Risque, MOH
Rasamihajamanana, Eugénie	Suivi/Evaluation, Direction de la Santé Familiale MOH
Raoelina, Rajaona Yolende	Service de Lutte contre les Maladies Emergentes et Réemergentes, MOH
Rakotoherisoa, Randriamalala	Service de Formation et de Perfectionnement du Personnel
Razafindrazaka, Jean Choys	Service de la Participation Communautaire, MOH
Evanson, Leigh Ann	SanteNet
Raharison, Serge	SanteNet
Rarbo, Andria-Ntoanina	Responsable IEC/ Service Nutrition, MOH
Andriamitantsoa, Benjamin	USAID
Dr. Rahantanirina, Perline	Direction de la Santé Familiale, MOH

Annex 5: Scope of Work

Background

Zinc deficiency has been found to be widespread among children in developing countries. Clinical and field studies have consistently shown an association between zinc deficiency and higher rates of infectious diseases, including skin infections, diarrhea, pneumonia and malaria. During the past seven years, results from clinical and community trials have demonstrated that the provision of zinc during episodes of acute, watery diarrhea in children under 5 years old, shortens the duration of the disease, reduces its severity, and has a preventive effect on future episodes. In May 2004, WHO and UNICEF issued a Joint Statement recommending a 10-14 day course of Zinc for Treatment of Diarrhea, in conjunction with oral rehydration solution or oral rehydration therapy (ORS/ORT). The recommended dosage is 20 mg/day for children 6 months to 5 years of age, and 10 mg/day for children 2-6 months of age. Studies in infants younger than 2 months old are currently underway.

Context

In April 2005, USAID/Madagascar requested technical assistance from the BASICS III Project for the introduction of two interventions: Community-Based Treatment of Pneumonia and Diarrhea; and Zinc for Treatment of Diarrhea. In preparation for this assistance, Adam Slote, Child Health Advisor from the Global Health Bureau, visited Madagascar in May 2005. The purpose of this visit was: to conduct a preliminary assessment of the need and feasibility of introducing both interventions; to increase understanding of both interventions within the MOH and its key donor and implementation partners; and to propose recommendations for next steps in the introduction process.

While the visit was focused on Community-Based Treatment (representatives from the Global Health Bureau Zinc Team were unavailable due to prior commitments), it was evident that Madagascar holds promise as a candidate for the introduction of zinc for the treatment of diarrhea based on the following:

- The MOH is eager to proceed and is willing to lead the process. As such it has created two committees including a Steering Committee (which shares membership with Community-Based Treatment and chaired by the Minister of Health, or in his absence, the Secretary General), and a Technical Committee (focused on zinc, and chaired by the Director of Child and Adolescent Health)
- The President of the IMCI Ethics Committee, the most senior pediatrician in the country, has indicated her support for zinc for treatment of diarrhea. This support is likely to be shared by the remainder of the pediatric community.
- The donor community (USAID, UNICEF, WHO, the World Bank) has indicated its commitment of resources to the MOH for this intervention.
- Numerous delivery strategies exist, including public health facilities, private providers and social marketing channels. The potential for adding zinc and ORS to the existing line of subsidized, socially-marketed products appears to be especially strong.

Several steps have already been taken:

- Zinc is referred to in the national nutrition policy, and the MOH has expressed a desire to add it to the child health policy.
- UNICEF has formed a task force to develop a protocol to study issues related to the introduction of zinc in public health facilities.
- UNICEF has pledged to purchase a sufficient supply of zinc and low osmolarity ORS for the first few years of implementation.

Now that the advocacy phase has largely been completed, the purpose of the current zinc assessment is to assist the MOH and its partners in moving forward with the introduction process.

Objectives

1. To strengthen the capacity of the Madagascar MOH and its key partners for the introduction of zinc for treatment of diarrhea.
2. To assist the MOH and its key partners in developing a strategy, plan and timeline for the introduction of zinc.
3. To develop a draft zinc assessment tool for future use in other country settings.

Tasks

A. Pre-departure desk review

1. Review existing experience with zinc introduction in other countries which may be relevant and transferable to Madagascar.
2. Review the epidemiology of diarrheal disease in Madagascar and calculate anticipated annual demand for zinc (through public health facilities, private providers and commercial/social marketing outlets).
3. Review existing literature on diarrhea prevention and treatment in Madagascar.

B. In-country assessment and capacity strengthening

1. Update and supplement desk review as needed.
2. Strengthen capacity of MOH and its designated partners (e.g., Zinc Technical Committee) for zinc introduction by including them as an integral part of the assessment process.
3. Review information on key diarrhea prevention and treatment issues.
    a. Household beliefs, practices and care-seeking patterns by urban and rural residence and by wealth quintile.
    b. Access, quality and utilization of health care services (including ORS) from public health facilities, private providers, and commercial/social marketing channels, by urban/rural residence, wealth quintile and province.
    c. MOH policies, strategies, plans and programs (including IMCI).
4. Review MOH policies and administrative procedures related to the treatment of diarrhea and the introduction of zinc as treatment for diarrhea.

a. Policy and legal framework: Registration, inclusion in the Essential Drug List (as a drug vs. nutritional supplement), approval as a public health commodity, etc.
b. Standards: National formulary, IMCI guidelines, standard treatment guidelines, etc.
c. Restrictions: Sale or distribution of ORS and zinc by community health workers, pharmacists, etc.

5. Review current and potential product availability in country.
    a. ORS and zinc products currently on the market and their sources.
    b. Existing or potential in-country ORS and zinc manufacturers.
6. Review policies, procedures, constraints and opportunities for improvement related to key health systems issues as they pertain to the prevention and treatment of diarrhea.
    a. Pharmaceutical management: Financing, procurement, distribution, inventory management, use.
    b. IEC/BCC: Mass communications, community mobilization/education, counseling.
    c. Human resources: Training (pre-service, in-service), supervision, quality improvement.
    d. Health information systems: Fokontang, CSB and commune-level.
    e. Private sector: For-profit, subsidized social marketing, non-profit.
7. Review existing studies and assess need for further formative and/or operations research, including testing of existing draft guidelines (e.g., Diarrhea Treatment Guidelines, Community Health Worker Guidelines, Program Manager Guidelines).
8. Review anticipated roles and responsibilities of various MOH units, donor partners, implementation partners, professional associations and other relevant stakeholders.

C. In-country briefing

1. Provide summary of key findings.
2. In collaboration with the MOH and its key partners, develop detailed recommendations for zinc with regard to:
    a. Strategy
    b. Plan
    c. Milestones/Timeline

D. Post-visit support

1. Produce final report, including comprehensive assessment and recommendations.
2. Produce a draft zinc assessment tool (including essential components such as a checklist and guidance) for future use in other country settings.

Proposed Zinc Assessment Team Members

Due to the size of the proposed team, it is recommended that members split up to perform independent assessments relevant to their areas of specialty.

Organization	Individual	Donor	Role
Internal Partners			
MOH		MOH/Mad	
Child & Adol Health	Dr. Raymond		Team Leader
Nutrition	Dr. Simon		Nutrition
IMCI Committee	Dr. Noeline		IMCI
Inst. Public Health	TBD		Research
SAMES	TBD		Pharmaceutical management
Other			
USAID	Benjamin Andriamitantsoa	USAID/Mad	General child survival expertise, facilitation
UNICEF	Staff TBD	UNICEF/Mad	Health facilities, training/supervision, IEC/BCC
WHO	Staff TBD	WHO/Mad	Essential Drug List, national formulary, treatment guidelines, HIS
PSI	Douglas Call	USAID/Mad	Social/commercial marketing
SanteNet	TBD	USAID/Mad	Child health, nutrition, quality, etc.
External Partners			
BASICS	Eric Swedberg	USAID/Mad	Coordination, community, training/supervision
BASICS	Emmanuel Wansi	USAID/Mad	Coordination, Health Information System
HKI	Micheline Ntiru	USAID/Mad	Community, IEC/BCC
MOST	Phil Harvey	USAID/GH	Treatment guidelines, EDL
RPM Plus	Grace Adeya	USAID/GH	Drug mgmt/access/use, private sector

Annex 6: Estimated Requirements for Zinc by District

Assumptions:

The estimated national requirements for zinc were calculated (and the assumptions used in making these estimates) as described in Section 3.2.3 of this report. Using these figures, the estimated zinc requirements for each district has been calculated as follows:

- The proportion of children 0-4 years old living in each district in 2001 as a percentage of the national population of children 0-4 years old was calculated. The district figures were obtained by RPM Plus from regional level HMIS data in 2004. More recent population figures by district were not readily available for the purposes of making these rough estimates.
- It is assumed that this geographic distribution of children 0-4 years old remains the same in 2004.
- The estimated national requirement for zinc (See Table 2) was multiplied by the proportion calculated in the first step above to obtain the estimated zinc requirements for each district.

Note: These estimates are only as valid as the assumptions that have been used in calculating them. It will be important to review any estimates used to plan for the implementation of the zinc policy, a few months after initiating the pilot implementation in order to obtain more precise estimates of the requirements.

	Population (2001)	%	2006 Estimated Zinc Requirements (See Table 2)				2006 Estimated Cost of Zinc Requirements			
			Public	Private	Other	All	Public	Private	Other	All
NATIONAL	**3,052,033**	**100%**	**17,951,643**	**12,822,594**	**54,709,708**	**85,483,945**	**$341,081**	**$243,629**	**$1,039,484**	**$1,624,195**
ANTANANARIVO	**1,143,181**	**37.5%**	**6,724,035**	**4,802,880**	**20,492,276**	**32,019,191**	**$127,757**	**$91,255**	**$389,353**	**$608,365**
Ambatolampy	36628	1.20%	215,441	153,886	656,581	1,025,908	$4,093	$2,924	$12,475	$19,492
Ambohidratrimo	40288	1.32%	236,969	169,263	722,189	1,128,421	$4,502	$3,216	$13,722	$21,440
Andramasina	23657	0.78%	139,147	99,391	424,067	662,605	$2,644	$1,888	$8,057	$12,590
Anjozorobe	24709	0.81%	145,335	103,811	442,925	692,071	$2,761	$1,972	$8,416	$13,149
Ankazobe	20867	0.68%	122,737	87,669	374,055	584,461	$2,332	$1,666	$7,107	$11,105
Antananarivo-Atsimondrano	49625	1.63%	291,888	208,491	889,561	1,389,939	$5,546	$3,961	$16,902	$26,409
Antananarivo-Avaradrano	355336	11.64%	2,090,038	1,492,883	6,369,633	9,952,555	$39,711	$28,365	$121,023	$189,099
Antananarivo-Renivohitra	148724	4.87%	874,774	624,838	2,665,976	4,165,589	$16,621	$11,872	$50,654	$79,146
Antanifotsy	47367	1.55%	278,606	199,004	849,085	1,326,695	$5,294	$3,781	$16,133	$25,207
Antsirabe I	27249	0.89%	160,275	114,482	488,456	763,213	$3,045	$2,175	$9,281	$14,501
Antsirabe Ii	56753	1.86%	333,813	238,438	1,017,335	1,589,587	$6,342	$4,530	$19,329	$30,202
Arivonimamo	44227	1.45%	260,137	185,812	792,798	1,238,748	$4,943	$3,530	$15,063	$23,536
Betafo	51264	1.68%	301,528	215,377	918,941	1,435,846	$5,729	$4,092	$17,460	$27,281
Faratsiho	28095	0.92%	165,251	118,036	503,621	786,909	$3,140	$2,243	$9,569	$14,951
Fenoarivo-Afovoany	21327	0.70%	125,443	89,602	382,301	597,345	$2,383	$1,702	$7,264	$11,350
Manjakandriana	34457	1.13%	202,671	144,765	617,665	965,101	$3,851	$2,751	$11,736	$18,337
Miarinarivo	30704	1.01%	180,597	128,998	550,390	859,984	$3,431	$2,451	$10,457	$16,340
Soavinandriana	25017	0.82%	147,147	105,105	448,446	700,698	$2,796	$1,997	$8,520	$13,313
Tsiroanomandidy	76887	2.52%	452,239	323,028	1,378,250	2,153,517	$8,593	$6,138	$26,187	$40,917

	Population (2001)	%	2006 Estimated Zinc Requirements (See Table 2)				2006 Estimated Cost of Zinc Requirements			
			Public	Private	Other	All	Public	Private	Other	All
FIANARANTSOA	**508,909**	**16.7%**	**2,993,334**	**2,138,094**	**9,122,531**	**14,253,958**	**$56,873**	**$40,624**	**$173,328**	**$270,825**
Ambalavao	28725	0.94%	168,957	120,683	514,915	804,554	$3,210	$2,293	$9,783	$15,287
Ambatofinandrahana	17547	0.57%	103,209	73,721	314,542	491,471	$1,961	$1,401	$5,976	$9,338
Ambohimahasoa	29824	0.98%	175,421	125,300	534,615	835,336	$3,333	$2,381	$10,158	$15,871
Ambositra	34639	1.13%	203,742	145,530	620,927	970,199	$3,871	$2,765	$11,798	$18,434
Befotaka	3635	0.12%	21,381	15,272	65,160	101,812	$406	$290	$1,238	$1,934
Fandriana	28655	0.94%	168,545	120,389	513,660	802,594	$3,202	$2,287	$9,760	$15,249
Farafangana	31319	1.03%	184,214	131,581	561,414	877,209	$3,500	$2,500	$10,667	$16,667
Fianarantsoa I	21804	0.71%	128,248	91,606	390,851	610,705	$2,437	$1,741	$7,426	$11,603
Fianarantsoa Ii	65159	2.13%	383,256	273,754	1,168,018	1,825,029	$7,282	$5,201	$22,192	$34,676
Iakora	4533	0.15%	26,662	19,045	81,257	126,964	$507	$362	$1,544	$2,412
Ifanadiana	20696	0.68%	121,731	86,951	370,989	579,671	$2,313	$1,652	$7,049	$11,014
Ihosy	16115	0.53%	94,786	67,704	288,872	451,363	$1,801	$1,286	$5,489	$8,576
Ikalamavony	8488	0.28%	49,925	35,661	152,153	237,739	$949	$678	$2,891	$4,517
Ikongo	16289	0.53%	95,810	68,435	291,991	456,236	$1,820	$1,300	$5,548	$8,668
Ivohibe	5184	0.17%	30,492	21,780	92,927	145,198	$579	$414	$1,766	$2,759
Manakara-Atsimo	35643	1.17%	209,647	149,748	638,924	998,320	$3,983	$2,845	$12,140	$18,968
Manandriana	13711	0.45%	80,646	57,604	245,779	384,029	$1,532	$1,094	$4,670	$7,297
Mananjary	35329	1.16%	207,800	148,429	633,296	989,525	$3,948	$2,820	$12,033	$18,801
Midongy-Atsimo	3917	0.13%	23,039	16,457	70,215	109,711	$438	$313	$1,334	$2,085

	Population (2001)	%	2006 Estimated Zinc Requirements (See Table 2)				2006 Estimated Cost of Zinc Requirements			
			Public	Private	Other	All	Public	Private	Other	All
Nosy-Varika	26881	0.88%	158,110	112,936	481,860	752,906	$3,004	$2,146	$9,155	$14,305
Vangaindrano	31752	1.04%	186,761	133,401	569,176	889,337	$3,548	$2,535	$10,814	$16,897
Vohipeno	14921	0.49%	87,763	62,688	267,469	417,920	$1,668	$1,191	$5,082	$7,940
Vondrozo	14143	0.46%	83,187	59,419	253,523	396,129	$1,581	$1,129	$4,817	$7,526

	Population (2001)	%	2006 Estimated Zinc Requirements (See Table 2)				2006 Estimated Cost of Zinc Requirements			
			Public	Private	Other	All	Public	Private	Other	All
TOAMASINA	**506,345**	**16.6%**	**2,978,253**	**2,127,322**	**9,076,569**	**14,182,144**	**$56,587**	**$40,419**	**$172,455**	**$269,461**
Ambatondrazaka	38882	1.27%	228,699	163,356	696,986	1,089,040	$4,345	$3,104	$13,243	$20,692
Amparafaravola	34453	1.13%	202,648	144,748	617,593	964,989	$3,850	$2,750	$11,734	$18,335
Andilamena	34944	1.14%	205,536	146,811	626,394	978,741	$3,905	$2,789	$11,901	$18,596
Anosibe An-Ala	72194	2.37%	424,635	303,311	1,294,125	2,022,071	$8,068	$5,763	$24,588	$38,419
Antanambao-Manampotsy	7472	0.24%	43,949	31,392	133,941	209,282	$835	$596	$2,545	$3,976
Brickaville	25777	0.84%	151,617	108,298	462,070	721,984	$2,881	$2,058	$8,779	$13,718
Fenoarivo-Atsinanana	38931	1.28%	228,987	163,562	697,864	1,090,413	$4,351	$3,108	$13,259	$20,718
Mahanoro	34324	1.12%	201,889	144,206	615,280	961,376	$3,836	$2,740	$11,690	$18,266
Mananara-Avaratra	17181	0.56%	101,056	72,183	307,981	481,220	$1,920	$1,371	$5,852	$9,143
Maroantsetra	27089	0.89%	159,334	113,810	485,588	758,732	$3,027	$2,162	$9,226	$14,416
Marolambo	19425	0.64%	114,255	81,611	348,206	544,072	$2,171	$1,551	$6,616	$10,337
Moramanga	35268	1.16%	207,442	148,172	632,202	987,816	$3,941	$2,815	$12,012	$18,769
Sainte Marie	2641	0.09%	15,534	11,096	47,342	73,971	$295	$211	$899	$1,405
Soanierana-Ivongo	16080	0.53%	94,580	67,557	288,245	450,382	$1,797	$1,284	$5,477	$8,557
Toamasina I	28972	0.95%	170,409	121,721	519,342	811,473	$3,238	$2,313	$9,868	$15,418
Toamasina Ii	27247	0.89%	160,263	114,474	488,421	763,157	$3,045	$2,175	$9,280	$14,500
Vatomandry	20897	0.68%	122,913	87,795	374,593	585,301	$2,335	$1,668	$7,117	$11,121
Vavatenina	24568	0.80%	144,506	103,218	440,398	688,122	$2,746	$1,961	$8,368	$13,074

	Population (2001)	%	2006 Estimated Zinc Requirements (See Table 2)				2006 Estimated Cost of Zinc Requirements			
			Public	Private	Other	All	Public	Private	Other	All
MAHAJANGA	**327,671**	**10.7%**	**1,927,316**	**1,376,654**	**5,873,720**	**9,177,690**	**$36,619**	**$26,156**	**$111,601**	**$174,376**
Ambato-Boeni	20142	0.66%	118,473	84,623	361,059	564,154	$2,251	$1,608	$6,860	$10,719
Ambatomainty	3642	0.12%	21,422	15,301	65,285	102,008	$407	$291	$1,240	$1,938
Analalava	16645	0.55%	97,904	69,931	298,373	466,207	$1,860	$1,329	$5,669	$8,858
Antsalova	5565	0.18%	32,733	23,380	99,756	155,869	$622	$444	$1,895	$2,962
Antsohihy	19940	0.65%	117,284	83,775	357,438	558,497	$2,228	$1,592	$6,791	$10,611
Bealanana	18656	0.61%	109,732	78,380	334,421	522,533	$2,085	$1,489	$6,354	$9,928
Befandriana-Avaratra	31362	1.03%	184,467	131,762	562,185	878,414	$3,505	$2,503	$10,682	$16,690
Besalampy	6994	0.23%	41,138	29,384	125,372	195,894	$782	$558	$2,382	$3,722
Kandreho	1956	0.06%	11,505	8,218	35,063	54,785	$219	$156	$666	$1,041
Maevatanana	19737	0.65%	116,090	82,922	353,799	552,811	$2,206	$1,576	$6,722	$10,503
Mahajanga I	27328	0.90%	160,740	114,814	489,872	765,426	$3,054	$2,181	$9,308	$14,543
Mahajanga II	13386	0.44%	78,735	56,239	239,953	374,927	$1,496	$1,069	$4,559	$7,124
Maintirano	9755	0.32%	57,378	40,984	174,865	273,226	$1,090	$779	$3,322	$5,191
Mampikony	15619	0.51%	91,869	65,621	279,981	437,470	$1,746	$1,247	$5,320	$8,312
Mandritsara	37856	1.24%	222,664	159,046	678,594	1,060,303	$4,231	$3,022	$12,893	$20,146
Marovoay	23061	0.76%	135,642	96,887	413,384	645,912	$2,577	$1,841	$7,854	$12,272
Mitsinjo	9886	0.32%	58,148	41,534	177,213	276,896	$1,105	$789	$3,367	$5,261
Morafenobe	3790	0.12%	22,292	15,923	67,938	106,154	$424	$303	$1,291	$2,017

	Population (2001)	%	2006 Estimated Zinc Requirements (See Table 2)				2006 Estimated Cost of Zinc Requirements			
			Public	Private	Other	All	Public	Private	Other	All
Port-Berger (Boriziny)	19190	0.63%	112,873	80,624	343,993	537,490	$2,145	$1,532	$6,536	$10,212
Soalala	5078	0.17%	29,868	21,334	91,027	142,229	$567	$405	$1,730	$2,702
Tsaratanana	18083	0.59%	106,362	75,973	324,150	506,484	$2,021	$1,443	$6,159	$9,623

	Population (2001)	%	2006 Estimated Zinc Requirements (See Table 2)				2006 Estimated Cost of Zinc Requirements			
			Public	Private	Other	All	Public	Private	Other	All
TOLIARY	**370,549**	**12.1%**	**2,179,519**	**1,556,798**	**6,642,336**	**10,378,653**	**$41,411**	**$29,579**	**$126,204**	**$197,194**
Amboasary-Atsimo	25138	0.82%	147,858	105,613	450,615	704,087	$2,809	$2,007	$8,562	$13,378
Ambovombe-Androy	30537	1.00%	179,614	128,296	547,396	855,306	$3,413	$2,438	$10,401	$16,251
Ampanihy	34119	1.12%	200,683	143,345	611,606	955,634	$3,813	$2,724	$11,621	$18,157
Ankazoabo-Atsimo	7969	0.26%	46,873	33,480	142,850	223,203	$891	$636	$2,714	$4,241
Bekily	20736	0.68%	121,966	87,119	371,707	580,792	$2,317	$1,655	$7,062	$11,035
Beloha	10589	0.35%	62,283	44,488	189,815	296,586	$1,183	$845	$3,606	$5,635
Belon I Tsiribihina	8755	0.29%	51,496	36,783	156,939	245,218	$978	$699	$2,982	$4,659
Benenitra	4374	0.14%	25,727	18,377	78,407	122,511	$489	$349	$1,490	$2,328
Beroroha	6522	0.21%	38,362	27,401	116,911	182,674	$729	$521	$2,221	$3,471
Betioky-Atsimo	27456	0.90%	161,492	115,352	492,167	769,011	$3,068	$2,192	$9,351	$14,611
Betroka	22389	0.73%	131,689	94,064	401,338	627,090	$2,502	$1,787	$7,625	$11,915
Mahabo	14357	0.47%	84,446	60,318	257,359	402,123	$1,604	$1,146	$4,890	$7,640
Manja	9396	0.31%	55,266	39,476	168,430	263,171	$1,050	$750	$3,200	$5,000
Miandrivazo	13703	0.45%	80,599	57,571	245,635	383,805	$1,531	$1,094	$4,667	$7,292
Morombe	16083	0.53%	94,598	67,570	288,298	450,466	$1,797	$1,284	$5,478	$8,559
Morondava	13394	0.44%	78,782	56,273	240,096	375,151	$1,497	$1,069	$4,562	$7,128
Sakaraha	11280	0.37%	66,347	47,391	202,201	315,940	$1,261	$900	$3,842	$6,003
Taolanaro	35446	1.16%	208,489	148,920	635,393	992,802	$3,961	$2,829	$12,072	$18,863

	Population (2001)	%	2006 Estimated Zinc Requirements (See Table 2)				2006 Estimated Cost of Zinc Requirements			
			Public	Private	Other	All	Public	Private	Other	All
Toliary I	16896	0.55%	99,380	70,986	302,872	473,238	$1,888	$1,349	$5,755	$8,992
Toliary Ii	30624	1.00%	180,126	128,662	548,955	857,743	$3,422	$2,445	$10,430	$16,297
Tsihombe	10786	0.35%	63,442	45,316	193,346	302,104	$1,205	$861	$3,674	$5,740

	Population (2001)	%	2006 Estimated Zinc Requirements (See Table 2)				2006 Estimated Cost of Zinc Requirements			
			Public	Private	Other	All	Public	Private	Other	All
ANTSIRANANA	**195378**	**6.4%**	**1149186**	**820846**	**3502276**	**5472309**	**$21,835**	**$15,596**	**$66,543**	**$103,974**
Antsiranana I	30632	1.00%	180,170	128,693	549,090	857,954	$3,423	$2,445	$10,433	$16,301
Antsiranana Ii	39043	1.28%	229,646	164,033	699,873	1,093,553	$4,363	$3,117	$13,298	$20,778
Ambanja	24294	0.80%	142,893	102,066	435,482	680,441	$2,715	$1,939	$8,274	$12,928
Ambilobe	11741	0.38%	69,058	49,327	210,463	328,849	$1,312	$937	$3,999	$6,248
Antalaha	12082	0.40%	71,065	50,761	216,578	338,404	$1,350	$964	$4,115	$6,430
Andapa	27897	0.91%	164,085	117,203	500,067	781,355	$3,118	$2,227	$9,501	$14,846
Nosy-Be	23107	0.76%	135,915	97,082	414,217	647,214	$2,582	$1,845	$7,870	$12,297
Sambava	6023	0.20%	35,426	25,305	107,966	168,697	$673	$481	$2,051	$3,205
Iharana (Vohemar)	20559	0.67%	120,927	86,376	368,539	575,842	$2,298	$1,641	$7,002	$10,941

Annex 7: Country Assessment Tool for the Introduction of Zinc in the Clinical Management of Diarrhea

I. Introduction

Since the release of the 2004 WHO and UNICEF revised recommendations for the management of diarrheal disease using the new ORS formulation and zinc therapy in addition to rehydration therapy, many countries are taking steps to incorporate these recommendations into their own strategies, policies and programs. These revisions provide an opportunity for countries to revitalize all of their diarrheal disease control activities. Country assessments engaging stakeholders in the decision-making process are an important first step toward incorporating the new recommendations. USAID has supported such country assessments in Tanzania and Madagascar, and the Madagascar assessment team was requested to document their process and develop a country assessment tool for use in future assessments. The country assessment tool will complement guidelines that WHO is developing for policymakers and program managers for introducing the new strategy for clinical management of diarrhea, and it includes checklists/topic guides for interviews, focus group discussions, and site visits at both national and peripheral levels.

The specific country context will influence the focus and the ability of an assessment team to translate the WHO/UNICEF recommendations into an agreed upon national implementation plan. For example, the assessment team will need to consider the overall environment for child health, and the level of MOH and donor support may vary considerably between countries due to competing priorities. These issues need to be considered when timing an assessment visit and during planning. Ideally an assessment should take place once advocacy for the introduction of the new guidelines has been completed: the primary focus of the assessment team should be to develop a country implementation plan rather than on building consensus for policy change.

II. Assessment Steps

STEPS IN COUNTRY ASSESSMENT FOR THE INTRODUCTION OF ZINC IN THE CLINICAL MANAGEMENT OF DIARRHEA

1. **Assembly of a Task Force and Assessment Team**
2. **Activity planning prior to the assessment**
3. **Desk review of epidemiology and service statistics**
4. **Checklist/topic guide development**
5. **Data collection at the central level**
6. **Data collection in peripheral sites**
7. **Validation of field site findings**
8. **Analysis of data**
9. **Presentation of Assessment Team findings and development of a draft action plan**
10. **Debriefing with donors and completion/dissemination of report**

The steps outlined below are suggested as a guideline for country assessment. They are presented sequentially but they may be conducted in parallel to ensure adequate preparation and efficient implementation. Each of these steps is described in detail below.

1. Creation of a Task Force and Assessment Team

A Task Force should be created, led by the MOH, to lead the assessment process and subsequent introduction of the zinc intervention. Two categories of persons will need to participate: an "implementation" group comprising those who will facilitate or implement the intervention in country; and a "technical" group of experts (the assessment team) who will collect and process the data and facilitate discussions during the assessment.

The implementation group will include decision makers in the following program areas: CDD, IMCI, other child health programs, PHC, BCC, Pharmacy, Central Medical Stores, EPI, Nutrition, HMIS, MOH Partners in Child Health (UNICEF, WHO, USAID, etc.) and Medical and Nursing Training schools.

The mix of technical or clinical expertise to be covered in the assessment team should include: CDD, pharmaceutical management and logistics, case management for childhood illness, pharmaceutical management, IEC/BCC, training and quality improvement/supervision, monitoring and evaluation, and experience/knowledge in applying the zinc intervention. If this expertise cannot be found locally, various external organizations or consultants can be of assistance.

Importantly, some individuals may participate in both the implementation and the assessment groups. The optimal size for the assessment group of experts will depend on a number of factors, since larger groups can cover more within a short time, but smaller groups will have more cohesion and reach consensus more easily. A team with three to four experts seems to be ideal. Regardless of the size of the team, strong leadership is important. Importantly, language barriers may pose a challenge when external experts are used, especially because this group will work closely with local partners in all sites visited.

2. Activity Planning Prior to the Assessment

Activity planning includes scheduling a date for in-country activities, setting a timetable of activities and dividing responsibilities among team members.

The assessment team should select dates for the assessment to ensure that most decision makers will be available, no other major activities will compete for the participation of key players; and no major holidays occur during the assessment period.

The assessment team will need to first list all activities and develop a timeline for the completion of each. The list will include a description of the methods (determined by consensus) to be used for conducting the desk review, finalizing data collection tools, collecting and analyzing data,

drafting an action plan, and writing disseminating the assessment report. This planning should include clear delineation of responsibilities among team members, as well as lines, methods and frequency of communication for each member of the team (both in-country and external team members).

Team members and the MOH should begin communicating by e-mail and teleconference several weeks prior to the in-country visit to clarify expectations, share background information, and begin specific activity planning. A partner organization may want to provide communications support if the MOH has limited internet and/or telephone access facilities.

3. Desk Review of Epidemiology and Service Statistics

The desk review must be completed prior to finalizing the data collection tool because information from the review is essential for constructing the tools and also because it is too difficult to complete when combined with other ongoing activities. Unless an MOH staff member can be assigned to the task, identification of a consultant or a partner organization with experience, time and communications resources to conduct the desk review is recommended. Many data sources (*e.g.*, DHS and the MICs) will be easily accessible, but in some countries a substantial amount of useful information is unpublished and found only within the ministry or among in-country implementing partners. Obviously, it is important to start the review early so enough time is available to complete it before data collection begins.

The desk review should cover routine diarrheal disease epidemiology, the organization and current performance of CDD programs or related CDD services, routine data collection, and reporting and data utilization for CDD services (including recommendations for improvement). The following is a sample of questions/topics to guide the desk review:

A. Epidemiology
   - Trends of childhood diarrhea prevalence; and
   - Trends of mortality due to childhood diarrhea

B. Service Delivery
   What proportion of children with acute diarrhea were:
   - taken to a health facility?
   - taken to another care provider (specify)?
   - treated with ORS?
   - treated with homemade "sugar salt solution"?
   - treated with antibiotics?
   - treated with other remedies (specify)?

C. What are factors that influence caregivers to treat a child with diarrhea at home and, secondly, to seek care outside of the home?

4. Checklist/Topic Guide Development

These guides will include questions to inform the assessment of: (1) MOH policies and legal framework related to current and potential zinc product availability in country; (2) key diarrhea prevention and treatment issues and standard treatment guidelines; (3) pharmaceutical

management (procurement, distribution, inventory management); (4) IEC/BCC approaches including mass communications, community mobilization/education and counseling; (5) human resources (pre- and in-service training, supervision and quality improvement); (6) health information systems and opportunities/needs for operations research; (7) the role of the private sector role (for-profit, subsidized social marketing, non-profit); and (7) financing and sustainability.

Draft checklists/topic guides for these topic areas have been developed for central and peripheral level interviews, focus group discussions, and observations. Because these questionnaires were first developed by topic area and then combined for each person/institution to be interviewed (*e.g.*, District Health Officers have in-depth interviews covering several topic areas), they are lengthy and should be reviewed and, if possible, reduced as appropriate in the country context.

Importantly, the attached guides are illustrative and must be adapted for the specific country context based on the desk review.

5. Data Collection at the Central Level

The sequence of activities in-country typically will include interviews with key informants and meetings with key stakeholders in the capital, and a meeting with the implementation group to identify the strengths, weaknesses and opportunities for the introduction of zinc treatment. These interviews and meetings are then followed by travel to peripheral regions for data collection. Additional interviews are held in the capital following peripheral data collection to discuss findings and to plan next steps, and the team can also collect additional information prompted by the field visits and/or catch up with key informants who may have been unavailable during the first round of interviews.

An exhaustive list of interviewees or groups to be interviewed at the central level is provided below. At the central level all assessment team members should meet with the key members of the MOH Division responsible for child health, and ensure other key stakeholders are engaged, e.g. professional organizations, the pharmaceutical industry and regulatory agencies. Visits should be made by the entire group to other key stakeholders including WHO, UNICEF and USAID. Following these initial visits the assessment team should divide into subgroups according to their areas of expertise, pairing external participants with nationals if external experts are participating. For example one subgroup may focus on logistics and pharmaceutical management, another on the BCC component and another on case management and information systems.

6. Data Collection in Peripheral Sites

Criteria for the selection of regions and districts for field visits include diarrhea prevalence, potential as initial implementation sites, and logistics for the assessment team. Visits to both high and low performing facilities are useful since they provide complementary information. Special effort should be made to ensure that selection follows these criteria without external influence.

The number of regions/districts to be visited depends on the diversity of existing CDD activities and related factors that may need consideration for the revival of CDD interventions.
For peripheral field visits, the assessment team should include a central level representative from the MOH and be guided by local staff. At the peripheral level the team should have discussions with key stakeholders in the regions, districts, health centers, and communities. Wherever possible, visits should be made to regional and district pharmacies as well. At the community level, focus group discussions should be held with village health workers, community leaders, and caregivers. Translation will likely be required at the community level.

Whenever possible, debriefings need to be conducted with district and regional staff involved in CDD. This will lengthen the time spent in the field. Regional teams may need to plan for an introductory presentation on zinc to address interest about zinc and its benefits. The assessment team should include any presentations in the plan and prepare technical materials for distribution during visits.

Checklists/topic guides are presented below for each category of facility or actors. During the field visit, different team members may simultaneously administer questionnaires to different individuals. Most health facilities in rural areas are run by only one health worker who therefore has to answer most of the questions. In such cases, only one questionnaire is completed at a time making the second member of the team less productive. When this situation arises, team members should work separately: one can go into the community while the other is working at the health facility. This decision should be discussed with the appropriate district staff prior to the field visit so that districts and health centers can plan for sufficient staff to work with the assessment team.

7. Validation of Central and Field Site Findings

The debriefing sessions in the districts/regions are the first step for validating the assessment findings. The second stage of validation occurs at the central level with a wider group of stakeholders, including MOH partners and other stakeholders. This stage covers major findings, especially points that could be contentious for the MOH. In some circumstances, the MOH may require prior notification of points for discussion at meetings, especially after data collection, as discussions may disclose problems uncovered in the field. This step does not require a written report.

8. Analysis of Data Collected

During this step, the assessment team organizes their notes and begins to analyze and summarize their findings by assessment topic areas in preparation for presentations to the implementation team in the next step.

9. Presentation of Assessment Team Findings and Development of a Draft Action Plan

For the introduction of zinc treatment for diarrhea to be successful, consensus will be necessary among all members of the Task Force. Additionally, representation from "the field" will be necessary to ensure that action plans are realistic.

The assessment team should first present their findings to the Task Force, with an outline of the main steps recommended to facilitate the introduction of zinc. Division of these steps topically (e.g., pharmaceutical management, case management of diarrhea, advocacy, behavior change) may help facilitate discussion. After the presentation, the Task Force should divide into three smaller working groups, based on expertise, for discussion of the steps for each component (or a combination of related components). After discussion, the sub-groups can present their findings and make recommendations for solutions to identified problems in a plenary.

Immediately following presentations, and during the plenary session, a proposed work plan proposing a timeline and assigning responsibilities to appropriate persons/agencies will need to be developed. This sequence enables information generated by the various groups to be built into the plan. This work plan is then submitted to the child health committee or other appropriate official body.

10. Debriefing with donors and completion/dissemination of report

Debriefing by the assessment team for donor agencies involved in the assessment is important for gaining their support and input on next steps. The report will need to be written and disseminated to guide the detailed planning necessary for implementation of the work plan. Initially, a draft report is useful based upon the desk review findings and draft action. The final report will include sections written by the sub-teams that focused on specific elements of the assessment. The report also may require translation for dissemination in-country. After the MOH has identified sources of funding for the introduction of zinc, further detailed planning will be required for each step of zinc introduction.

III. Topic Guides

A. DATA COLLECTION AT THE CENTRAL LEVEL

1. Pharmaceutical Management

Drug Regulatory Authority

Regulation

- What is the regulatory authority for essential drugs?
- What is the process for registering a drug?
- How long does it take on average? Can it be fast tracked?
- Should zinc be registered as a medicine or a food supplement? And why?
- What zinc formulations are currently available in the country? Are they registered by responsible authority?
- Is ORS registered? Is this the new or the old formulation?
- Is there any regulation to facilitate phasing out of old formulation of ORS?
- How is ORS scheduled? How would zinc be scheduled once introduced? What are the implications for who can prescribe or sell it?
- If a drug is pre-qualified and imported by UNICEF or other similar agency does it still need to be registered?

Policies

- Is there a government policy on good manufacturing practices (GMP)?

Quality Assurance & Pharmacovigilance

- What systems exist for quality assurance during drug registration and drug procurement?
- Is post marketing surveillance done on a regular basis? How and by whom?
- What systems exist for monitoring adverse drug reactions (ADRs)? Does it need to be adapted? How are results reported? To whom? Have reporting forms been developed?

Human Resources (Specific to Pharmaceutical Management)

- Who are the staff members? Is there need for consultants/external TA?
- Have human resource needs been identified?
- Are there provisions for training?

Directorate of Pharmacy

Policies

- Is there a policy for private sector distribution?
- Is there a policy for donation of medicines?
- What is the policy on cost recovery or subsidies on medicines in the public sector?
- Are medicines exempt from tax?

Quantification

- Who does the quantification? The procuring agency? A division of the pharmacy board (Salama in Madagascar) or other division of the MoH? Is the quantification decentralized?
- How is quantification of ORS done for diarrhea treatment? By consumption or epidemiological data? Is the data accurate and reliable?
- How accurate are utilization records (patient utilization of facility by disease)?
- In the quantification, did they allow for buffer stocks, shelf life, lead time, current inventory levels, quantities on order etc.?
- Are there systems in place to monitor previous consumption of ORS at the central level?
- Is there a system for reporting drug/ORS consumption from the peripheral levels to the central level?
- Determine the current pipeline of old ORS at central level as well as regional and district stores and also at facility level.
- Has MOH quantification of ORS been harmonized with parallel procurement efforts of other agencies (UNICEF, World Bank, NGOs etc)?

Procurement

- Is procurement centralized or decentralized (buying and paying of drugs)?
- Does all public procurement go through a central medical store (CMS)? What is the capacity of the CMS to manage the procurements?
- Is there an agency that procures essential medicines on behalf of the government? What government division supports or oversees this agency?
- Are there procedures for contracting out procurement to a third party agency e.g. UNICEF, WHO?
- Is there any parallel procurement (UNICEF, World Bank and NGOs)?
- What drugs are procured through UNICEF? ORS?
- Is there a major agency procuring drugs for the mission sector?
- Does the government provide direct financial support for CMS and is there anybody else providing support?
- What are the procurement procedures? How often is procurement done? What is the time taken to prepare the order?
- Is there a system for supplier prequalification and performance monitoring?
- Who are the major suppliers to the public and private sectors?
- What is the average procurement lead time by supplier for the public sector?
- What is the cost of procurement mechanism? If done by an agency are there associated fees? Differentiate between procurement and storage fees.
- What is the rate of import tax on medicines or on imported raw materials?

Finance and Resource Mobilization

- Identify funding sources for zinc and ORS procurement? Are there any other potential sources of funding?
- What is the total current budget for ORS procurement (MOH and other funds)?
- What is the total current budget needed for scale up?
- Is payment for procured drugs decentralized?

- Is there a cost recovery scheme? Are there exemptions and how do these exemptions work?
- Are there price controls on medicines sold either in the public or private sector?

Introduction of New Stock of ORS

- Is there a national plan for the introduction of the new ORS formulation?
- Determine pipelines at central and peripheral levels (both private and public) of old ORS formulation.
- Provision for adjusting future procurements.

Distribution

- Is there a kit, push or pull system for essential drugs?
- Are there parallel distribution systems for distribution of certain drugs?
- How ORS and other IMCI treatment and prevention commodities are currently distributed?
- Are there regional and districts stores? What is their role?
- Do facilities have drugs delivered or do they have to go and fetch them?
- What is the average lead time between facilities ordering and receiving drugs?
- What is the periodicity frequency of orders/receiving?
- What is the current status of community-based treatment of diarrhea, ARI and malaria? Do CHWs provide drugs? If so which ones and how do they get them?
- Is there a system to monitor the efficiency of the distribution system?
- What are the indicators used to monitor or evaluate the distribution system? Are drugs, especially ORS generally available? What drugs are most often out of stock? At what levels?
- What systems exist for coordination between public and private sectors to improve distribution?

Inventory Management

- What is the status of the inventory management system at central and peripheral levels? Are records computerized?
- Are physical inventories conducted? How frequently?
- Are stock cards used and up to date (accurate/correspond to physical stock?)
- What systems exist to remove expired stocks or drugs near to expiry?
- Are there Pharmaceutical Management Information Systems (PMIS) in place? What are they? What information is reported and to where? Is this integrated into the larger HMIS?

Storage

- What security measures are in place to prevent theft?
- What is the storage capacity and condition?
- Are there guidelines for good storage practices (i.e. first-in/first-out)

Transport

- How are drugs transported from the CMS to the peripheral stores? And then to the facilities?
- How long does it take to move drugs from the CMS to the district store?
- Is this public or contracted out? Are there procedures for contracting this out?
- What are the constraints to ensuring an efficient transportation system?

Monitoring and Evaluation

- Do they have a PMIS?
- Do they use the system as part of decision making?
- Is there a need to adapt existing systems?

Rational Drug Use

- Is there any study/assessment that has documented the use of antibiotics, ORS, antidiarrheals in management of diarrhea in children? In the public as well as private sector.
- Is there a need to investigate current antibiotic use and prescribing practices for diarrhea treatment before zinc supplements become available in order to monitor/evaluate the impact of zinc on irrational antibiotic use?
- Would there be a need for TA?

Human Resources (Specific to Pharmaceutical Management?)

- Who are the staff members and what are their roles? Is there need for external TA?
- Have human resource needs been identified?
- Are there provisions for training?

<u>Procurement Unit or Central Medical Stores</u>

Quantification

- Who does the quantification? The procuring agency? A division of the pharmacy board or other division of the MoH? Is the quantification decentralized?
- How is quantification of ORS done for diarrhea treatment? By consumption or epidemiological data? Is the data accurate and reliable?
- How accurate are utilization records (patient utilization of facility by disease)?
- In the quantification, did they allow for buffer stocks, shelf life, lead time, current inventory levels, quantities on order etc.?
- Are there systems in place to monitor previous consumption of ORS at the central level?
- Is there a system for reporting drug/ORS consumption from the peripheral levels to the central level?
- Determine the current pipeline of old ORS at central level as well as regional and district stores and also at facility level.
- Has MOH quantification of ORS been harmonized with parallel procurement efforts of other agencies (UNICEF, World Bank, NGOs etc)?

Procurement

- Is procurement centralized or decentralized (buying and paying of drugs)?
- Does all public procurement go through CMS? What is the capacity of the CMS to manage the procurements?
- Is there an agency that procures essential medicines on behalf of the government? What government division supports or oversees this agency?
- Are there procedures for contracting out procurement to a third party agency e.g. UNICEF, WHO?
- Is there any parallel procurement (UNICEF, World Bank and NGOs)?
- What drugs are procured through UNICEF? ORS?
- Is there a major agency procuring drugs for the mission sector?
- Does the government provide direct financial support for CMS and is there anybody else providing support?
- What are the procurement procedures? How often is procurement done? What is the time taken to prepare the order?
- Is there a system for supplier prequalification and performance monitoring?
- Who are the major suppliers to the public and private sectors?
- What is the average procurement lead time by supplier for the public sector?
- What is the cost of procurement mechanism? If done by an agency are there associated fees? Differentiate between procurement and storage fees.
- What is the rate of import tax on medicines or on imported raw materials?

Finance and Resource Mobilization

- Identify funding sources for zinc and ORS procurement. Are there any other potential sources of funding?
- What is the total current budget for ORS procurement (MOH and other funds)?
- What is the total budget necessary for scale up?
- Is payment for procured drugs decentralized?
- Is there a cost recovery scheme? Are there exemptions and if so, how do these exemptions work?
- Are there price controls on medicines sold either in the public or private sector?

Introduction of New Stock of ORS

- Is there a national plan for the introduction of the new ORS formulation?
- Determine pipelines at central and peripheral levels (both private and public) of old ORS formulation.
- Provision for adjusting future procurements.

Distribution

- Is there a kit, push or pull system for essential drugs?
- Are there parallel distribution systems for certain drugs?
- How are ORS and other IMCI treatment and prevention commodities currently distributed?
- Are there regional and districts stores? What is their role?
- Do facilities have drugs delivered or do they have to go and fetch them?
- What is the average lead time between facilities ordering and receiving drugs?
- What is the periodicity frequency of orders/receiving?

- Do CHWs provide drugs? If so, what is their source?
- Is there a system to monitor the efficiency of distribution systems?
- What are the indicators used to monitor or evaluate the distribution system? Are drugs, especially ORS generally available? What drugs are most often out of stock? At what levels?
- What systems exist for coordination between public and private sectors to improve distribution?

Inventory Management

- What is the status of the inventory management system at central and peripheral levels? Are records computerized?
- Are physical inventories conducted? How frequently?
- Are stock cards used and up to date (accurate/correspond to physical stock)?
- What systems exist to remove expired stock or drugs near to expiry?
- Are there Pharmaceutical Management Information Systems (PMIS) in place? What are they? What information is reported to where? Is this integrated into the larger HMIS?

Storage

- What security measures are in place to prevent theft?
- What is the storage capacity and condition?
- Are there guidelines for good storage practices (i.e. first-in/first-out)?

Transport

- How are drugs transported from the CMS to the peripheral stores? And then to the facilities?
- How long does it take to move drugs from the CMS to the district store?
- Is this public or contracted out? Are there procedures for contracting this out?
- What are the constraints to ensuring an efficient transportation system?

Drug Wholesalers

- From where do wholesalers import (countries and suppliers)?
- To where do they supply?
- Do they transport their products to facilities, do they contract out the transportation, or do the clients come to collect their orders? Is there a system in place to collaborate with the public sector to support the distribution of supplies?
- Do they sell/distribute generic drugs or only branded drugs?
- Do they import any raw materials? Or just finished products?

Private Sector Distribution

- Is ORS available and distributed in the private sector? By what type of outlets?
- Has there been a discussion on zinc distribution in the private sector? What is the current and future role of the private sector in zinc and ORS provision?
- What is the current status of community-based treatment of diarrhea but also ARI and malaria?

- Have there been any discussions on innovative strategies/partnerships with the private sector to improve access?
- What are the brands and formulations available of ORS and zinc supplements? Determine the amount of available zinc in each of the brands.

MoH Coordination Unit for Private Sector and Professional Associations

- What zinc formulations are currently available in the country?
- Are they registered?
- Is ORS registered? Is this the new or the old formulation?
- What schedule is ORS? What schedule would zinc be once introduced? What are the implications for who can prescribe or sell it?

Private Sector Distribution

- Is ORS available and distributed in the private sector? By what type of outlets?
- Has there been a discussion on zinc distribution in the private sector? What is the current and future role of the private sector in zinc and ORS provision?
- What is the current status of community-based treatment of diarrhea but also ARI and malaria?
- Have there been any discussions on innovative strategies/partnerships with the private sector to improve access?
- What are the brands and formulations available of ORS and zinc supplements? Determine the amount of available zinc in each of the brands.

Local Pharmaceutical Manufacturers

Local Production Capacity

- What local manufacturers exist and what do they manufacture?
- Do they comply with GMP?
- Is there a local production capacity for both zinc syrup and tablets? If none exists; is it feasible to establish the local production (capital, technical, viable market)?
- Is there private sector interest to produce and supply ORS and zinc? (For this a rough quantification may be required, e.g. based on ORS supply and for each 2 sachets of ORS count 10 tabs of zinc, although this is inaccurate and depends on the current supply and demand for ORS)
- What incentives (disincentives) are there for local production?
- Is there a policy/plan for local production (public and private)?
- What type of TA is needed for local production?

UNICEF

- Does UNICEF procure ORS for the MoH?
- If so is it the new formulation?
- Is ORS registered in the country?
- If UNICEF imports and procures the drugs, do the drugs still have to be registered?
- Does UNICEF have the capacity to handle procurement of zinc?

Procurement Division of Faith Based Organizations

Procurement

- Is there a major agency procuring drugs for the mission sector?
- Does the government provide direct financial support for CMS and is there anybody else providing support?
- What are the procurement procedures? How often is procurement done? What is the time taken to prepare the order?
- Is there a system for supplier prequalification and performance monitoring?
- Who are the major suppliers?
- What is the average procurement lead time by supplier for the public sector?

Distribution

- How are ORS and other IMCI treatment and prevention commodities currently distributed?
- Do facilities have drugs delivered or do they have to go fetch them?
- What is the average lead time between facilities ordering and receiving drugs?
- What is the periodicity frequency of orders/receiving?
- Is there a system to monitor the efficiency of the distribution system?
- What are the indicators used to monitor or evaluate the distribution system? Are drugs, especially ORS generally available? What drugs are most often out of stock? At what levels?
- What systems exist for coordination between public and private sectors to improve distribution?

Inventory Management

- What is the status of the inventory management system at central and peripheral levels? Are records computerized?
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- Are stock cards used and up to date (accurate/correspond to physical stock)?
- What systems exist to remove expired stock or drugs near to expiry?
- Are there Pharmaceutical Management Information Systems (PMIS) in place? What are they? What information is reported to where? Is this integrated into the larger HMIS?

Storage

- What security measures are in place to prevent theft?
- What is the storage capacity and condition?
- Are there guidelines for good storage practices (i.e. first-in/first-out)?

Transport

- How are drugs transported to the facilities?
- How long does it take?
- Is this public/contracted out or are there procedures for contracting this out?
- What are the constraints to ensuring an efficient transportation system?

2. Information, Education and Communication

Ministry of Health IMCI Department and/or CDD Program

IMCI and C-IMCI Training

- What training exists for the treatment of diarrhea?
- Who is trained and by who?
- What types of training exist to educate the population about the treatment of diarrhea?

IMCI Guidelines

- Who was responsible for preparing IMCI guidelines?
- Who would be responsible for modifying these guidelines to include the zinc component?
- What are the types of media used to educate the community on the treatment of diarrhea?
- Is there a department for communication responsible for all communication materials?

Pharmacists and their Sales Assistants in the Capital City

- What types of communication do they receive when a new product is introduced on the market?
- Observe meetings between pharmacists and their clients.
- Observe whether there are communication materials in pharmacies, stores or depots where pharmacists work.

NGO Active in Child Survival

- Who is responsible for the nutrition/child survival trainings for this NGO?
- What types of child health campaigns have you implemented?
- Where they successful? How could they be improved?
- Review communication materials and note your impression of the quality and of the specific messages used.
- What are their messages specific to the treatment of diarrhea?
- Do you think materials for diarrheal treatment are adequate? How could they be improved?
- Which type of media is most appropriate for health/nutrition campaigns at the community level?
- What kind of materials do you use to educate individuals at the community level on diarrheal treatment? What kinds of materials do you think are the most appropriate for this level?
- What are the opportunities for BCC activities relating to diarrheal treatment?
- What are challenges for BCC activities relating to diarrheal treatment?
- What are the threats for BCC activities relating to diarrheal treatment?

3. Diarrhea Prevention and Treatment

Ministry of Health IMCI Department and/or CDD Program

- To what extent have the standard WHO IMCI guidelines been modified in the country? The team will like to review the complete IMCI package of guidelines, training materials, associated communication materials.
- What pre-service IMCI training curriculums exist for medical and paramedical cadres?
- What is the current IMCI in-service training curriculum?
- Has there been a recent review of the national IMCI program? If so, what were the main findings and recommendations?
- Is there a program for diarrheal disease control that is separate from IMCI?
- Which organizations in the country are involved in promoting the use of IMCI guidelines?
- What proportion of health workers have been trained in IMCI procedures? Does this proportion vary across different regions of the country?
- What proportion of sick children who are brought to health facilities are treated according to IMCI guidelines? Is this proportion increasing, decreasing, or steady?
- What is the standard treatment given to children brought to health facilities with acute diarrhea? How about children with chronic diarrhea?
- Is the standard practice to use packets of ORS or to teach care givers how to make home made "sugar salt solution"?
- Are there plans to modify other components of the IMCI protocol e.g. malaria treatment?
- On the very practical side of things, in what electronic format are the current guidelines? Who will be responsible for modifying these guidelines? Is TA needed? Who will pay for the reproduction?
- How experiences/lessons from previous introductions of new health technologies are relevant to the introduction of zinc, e.g. ACT for malaria, GAVI?

Human Resources and Finance

- What plans are there for refresher training of health workers (facility and community) that will be an opportunity to introduce zinc treatment.
- How much do different types of diarrhea treatment currently cost (include both consultation fees and drug costs)?
    - acute diarrhea at home
    - actute diarrhea in community
    - acute diarrhea in facility
    - severe diarrhea in facility
    - diarrhea with blood in stools in facilty
- How much will it cost to add zinc tablets?
- What options are there for financing the addition of zinc?

4. Health Information System

Health Information System Focal Point at the Ministry of Health

- How are data collection and transmission organized within the MOH
- Which data are available on the control of diarrhea diseases? (Cases seen, treatment, stock of ORS)
- Do the forms contain the IMCI classification?
- How are data processed? What is the frequency
- What uses are made of data? Any retro information? If yes, what is the frequency?
- Any examples of data utilization for action? Any example for diarrhea diseases?
- Is it possible to modify data collection forms to add a new compound? If yes, what is the process?
- Are there any data generated at community level? If yes, are there any community based data integrated into the district and national data? If yes which data?
- What are the challenges to managing data at central and peripheral levels?

B. DATA COLLECTION AT THE REGIONAL AND DISTRICT LEVELS

1. Pharmaceutical Management

Regional District Stores

Quantification

- Who does the quantification?
- How is quantification of ORS done for diarrhea treatment? Using consumption data or epidemiological data? Are the data precise and reliable?
- Is the health system utilization data by patient and by disease reliable?
- Determine whether quantification includes buffer stocks, the expiry dates of the products, the procurement lead time, the levels of remaining stocks, and quantities on order.
- Is there a system for reporting information on the consumption of drugs (including ORS) from the peripheral levels to the central level?
- What is the existing quantity of old formulation ORS stock?

Distribution

- Are there parallel systems of distribution for certain drugs?
- How are ORS, drugs and other commodities for prevention currently distributed?
- Are the drugs delivered to the structures or do the staff of the structures have to come themselves to collect them?
- How long on average is the time between ordering and receiving drugs?
- What is the frequency of orders?
- Who currently treats diarrhea and malaria at the community level?
- Do ASCs (community health agents) provide drugs? If so, which drugs and how do they obtain them?
- Is there a mechanism to monitor the system of distribution? If so, using which indicators?
- Are the drugs, particularly the ORS, generally available? Which drugs are most frequently out of stock? At which levels are these stock-outs recorded?

Inventory Control

- What is the status of inventory management? Is there a computerized system?
- Are physical inventories of stock carried out? If so, at what frequency?
- Are there stock cards and are they updated and accurate (does the stock balance recorded correspond to the remaining stock)?
- Is stock rotated according to first expiry first out (FEFO)? Is there a mechanism to dispose of expired stock or to move drugs that have a short shelf life?
- Is there a Pharmaceutical Management Information System (SMIS)? What information is reported and to where? Is this information integrated into the larger SIGS?

Storage

- What security measures are in place to avoid theft?
- What is the storage capacity and condition?
- Are there guidelines for good storage practices?

Transport

- How are drugs transported from the central medical stores to the peripheral stores?
- Is the transport of drugs managed by a public body or contracted out to a private transporter?
- How long does it take to transport drugs from the CMS to the district store?
- What are the obstacles to an effective drug transport system?

2. Information, Education and Communication

Regional and District MOH and Other Local Partners

- Are there health education sessions in health facilities? How much time is spent? How many people participate? What are the principal materials, messages, and monitoring methods used?
- Is mass media used (radio, television)? How often? What are the principal messages and monitoring methods used?
- Are visits made to households? How much time is spent? What are the principal messages and monitoring methods used?
- What are the principal messages and materials used for interpersonal consultations?
- What are the primary difficulties in the control and treatment of diarrhea?
- What is the perception of the population on the best treatment for diarrhea?

District Based NGO Active in Child Survival

- Who is responsible for the nutrition/child survival trainings for this NGO?
- What types of child health campaigns have you implemented?
- Where they successful? How could they be improved?
- Review communication materials and note your impression of the quality and of the specific messages used.
- What are their messages specific to the treatment of diarrhea?
- Do you think materials for diarrheal treatment are adequate? How could they be improved?
- Which type of media is most appropriate for health/nutrition campaigns at the community level?
- What kind of materials do you use to educate individuals at the community level on diarrheal treatment? What kinds of materials do you think are the most appropriate for this level?
- What are the opportunities for BCC activities relating to diarrheal treatment?
- What are challenges for BCC activities relating to diarrheal treatment?
- What are the threats for BCC activities relating to diarrheal treatment?

3. Diarrhea Prevention and Treatment

Regional and District MOH and Other Local Partners

- Approximately how many U5 children are treated per month? What is the U5 mortality due to diarrheal disease?
- What is the availability of ORS in health centers, the private sector (pharmacies, private clinics, kiosks, etc) and elsewhere in the communities? How often do ORS stock-outs occur? What are the reasons for the stock-outs?
- What is the standard treatment given to the children who are brought to the health center with acute diarrhea? And for children with chronic diarrhea?
- What is the management of children with serious cases of dehydration at the health centre?
- Which oral rehydration therapy methods are used (ORS sachets, homemade sugar and salt solution, others)?
- What is the availability and use of chlorine for disinfection of water?
- What is the frequency of use of ORS per month during the last year?
- What is the cost of ORS and consultations?
- What is the functionality of the ORT corner in the health center?

Human Resources and Financial Access

- What proportion of medical personnel have been trained in IMCI protocols?
- Is there follow-up to IMCI training? If so, how often?
- What are you doing or what have you done to improve the quality of the services provided? (quality improvement initiatives)
- Is it difficult for parents to pay for ORS? What is done when parents are unable to purchase ORS at the health facility?
- What is the local population's capacity to pay for ORS?
- Compare the prices of ORS between the public sector and private sector.
- Is there a systematic review of services or is supervision focused on certain areas?
- If there is a supervision guide, how is the case management of diarrhea included?

Private Pharmacists and Sales Assistants

- What types of communication do they receive when a new product is introduced on the market?
- What is the standard treatment given to the children who are brought to the pharmacies with acute diarrhea? And for children with chronic diarrhea?
- Do pharmacists and sales assistants look for any special signs in children presenting with diarrhea
- Observe interactions between pharmacists and their clients especially involving children
- Observe whether there are communication materials in pharmacies, stores or depots where pharmacists work.

4. Health Information System

District Level Health Information System Focal Point

- Are data collection forms completed and received from everyone who is expected to submit?
- Discuss data analysis methods and use. (computerized, manual tally)
- Discuss utilization of data based on real examples? Any for diarrhea?
- Discuss challenges related to data collection and analysis with a focus on diarrhea diseases
- Review data displayed (tables, charts). Are diarrhea data among those monitored? If yes, what specifically is monitored (total number? dehydration?)
- What is the frequency and content of feedback?
- Is any data from community level included in statistics at the intermediate and district levels?
- Is it possible to collect and include data on zinc treatment and stock?

C. DATA COLLECTION AT THE HEALTH CENTER LEVEL

1. Pharmaceutical Management

Health Center Pharmacist

Quantification

- Who does the quantification?
- How is quantification of ORS done for diarrhea treatment? Using consumption data or epidemiological data? Are the data precise and reliable?
- Is the health system utilization data by patient and by disease reliable?
- Determine whether quantification includes buffer stocks, the expiry dates of the products, the procurement lead time, the levels of remaining stocks, and quantities on order.
- Is there a system for reporting information on the consumption of drugs (including ORS) from the peripheral levels to the central level?
- What is the existing quantity of old formulation ORS stock?

Distribution

- How are ORS, drugs and other commodities for prevention currently distributed?
- Are the drugs delivered to the facilities or do the facility staff have to collect them?
- How long on average is the time between ordering and receiving drugs?
- What is the frequency of the orders?
- Who currently treats diarrhea and malaria at the community level?
- Do ASCs (community health agents) provide drugs? If so, which drugs and how do they obtain them?
- Is there a mechanism to monitor the distribution system? If so what indicators are used?
- Are drugs, particularly the ORS, generally available? Which drugs are most frequently out of stock? At which levels are these stock-outs recorded?

Inventory Control

- What is the status of inventory management? Is there a computerized system?
- Are physical inventories of stock carried out? If so, at what frequency?
- Are there stock cards and are they updated and accurate (does the stock balance recorded correspond to the remaining stock)?
- Is stock rotated according to first expiry first out (FEFO)? Is there a mechanism to dispose of expired stock or to move drugs that have a short shelf life?
- Is there a pharmaceutical management information system (PMIS)? What information is reported and to where? Is this information integrated into the larger SIGS?

Storage

- What security measures are in place to avoid theft?
- What is the storage capacity and condition?
- Are there guidelines for good storage practices?

Transport

- How are drugs transported from the peripheral stores to facilities?
- How long does it take to transport drugs from the district store to facilities?
- What are the obstacles to an effective drug transport system?

Private Drug Wholesalers or Retailers

- Where do you get your stock (country and suppliers)?
- Is there collaboration with the public sector to facilitate the distribution of products?
- Are the drugs distributed generic or brand name drugs?

Community Agents

- Where do obtain your drug stock?
- How do you track your drug stock?
- Note the costs of each type of drug.

2. Information, Education and Communication

Facility Health Workers

- Review all available IEC materials related to nutrition, IMCI, and child survival.
- Does the health worker have enough materials/tools/job aids to help with their work?
    - If not, which materials does the health worker wish to have?
- Observe a counseling session for the treatment of diarrhea and/or any other topic related to the nutrition/health of children. What communication materials are used during the session? What tools for training (job aids) are relevant?
- Have you received information on campaign X? Mention a health campaign which is in progress or recent campaign by PSI or another social-marketing organization/Ministry of Health event.
- When was your last nutrition/child survival training?
- Summarize your activities related to IMCI? Have you received training in IMCI? When? Do you have materials/guides/algorithms which contain information on IMCI? (Review the materials available)
- How would you advise a mother who has a child with diarrhea?
- Do mothers follow your advice on the treatment for diarrhea? If so, how? If not, why?
- What diarrheal treatment practices are common in your community?
- Do mothers use ORS for diarrhea treatment? If not, why?
- Have you heard about zinc in the treatment of diarrhea? If yes, what do you know about zinc?
- How are you informed of current events in your community?
- Apart from the CSB from where do you receive information on health?

Pharmacy Agent

- What types of communication do you receive when a new product is introduced on the market?
- Is this communication adequate? How can it be improved?
- What types of communication would you like to receive when a new product is introduced?
- Which drugs are purchased for the treatment of diarrhea? What information do you give to people when they buy this drug for the treatment of diarrhea?
- Do people ask for additional information when they buy drugs? Give examples.
- Who are your primary customers, men or women?
- Which drugs do you sell the most?
- Do you know what ORS is? Do you sell ORS? What is your selling price for ORS? In your view, is this price affordable for your customers?
- Do you know anything about zinc? What is zinc?
- Observe a meeting between the pharmacy vendor and the customers.
- Are there communication materials in pharmacies/stores/depots? What types of materials?

3. Diarrhea Prevention and Treatment

Facility Health Workers

- Approximately how many U5 children are treated per month? What is the U5 mortality due to diarrheal disease?
- How do health personnel manage diarrhea cases? When do you refer cases to the next level of care?
- Find at least 5 to 10 cases with the diarrhea to evaluate case management practices: fluids at home, use of ORS, antibiotics, other antidiarrhetics, injections, intravenous solutions, or other therapies.
- What is the availability of ORS in the health centers. See the monthly reports and pharmacy records (stock cards). Note stock-outs and the reasons for these stock-outs.
- What is the availability and use of chlorine for disinfection of water.
- What is the cost of ORS and a consultation? What proportion of families cannot pay?
- Are there mechanisms to address the needs of those who cannot pay?
- What is the functionality of the ORT corner in the health center?
- Are there health education sessions? How much time is spent? How many people participate? What are the principal materials, messages, and monitoring methods used?
- Is mass media used (radio, television)? How much time is spent? What are the principal messages and monitoring methods used?
- Are visits made to households? How much time is spent? What are the principal messages and monitoring methods used?
- What are the principal messages and materials used for interpersonal consultations?
- What is the perception of the population on the best treatment for diarrhea?
- What are the primary difficulties in the prevention and the treatment of diarrhea?
- Are you aware of any new approaches to the treatment of diarrhea?

Human Resources and Financial Access

- When and what was the most recent training provided covering IMCI or other topics related to childhood illness?
- What was the most useful aspect of this training?
- Were you able to apply what you learned in this training with your work?
- Was there follow-up to this training? When and how much time was spent?
- How is the quality of your work measured?
- What are you doing or what have you done to improve the quality of the services provided? (quality improvement initiatives)
- Is it difficult for parents to pay for ORS? What is done when parents are unable to purchase ORS at the health facility?
- How are payment exemptions applied?
- How are drug and service prices determined?

4. Health Information System

- Have any staff within the facility been trained in IMCI or CDD?
- Check the monthly reports for quality.
- Review patients' data in forms and registers for completeness. Are diarrhea cases registered based on IMCI classification for staff trained in IMCI or CDD? Is there space provided for that on the form?
- Review any data display (Tables, graphs); how old the display
- Any Data analysis and utilization at that level? Get real examples and probe any on diarrhea diseases
- Does the center get any feedback from the higher level??
    - If yes, which, what is the frequency and content of feedback
- Are there any data collected at community level?
- What are the challenges related to collecting, analyzing, using and transmitting data on DD?

D. DATA COLLECTION AT THE COMMUNITY LEVEL

1. Pharmaceutical Management

Community Health Agents Who Treat Diarrhea

- Where do they get to their stock of drugs and/or ORS?
- What quantities do they give?
- How do they keep track of their stock?
- Note the costs of each type of drug.

Depots and Retailers

- Where do they get their stock? Country and supplier name.
- Do they distribute generic drugs or drugs from major pharmaceuticals?
- What do you give for diarrhea?
- Note the cost of each type of ORS, antibiotic and antidiarrheal (minimum, maximum, and the most sold).

2. Information, Education and Communication

Community Health Agents Who Treat Diarrhea

- Observe a counseling session for the treatment of diarrhea and/or any other topic related to the nutrition/health of children. What communication materials are used during the session? What tools for training (job aids) are relevant?
- Is mass media used (radio, television)? How often? What are the principal messages?
- How often do you make house visits? What are your primary activities?
- What are the primary difficulties in the prevention and the treatment of diarrhea?
- What are your suggestions?
- What new approaches to the treatment of diarrhea are you aware of?
- Observe a counseling session for the treatment of diarrhea and/or any other topic related to the nutrition/health of children. What communication materials are used during the session? What tools for training (job aids) are relevant?
- Review all available IEC materials related to nutrition, IMCI, and child survival.
- Does the health worker have enough materials/tools/job aids to help with their work?
- If not, which materials do you (the health worker) wish to have?
- Have you received information on campaign X? Mention a health campaign which is in progress or recent campaign by PSI or another social-marketing organization/Ministry of Health event.
- When was your last nutrition/child survival training?
- Summarize your activities related to IMCI? Have you received training in IMCI? When? Do you have materials/guides/algorithms which contain information on IMCI? (Review the materials available)

- How would you advise a mother who has a child with diarrhea?
- Do mothers follow your advice on the treatment for diarrhea? If so, how? If not, why?
- What diarrheal treatment practices are common in your community?
- Do mothers use ORS for diarrhea treatment? If not, why?
- Have you heard about zinc in the treatment of diarrhea? If yes, what do you know about zinc?
- How are you informed of current events in your community?
- Apart from the CSB from where do you receive information on health?

Focus Group with 7-10 Mothers

- From where do you receive information on health, nutrition and care of children in your community?
- Which are the diseases that affect the children in this community the most?
- Who buys medicines in this family? From where?
- Have you had information on campaign X? Mention a health campaign which is in progress or recent campaign by the MOH or other NGOs in the community.
- Do you have children? Of what age?
- During the past year, how many times has your child of X age had diarrhea? Pick a mother with a young child.
- In your opinion how do children get diarrhea?
    - Probe – Through food? Hygiene? Others? How? Why?
- When a child suffers from diarrhea, what do you give him or her to eat? What food? In what quantity? Frequency? Duration?
- Apart from food, what else do you give children with diarrhea? Home prepared solutions? How are they prepared? Do you give ORS? How do you prepare it? For each food/liquid mentioned – why do you give this food/liquid? Do you give medicines? Herbal teas? Others? What? Why?
- Is there anything that is forbidden for a child with diarrhea to eat/drink? What? Why?
- If a mother gives ORS, ask, "from where do you receive ORS?"
- If a mother does not give ORS, ask, "have you heard about ORS? From where? Why do you not use it?"
- From where do mothers receive information on the treatment of diarrheal diseases?

Focus Group with 7-10 Fathers

- Do you have children? Of what age?
- From where do you receive information on social events in your community?
- From where do you receive information on health/nutrition/care of children in your community?
- What is the disease that affects children in this community the most?
- Who buys medicines for the family? From where are these medicines bought?
- Have you received information on campaign X? Mention a health campaign which is in progress or recent campaign by the MOH or other NGOs in the community.
- In your opinion, how should diarrhea be treated?
- If you need advice on child health and nutrition, who do you ask?

Focus Group with 3-7 Community Leaders

- What is your role in this community?
- Do you have children? Of what age?
- How do you disseminate information on the social events in your community?
- Do you help with health activities? Which ones?
- Do you have any materials concerning health? Which ones? Ask to see them.
- What are the diseases that affect children in this community the most?
- Have you had information on campaign X? Mention a health campaign which is in progress or recent campaign by the MOH or other NGOs in the community.
- In your opinion, how should diarrhea be treated? Who taught you how to treat diarrhea?

3. Diarrhea Prevention and Treatment

Community Health Agents Who Treat Diarrhea

- How do community agents manage diarrhea cases? When and how do they refer serious cases to health facilities?
- What is their technique for teaching mothers how to make "the sugar salt solution" at home?
- What is the availability of ORS?
- What is the availability and use of chlorine for disinfection of drinking water?

4. Health Information System

Community Health Agents Who Treat Diarrhea

- Which data are collected on DD? Are there records of ORS or any product used for diarrhea diseases?
- Which tools are used for data collection? (forms, registers)
- Check the way data is entered and used (are graphs and other methods of analysis used?).
- Does anybody provide support to collect, understand and use the data?
- What is the purpose of the data and is it utilized at the community level?
- Is there any feedback from the health center, district or regional level? What is the frequency and content of feedback?