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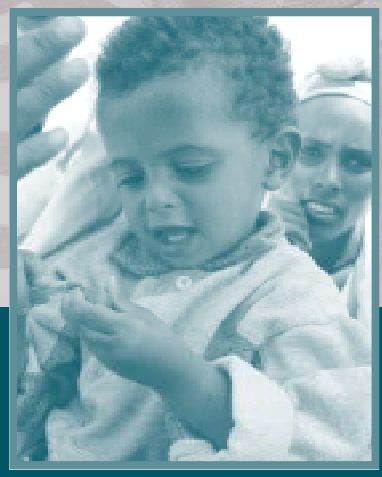

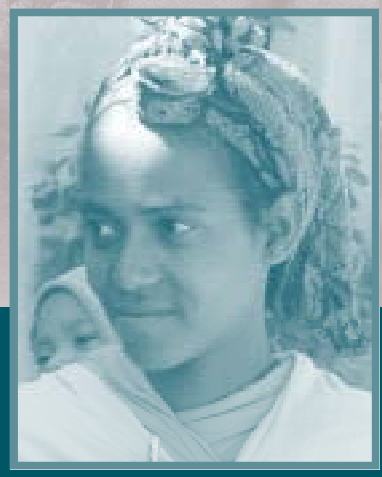

Improving Health Care Delivery Systems in Eritrea

Technical Assistance & Support (TASC)
Final Report

TASC Eritrea

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DEDICATION

This report is dedicated to people of Eritrea.

JSI has worked in Eritrea since 1996, and thanks to the committed people and charismatic leadership in Eritrea, TASC/Eritrea has been enormously successful in helping improve its health care services.

Change and improvement in health care services is a gradual process. It takes years to measure and evaluate the true impact that results from the work of partnerships, such as that between the MOH, USAID, and JSI.

But as we have listened over the years to our Eritrean colleagues telling the “story” of the TASC/Eritrea Project, it is clear that there have been numerous successful and positive changes that have resulted in improved access to and quality of health care services.

And while the TASC/Eritrea staff and many international consultants have contributed to this success, we all praise the level of commitment, dedication, and sheer energy of the MOH staff at the national, zoba, and community levels. You have already made a remarkable difference in the delivery of services to mothers, children, and families of Eritrea.

We would especially like to thank the Ministry of Health, the service providers, and the other stakeholders who work tirelessly to improve the well being of all Eritreans. Your commitment to improving the health of your country is an inspiration to us. It has been our privilege to work with you and to play even the smallest role in your efforts.

We know you will succeed in your goals and hope that JSI will partner with you in the future. We are proud of your accomplishments. We thank you for letting JSI work alongside you for these many years.

Sincerely,

TASC/Eritrea

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ACRONYMS

AED	Academy for Educational Development
AIDS	acquired immunodeficiency syndrome
ANC	antenatal care
BCC	behavior change communication
BP	blood pressure
CA	Cooperating Agency
CAH	Child and Adolescent Health and Development (WHO)
CDC	US Centers for Disease Control and Prevention
CHIME	JSI Center for Health Information, Monitoring & Evaluation
CMR	child mortality rate
CMS	Central Medical Stores
CPR	contraceptive prevalence rate
CYP	contraceptive years of prevalence
DHS	Demographic and Health Survey
DPS	Department of Pharmaceutical Services
DSS	decision support system
EDL	essential drug list
EHP	Eritrea Health and Population Project
EmOC	emergency obstetric care
EPI	Expanded Program on Immunization
FH	fundal height
FHR	fetal heart rate
FGM	female genital mutilation
FP	family planning
FRHAE	Family Reproductive Health Association of Eritrea
GOE	Government of Ethiopia
GMP	growth monitoring, growth promotion
HB	hemoglobin
HFA	health facility assessment
HH/C	household and community
HIV	human immunodeficiency virus
HMIS	health management information system
HPU	Health Promotion Unit
HRD	human resource development
IEC	information, education, and communication
IMCI	integrated management of childhood illness
IMR	infant mortality rate
IO	Investment Objective
IP	infection prevention
IPC	interpersonal communications
IPCC	interpersonal communications and counseling
IR	Intermediate Result
JSI	John Snow, Inc.
KAP	knowledge, attitudes, and practices
LMIS	logistics management information system
LSS	life saving skills
M&E	monitoring and evaluation
MCH	maternal and child health
MOH	Ministry of Health
MOI	Ministry of Information
NUEYS	National Union of Eritrean Youth and Students

NHMIS	National Health Management Information System
NGO	nongovernmental organization
ODP	outpatient department
ORS	oral rehydration solution
ORT	oral rehydration therapy
PAC	postabortion care
PHC	primary health care
PMP	performance monitoring plan
PPH	postpartum hemorrhage
QAP	Quality Assurance Project
RH	reproductive health
SEATS	Family Planning Service Expansion and Technical Support Project
SO	Strategic Objective
SRSZ	Southern Red Sea Zoba
STI	sexually transmitted infection
TAC	Technical Advisory Committee
TASC	Technical Assistance and Service Contract
TBA	traditional birth attendant
TTBA	trained traditional birth attendant
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization

A trained traditional birth attendant in Mensura, a village in Gash- Barka Zone

EXECUTIVE SUMMARY

Although Eritrea is one of the poorest countries in the world (ranking 148 out of 162 countries in UNDP's Human Development Index for 2001), it is a country filled with promise, potential, and dedication. The Government of Eritrea (GOE)/Ministry of Health (MOH) is committed to being a showcase for Africa, a move that is well underway despite the enormous challenges. This is seen in the dramatic decline in infant mortality reported in EDHS 2002, an increase in life expectancy to 51 years since 1991, and improvements in almost all other major health outcomes.

Improved primary health care for all citizens remains an objective and, at the same time, a major challenge for the GOE, for USAID and for other donors and development partners. US Agency for International Development (USAID) supports the GOE through its Investment Objective 1: Increased Use of Sustainable, Integrated Primary Health Care (PHC) Services by Eritreans and supporting three Intermediate results.

The TASC/Eritrea project was developed by USAID and the MOH to institutionalize primary health care capacity. John Snow, Inc. (JSI) was awarded TASC/Eritrea with its subcontractor, the Academy for Educational Development (AED), providing technical assistance in the area of IEC/BCC.

TASC/Eritrea was responsible for the implementation of three technical components: maternal health, child health, and nutrition. In addition, TASC implemented strategies related to three cross cutting components: human resource development (including training, MIS, and monitoring and evaluation), logistic management systems improvement, and information, education and communication.

Maternal Health

Emphasizing the functional components of maternal health (quality ANC, safe delivery, emergency obstetric care, family planning postpartum care), TASC's strategic approach to maternal health supported the MOH by focusing on *developing the capacity of the health system to manage a comprehensive package of quality safe motherhood services.* The health system interventions included:

- training and performance improvement processes,
- strengthening infrastructure by equipping facilities and building systems, and
- creating an enabling environment by fostering supportive policies, protocols and guidelines.

TASC also targeted interventions at the individual and community level to build their capacity for health seeking behavior through awareness raising campaigns and mobilization efforts. Critical to TASC's approach was strengthening the linkage between the health system and the community.

In comparing the 1995 and 2002 DHS, all maternal health outcome indicators have increased. As is evident in the findings, TASC and the MOH contributed to many of these improvements. While this shows remarkable progress, TASC's findings also identify some areas for future focus and continued effort.

Integrated Management of Childhood Illness

Although there is evidence of a decline in recent years, childhood mortality in Eritrea is still high and child health continues to be a top priority for the MOH. As in many developing countries in the region, a large proportion of the causes of the mortality and morbidity are preventable. Under the Child Health Program, TASC and the MOH continued to build on progress made by the MOH PHC unit in the expansion of the integrated management of childhood illness (IMCI). TASC and the MOH used this strategy as a foundation to build the capacity of the health system, health workers, families, and communities to promote child health. An integrated approach to these elements ensures a comprehensive program. *While each element is critical, building linkages between them is key to success.*

The IMCI strategy in Eritrea received strong technical and operational support from TASC and this has resulted in significant and verifiable advances in the management of sick children in public health facilities. In comparing findings from this survey with those from the baseline HFA (2000), TASC and the MOH identified significant advances on which to build on as well as a series of lessons that will help the MOH fine tune the strategy in the future.

Nutrition

The nutrition component of TASC Eritrea focused on the nutritional status of children less than five years of age. The TASC/Eritrea strategic approach aimed at supporting the growth and development of children by:

- Building the capacity for growth monitoring, growth promotion and counseling (GMP); at the community and facility level
- Increasing the MOH capacity in the management of malnutrition, particularly staff in health centers and hospitals to effectively manage children with acute and chronic malnutrition
- Supporting the MOH and its partners in developing national guidelines and polices that address selective feeding and increasing capacity for management of nutritional programs centrally and within the zones.

Cross-cutting areas

Behavior Change Communication

The strategic focus of the BCC component of TASC has been on *implementing a variety of capacity development interventions to enable the national and zonal levels of the MOH to plan and carry out effective health communication programs.* The BCC component has also substantially supported TASC's technical programs in maternal and reproductive health, child health, and nutrition through the provision of BCC strategic thinking, training and support materials. In addition, with TASC's BCC advisor sitting in and working with the MOH's Health Promotion Unit (HPU) and integrated fully in its environment, TASC has also supported a number of other MOH BCC activities, including HIV/AIDS, FGM, and malaria.

- TASC/Eritrea focused on building the capacity of the Ministry of Health to conduct effective BCC interventions at both national and zonal levels. However, client behavior change as a result of the BCC campaigns TASC supported is expected but not yet causally demonstrated.

Human Resource Development/ Training/

Health Management Information Systems

The development of human resources for health is among the top priorities on the MOH's agenda. Under the Research & Human Resource Development Division falls training, research and MIS. Therefore, TASC and the MOH identified the following recommendations from this component:

- Further refine and implement the *HRD policy and strategic human resources development plan that was developed under TASC.*
- Develop and conduct special *training* programs and short term fellowships to improve performance and capacity in maternal and child health and to conduct and support *research* in the area of maternal and child health.
- Continue to improve the NHMIS and DSS systems to ensure accurate and timely data collection, analysis and presentation of data.
- Continue improving feedback of key data in all technical health areas and to all levels of the system.

Logistics Management

The strategic approach of the Logistics component of TASC focused on strengthening the Logistics Management Information System (LMIS) of the MOH, especially in the Department of Pharmaceutical Services (DPS) to ensure all have access to medicines and contraceptives.

The overall finding from the IMCI HFA was that oral drugs are widely available while injectable availability was inadequate but improving. The IMCI unit credits much of its overall program success to the availability of needed products at the facility level.

While the MOH has made remarkable progress in the area of IMCI, family planning commodities are not as secure. Given the high level of unmet need mentioned in the maternal health section, improving the family planning supply situation is an important step to improving care in that area.

TASC's support to overall GOE and USAID goals and objectives

The efforts of both TASC and the MOH are ultimately designed to achieve broader objectives related to improving the health status of all Eritreans. These broader goals cut across all functional areas and should help stakeholders work toward a more holistic approach to health provision. One way to conceptualize such objectives is through the USAID results framework for Eritrea. Section III of this report analyzes achievements from this perspective, showing how TASC interventions contributed to the overall goal of improved health care.

In conclusion, this document shows that much progress has been made in Eritrea toward improved capacity, increased use, and improved health. Most indicators improved by substantial amounts during the period of TASC/Eritrea. Nevertheless, in almost all cases, results are still below optimal levels. Hopefully, the results and recommendations presented in this report can help the MOH and TASC II determine the most effective areas and strategies to focus on in the future in order to build on the outstanding progress made to date.

Eritrea Maternal and Child Health
Technical Assistance & Support (TASC)
Final Report

I. PROJECT BACKGROUND

COUNTRY BACKGROUND

Although Eritrea is one of the poorest countries in the world (ranking 148 out of 162 countries in UNDP's Human Development Index for 2001), it is a country filled with promise, potential and commitment, as evidenced by remarkable progress since independence in 1991. Eritrea has displayed sound management of its public institutions and has a high degree of public trust in the government and its social/health services. The long years of struggle for independence gave Eritreans a sense of determination and desire to succeed against all odds. The development path set since independence is characterized by provision of quality health services, increased equity/accessibility to those services, and local autonomy. In 1998, Eritrea was drawn yet again into a border dispute with their neighboring state Ethiopia, and the subsequent war reduced the tempo of development, but developmental activities continued despite the war.

Improved primary health care for all citizens is a key objective of the Government of Eritrea and, at the same time, a major challenge

Since independence, the Government of Eritrea has made improvement of infrastructure, including improved accessibility, a development priority. Administratively, Eritrea is divided into six administrative zobas (zones), and 58 sub-zobas. Each sub-zoba is again subdivided into about 701 Kebabis. A Kebabi comprises about 3-4 villages and is the lowest level of formal government administration.

Economic milestones have been and continue to be addressed and achieved; reconstruction of infrastructure is proceeding; human capacity development is a priority in all sectors, and there are marked actions underway moving the country from emergency recovery and reconstruction to development. This is seen in the dramatic decline in infant mortality reported in EDHS 2002, an increase in life expectancy to 51 years since 1991, when it was estimated in the 40's, and improvements in other key health outcomes.

Improved primary health care for all citizens remain an objective for and, at the same time, a major challenge for the GOE, for USAID, and for other donors and development partners. Barriers to the use of primary health care (PHC) services abound, including disparate geographic access to care, cultural constraints, quality, gender issues, lack of commodities, lack of money, and a severe shortage of trained providers, among others. Life expectancy remains low at 51 years, with infant mortality (over half of which may be expected to be neonatal mortality) estimated at 48 per 1000 live births. There is high risk of the rapid spread of HIV/AIDS. Child mortality, maternal mortality, and malaria are major problems. Poor nutrition underlies many causes of morbidity and mortality. Contraceptive prevalence rates are low and, although the fertility rate may have declined—due to mobilization of adults 18-40 years of age for war—contraceptive prevalence remains very low, even by African standards. There is little progress replacing traditional with modern methods of family planning or in meeting even the current low level of demand. As a result, abortion rates are high. The National Health Management Information Report for 2002 indicates

that abortions were the second commonest cause of hospital admissions that year.

Demand for services is still low. For example, the Eritrea Demographic Health Survey (DHS) 2002 indicates that although 70% of pregnant women receive antenatal care, only 26% delivered in health facilities with the assistance of trained health workers. Four in ten mothers received iron tablets for their last birth in the five years preceding the DHS, but all of them took the tablets for less than 60 days. The EDHS further indicates that only 13% of mothers received vitamin A supplement during the two-month postpartum period of their last-born in the five years preceding the survey. Only 7% of all women including pregnant women slept under a mosquito net the night before the survey, even though the Ministry of Health distributes nets free of charge to pregnant mothers and those in malaria risk areas. In addition, 11% of women did not know where to find health care. More information is needed about the type of care provided, patient outcomes, and the effectiveness of treatment in different geographic areas and facilities in order to develop appropriate messages and address behavior change communication (BCC) in an integrated fashion at the community level. Nonetheless, there is ample evidence of the need to expand demand for PHC services in the country.

The Government's health goal is to make primary health care services available to all citizens.

Government of Eritrea Primary Health Care Goals and Strategies

The GSE health goal is to make primary health care services available to all citizens. With an expanding network of health facilities including 22 hospitals, 40 health centers and 140 health stations, Eritrea has made significant strides in improving the health infrastructure following independence. The Ministry of Health (MOH) Eritrea is highly committed to its stated objectives and is proactive and assertive in achieving results.

Ministry of Health Headquarters, Asmara

Key objectives of the PHC program include sensitizing communities to common preventable health problems; creating awareness and empowering individuals, families and community members to be more responsible for their own health; designing locally appropriate health promotion activities through community involvement; and promoting awareness among relevant government offices and the community at large that health problems can only be solved through multi-sectoral cooperation. The MOH's PHC strategy supports these objectives by emphasizing the development of basic health services at the local level to reach more people and to strengthen preventive public health activities.

USAID Goals and Strategies

USAID supports the goal of the GSE through its Investment Objective (IO) 1: Increased Use of Sustainable, Integrated Primary Health Care Services by Eritreans.

To fulfill the Investment Objective, three distinct Intermediate Results (IRs) were established by the Mission to support and guide implementation in the health sector:

i. Intermediate Result 1: Access to Integrated PHC Services Improved;
ii. Intermediate Result 2: Client Demand for PHC Services Enhanced;
iii. Intermediate Result 3: Quality of PHC Services Improved

TASC/Eritrea Goals and Objectives

To respond to the IO1 and supporting IRs and the health goal of the GSE, USAID established the Eritrea Health and Population (EHP) project, a bilateral agreement between the Government of Eritrea (GOE) and the US Agency for International Development (USAID) to institutionalize primary health care capacity.

The EHP was initially implemented through three USAID Global Bureau mechanisms: The BASICS Project for child survival, program planning and management; OMNI for micronutrient support, and; SEATS for reproductive and maternal health programs. The former two global projects ended in the last quarter of 1998 while SEATS ended in early 2000.

In 2000, USAID extended the EHP Project and consolidated the implementers into a single task order—the TASC/Eritrea Project. John Snow, Inc. was awarded TASC/Eritrea with subcontractor, the Academy for Educational Development (AED), providing technical assistance in the area of information education and communication (IEC) and BCC.

TASC/Eritrea was responsible for the implementation of three technical components: maternal health, child health, and nutrition. In addition, TASC also implemented strategies related to three cross-cutting components: the national health management information systems improvement, logistic management systems improvement, and IEC. Finally, TASC was also responsible for supporting other USAID collaborating agencies working to support health initiatives in Eritrea.

TASC's approach was evidence-based, emphasizing sustainability, capacity strengthening, and national leadership. Collecting, analyzing, and presenting evidence to support project plans and activities as well as results was of critical importance in garnering broad support for the program and promoting the credibility of the MOH at both national and international levels. The TASC team worked to strengthen partnerships with the MOH and other stakeholders in planning and monitoring primary health care activities, particularly maternal health and child survival activities.

Capacity building is not an end in itself, but a prerequisite for improved performance

Approach to Capacity Building

TASC believed that capacity building is not an end in itself, but a prerequisite for improved performance which will, in turn, lead to sustainable improvement in the health status of individuals, families, and communities. Therefore, every activity and input to the project had at its core an orientation toward building the capacity of Eritrean institutions, communities, and individuals. TASC was designed to build capacities for implementation in six specific technical areas:

- child health,
- reproductive and maternal health area,
- monitoring and evaluation of health programs,
- behavior change communication,
- logistics management,
- networking and procurement support.

TASC's support to the MOH consistently emphasized capacity building, understanding that implementation of interventions and service provision remained the responsibility of the Ministry of Health. Thus, the MOH was involved in all the stages of this project.

MANAGEMENT

While the Task Order was designed to provide the necessary support to achieve results in priority areas identified by the MOH and USAID, it was equally important to keep in sight the pivotal role of JSI, primary contractor, in day-to-day management of a very complex, multifaceted assistance program. JSI provided a wide range of support to both Eritrean institutions and other USAID cooperating agencies (CAs), and helped to coordinate partners, donors, and groups working in other sectors.

In identifying key activities to improve women's and child health in Eritrea, TASC and the MOH used evidenced-based planning and action. Throughout the project, TASC and the MOH conducted research and assessments including: Knowledge, attitudes, and practice (KAP) studies, community based profiles, review of Demographic and Health Surveys (DHS), and monitoring of routine data (DSS) and secondary analysis to learn lessons from other countries. Assessments were used to develop targeted program strategies and served to support planners and program managers for appropriate allocation of resources.

Data Sources to Determine Achievements

A "culture of information" is developing in Eritrea, leading increasingly to improved, evidence-based decisionmaking.

A complex and multi-dimensional project such as TASC/Eritrea requires multiple data sources and collection instruments to adequately monitor progress and assess achievements. Tools used to collect the information presented in this report included routine HMIS, small studies designed specifically to assess TASC progress, large national level surveys such as the Eritrea DHS, among others. Taken together, they provide a picture of progress made toward improved capacity for delivery of health services, improved health system performance, and overall improved health outcomes in the Eritrean population.

The studies carried out and the process of collecting and analyzing data was for the most part, done in collaboration with the Eritrean MOH and became a capacity building activity itself. It is evident from the Ministry's active participation in endline data collection and use that a "culture of information" is developing, leading increasingly to improved, evidence-based decision-making.

TASC/Eritrea adopted the USAID Mission Performance Monitoring Plan (PMP) as a *de facto* monitoring and evaluation (M&E) framework for the project, using to the extent possible, the PMP indicators would serve as a major measure of project achievements. In Section III of this document reports on those indicators. In some cases, TASC/Eritrea was directly or primarily responsible for the

outcome; in many other cases, the project contributed along with other organizations and interventions. In all cases TASC made some contribution to the result.

II. TECHNICAL COMPONENTS

The following sections describe the strategies, interventions, results, and recommendations of the TASC/MOH collaboration. These findings are organized by major technical component:

- Maternal health
- Child health (IMCI and nutrition)

as well as the major cross-cutting areas:

- IEC/BCC,
- Human resources development (HRD) and training,
- National Health Management Information System (NHMIS), and
- Logistics.

The following technical component section presents health outcome results while the section on cross-cutting areas show process results that contribute to and support the results in the technical areas. The final section depicts TASC's work comprehensively to show how it contributed to USAID's overall investment objective and intermediate results and therefore the goals of the GSE.

MATERNAL HEALTH

Determining that few service providers had been trained in family planning/ reproductive health, TASC focused on building training capacity and training providers.

Improving maternal health is a priority for the Eritrea MOH. Emphasizing the functional components of maternal health (quality antenatal care [ANC], safe delivery, emergency obstetric care, family planning, and postpartum care), TASC focused on developing the capacity of the health system to manage a comprehensive package of high-quality safe motherhood services. The health system interventions included training and performance improvement processes, strengthening infrastructure by equipping facilities and building systems, and creating an enabling environment by fostering supportive policies, protocols and guidelines. TASC/Eritrea also targeted interventions at the individual and community level to build capacity for health-seeking behavior through awareness-raising campaigns and mobilization efforts. Critical to TASC approach was strengthening the linkage between the health system and the community.

This holistic approach recognizes that none of these factors can be exclusive and that to make progress in the challenge to reduce maternal mortality and morbidity, all must be actively strengthened and linked. The expectation was that capacity inputs in each area will lead to improved performance and improved health status.

Training

TASC and the MOH developed a comprehensive training strategy to improve clinician performance and ultimately access, quality, and client utilization. The training targeted various cadres of staff (central and zoba MOH, doctors, nurses,

TASC supported trainings:

- 179 health providers trained in LSS/EmOC (pretest knowledge mean score 77%, post-test knowledge mean score 91%)
- 144 health workers, mainly nurses and midwives trained in FGM awareness and counseling.
- 107 nurses and HAs trained in FP (pretest knowledge mean scores 58%, post-test knowledge mean scores 79%)
- 707 people trained in SM community sensitization
- 27 people trained in data collection for TBA study at a workshop
- 879 health care workers (i.e. medical staff, support staff, and administrators) trained in infection prevention principles and on continuous quality improvement.
- 39 health providers oriented on workshop on reducing maternal mortality
- 15 physicians trained on skills for emergency obstetric including caesarian section.
- 11 LSS trainers trained as master trainers
- 19 midwives and nurses trained as LSS trainers
- 17 nurses, tutors, and nurse/ midwives trained as trainers in RH/FP
- 1,882 health workers were trained in IPCC

midwives, associate nurses, health assistants) and covered a wide range of topics including: EmOC, life saving skills (LSS), infection prevention and standards, supportive supervision, RH/FP, PAC, HIV/AIDS education, IPCC.

The **LSS/EmOC training** ensures that the staff is competent in identifying, diagnosing and managing (appropriate intervention at site or referral to next level) obstetrical emergencies such as pregnancy induced hypertension, sepsis, obstructed labor, and hemorrhage.

The **RH/FP training** uses adult learning principles and includes updated contraceptive technology, counseling and communication, the concepts and benefits of FP, postabortion care and counseling, HIV/STI prevention, STI management using the syndromic approach, adolescent fertility, quality of care, infertility, and a focus on reproductive rights for the client. This rights-driven approach seeks to ensure that the clients' needs are met and that barriers to family planning and reproductive health are reduced. TASC also worked with the MOH to update the RH/FP training curriculum. TASC/MOH trained or updated 17 trainers in RH/FP using this revised curriculum. The revised curriculum is being used to train staff in the country.

In addition to clinical skills, TASC and QAP worked with the MOH to strengthen and institutionalize **infection prevention** practices at referral hospitals. Whole-site training for ten hospitals was conducted and ten infection prevention committees are in place. Each committee has a plan that includes activities such as training all hospital staff in infection prevention practices, repairing bathroom toilets and sinks, and disinfecting patient rooms after their discharge.

Counseling session at health facility in Asmara

TASC worked with the MOH to institutionalize **maternal health training** to make this capacity sustainable within the Eritrean health system. TASC and the MOH reviewed, updated, and translated into local language the EmOC training curricula and training materials and established two MOH training sites for emergency obstetric care. Eleven master trainers were trained, who in turn trained 19 trainers in LSS/EmOC. In total, these trainers and master trainers have trained over 179 midwives, nurses and associate nurses on LSS/EmOC.

With the goal of ensuring that trained service providers use the knowledge and skills gained during training, TASC and the MOH routinely conducted **supportive supervision** in all maternal health areas. Recent findings indicate that knowledge retention is relatively high, at over 81% of those who were followed up. TASC and QAP have also trained MOH staff at

TASC and the MOH routinely conducted supportive supervision in all maternal health areas.

the central level and zoba program officers to strengthen supervisory capacity within the system. Supervision/follow up in the facilities was enhanced through the development of supervision tools and checklists. According to the EmOC endline, 78.4% of health providers reported receiving at least one supervisory visit related to maternal health in the past three months.

Functioning System

While training is an important element to building the capacity of the MOH's maternal health capabilities, ensuring trained provider coverage throughout the MOH system is critical. Therefore, the TASC/Eritrea and MOH strategy focused on ensuring that each facility in the target zones had providers trained in LSS/EmOC, family planning/reproductive health, etc. This strategy required political ownership and continued support from the MOH. For example, in reviewing staffing patterns at key facilities showed that there were insufficient nurses and midwives at the health-station level. Because health stations are the first line of contact with the community, a decision was made to upgrade the skills of associate nurses so that they could effectively perform life saving skills (LSS). TASC also supported the training of 15 physicians in emergency obstetric surgery to do cesarean section. This activity was developed based on the MOH decision to ensure that all referral hospitals in zoba and sub-zoba should have a doctor able to perform Caesarian sections to save mothers with complications.

TASC upgraded the life saving skills of associate nurses at the health station level.

In addition to service provider coverage, TASC worked together with the MOH to ensure that facilities had the corresponding equipment and supplies needed for these providers to provide the services. For example, for family planning services, ongoing follow-up visits were used to improve processes to ensure contraceptive availability.

"We should be supporters, advisors, advocates and encouragers for safe motherhood"

His Excellency Saleh Meky, Minister of Health, launching the maternal health campaign (Sept. 10, 2003)

In April 2001, TASC conducted a review of the existing maternal health programs in Eritrea. The review was in accordance with recommended indicators in the *UNICEF/WHO/UNFPA Guidelines on Monitoring the Availability and Use of Obstetric Services* which can be used in place of the maternal mortality rate indicator. TASC and the MOH adopted a strategy to use the five signal function indicators to evaluate the availability, use, and quality of obstetric services. The zoba health managers and the F&RH unit with TASC conducted a subsequent mapping exercise to identify the facilities that, at a minimum, should provide basic and comprehensive emergency obstetric services in line with the global standards and the MOH's expectations. TASC gave the identified facilities the equipment to provide basic and comprehensive emergency obstetric care to meet these standards. The goal was to ensure that facilities were located, equipped, and staffed such that there were at least four health facilities capable of providing basic EmOC per 500,000 population and one health facility able to provide comprehensive EmOC per the same population.

Finally, to ensure the appropriate standards and protocols needed to ensure a quality system, TASC and the MOH worked together to update the *Eritrean National Clinical Protocol on Safe Motherhood.* The national safe motherhood protocol was designed in 1998 and revised by local consultants in 2002. It provides guidance on the management of maternal health activities by different levels. In effect it is the guide to maternal health care in Eritrea. MOH program managers and division heads, Ob/Gyns from the referral hospital, tutors, and midwives, TASC and other partner organizations participated in the consensus-building workshop to finalize the document.

Community Awareness

TASC worked to increase women's awareness of maternal health and available services.

TASC and the MOH worked to increase women's awareness of maternal health and available services. TASC and the MOH also worked to increase the number of births delivered in health facilities by bridging the gap between the health facilities and the mothers in their villages.

Main strategies to increase community awareness included the following:

1. **Building stronger linkages:** Before women can come for care at a facility, efforts must be made to ensure that they have confidence in the quality of available services. Therefore, TASC/Eritrea worked to ensure client-centered quality of care and enhance client satisfaction. TASC trained service providers in IPCC skills to improve client-provider interaction. In addition, TASC and the MOH worked together to make the facilities more client friendly and informative through a series of IEC tools. TASC and the MOH developed and disseminated the following for health care facilities to use with their clients:
   - ❖ Mother's IEC counseling cards
   - ❖ Safe Motherhood IEC flipcharts
   - ❖ Antenatal Care IEC flipcharts
   - ❖ Safe Motherhood IEC posters

2. **Mobilizing communities:** Working with people in communities to sensitize them to the importance of their participation in the reduction of maternal mortality was an important component. Supporting communities to clarify their roles and responsibilities in caring for the members of their villages was also key.

   Community sensitization workshops on safe motherhood and community leader meetings have been held in six zones to increase the awareness of the maternal health situation and to solicit participation of communities in maternal health. The attendance at each zone was enthusiastic. The zoba leaders recommend further awareness creation at the sub zoba, kebabi, and individual family levels. The strategy is mobilizing communities to share and participate in the care of mothers by strengthening village health committees and supporting the development and implementation of their village action plans.

   The service providers have trained TBAs in clean home deliveries, which is both relevant and life saving. However, more need to be done to change TBA's role to recognize danger signs and sensitize them to the importance of timely referral of complicated births, and in general to expand their role as health promoters to play a leading role in the eradication of harmful traditional practices like FGM.

   The community-based maternal health activities are integrated with other on-going community initiatives such as growth monitoring and promotion, or community based child health activities like IMCI. The intention is to link and integrate the information and services so that there are no missed opportunities to improve health-seeking behavior.

3. **Improving health-seeking behavior:** In September 2003, TASC and the MOH launched a multimedia health promotion campaign in support of maternal health in Mendefera, Debub zone. Religious leaders, political and

civic leaders, representatives of international and local agencies, health professionals, military and police officers, youth, and women leaders attended the campaign. The launch began an intensive national effort to promote the use of maternal health services, especially ANC and delivery at health facilities. Beginning in Debub, the campaign was rolled out to the national level. TASC based the messages on the KAP findings and targeted them to specific needs (importance of 4 ANC visits, recognition of danger signs, delays and complication readiness, birth planning and preparedness, harmful traditional practices, and family planning). The campaign involves a series of radio, TV, newsprint, posters, leaflets, brochures, and stickers.

Postabortion Care and Counseling – A Pilot Intervention

According to the NHMIS, abortion complications rank the highest (63%) of the most common inpatient incidence of obstetric emergencies in hospitals and health centers in Eritrea.

TASC and the MOH implemented a pilot postabortion care program at Mekane Hiwet Maternity Hospital – Gynae ward. It focuses on the provision of quality of family planning services and counseling; contraceptive choice and availability, and strengthening continuity through linkage of service to referral sites. The importance of providing family planning to PAC clients needs to be re-emphasized among services providers as PAC clients presumably wish to avoid future pregnancies and the large majority should expect to welcome the opportunity to accept a method.

All the nurses and midwives who work at the unit were trained in counseling skills and contraceptive use. The counseling training focused on respect for the client, interpersonal skills, and on the importance of educating women about family planning methods, HIV/AIDS and STI prevention, and the dangers of unsafe abortions. The program also provides family planning to those who want it as well as referral information for nearby facilities. Facilitative supervision continuously takes place at the facility level by TASC and F/RH unit from the MOH and continuous monitoring by the head nurses in the ward.

Prior to this intervention, service providers were providing postabortion services, however, they had not been trained in counseling the client nor linking to referral sites. Additionally, the Gynae ward did not offer family planning methods in stock or have them.

Three months into the PAC intervention, TASC conducted an evaluation to assess the interventions. Thus far, the ward has had 616 PAC clients. Of these clients, 62% received family planning counseling and a family planning method and the remaining received counseling. In assessing 18 client-provider interactions, the evaluation found that service providers scored an average of 68% on both listening and questioning skills. The evaluation also assessed whether the service provider provided comprehensive information to the client. According to standards, service providers should provide information on postabortion danger signs, abortion complications, family planning, referral information, fertility plan and HIV/STI and unwanted pregnancy. The evaluator recorded that the service providers offered 56% of the information on the checklist. Follow up needs to emphasize that providers should offer the full array of information to the clients.

"I was giving group health education routinely for every mother but after PAC counseling training, I started to focus on individual counseling. Besides I started to provide contraceptives during discharge for those who needed them."

Sr. Ghidey G/Kidan
Mekane Hiwet National Maternity Referral Hospital, Asmara

Results

Despite the limitation of not having a clear-cut denominator (no census data), the utilization of facilities for maternal health care has been on the rise. According to the two most recent Eritrea Demographic and Health Surveys (1995 and 2002), the country is making progress in all of the maternal health indicators.

Figure 4: Total # of Births at MOH Facilities
(source: DSS)

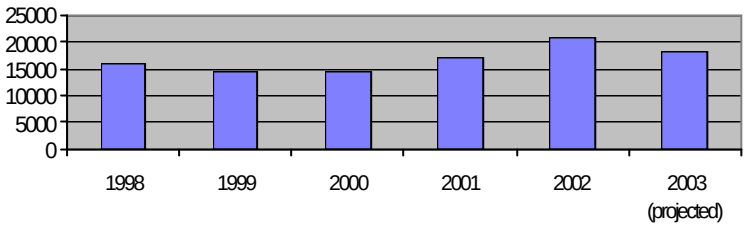


Figure 1: Atenatal Care Visits
(source: DSS)

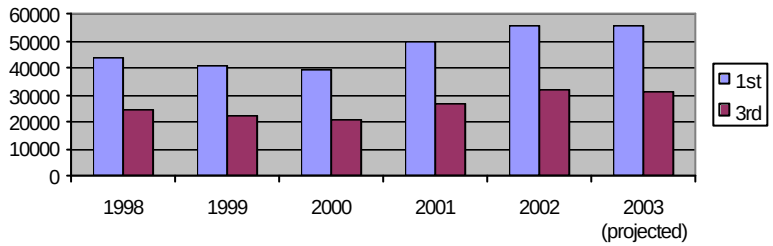


Figure 2:
% of Essential Elements Received during ANC Visit (n=159) (source: 2003 MH facility survey)

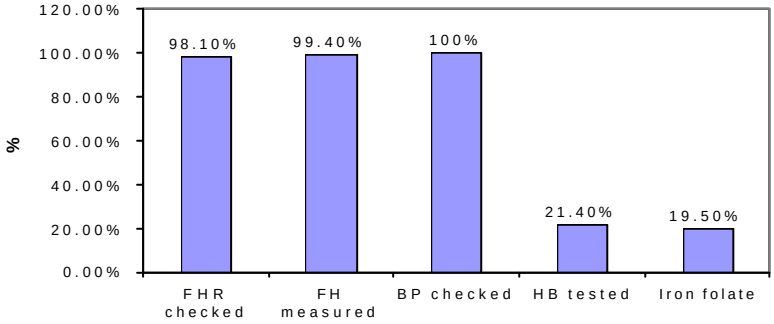
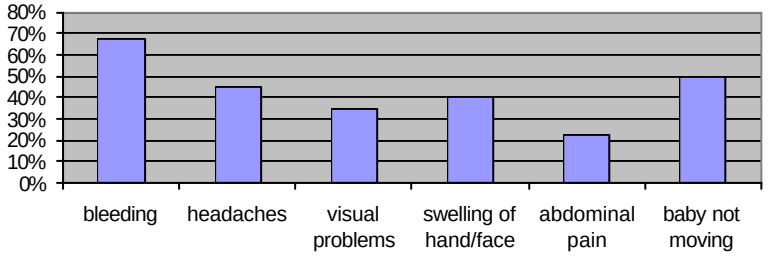


Figure 3: Clients Receiving Information about Danger Signs
(n=40) (source: 2003 maternal health survey)



Antenatal Care (ANC)

According to the 2002 DHS, there was an increase in the percent of pregnant women receiving antenatal care from 49% in 1995 to 70% in 2002. While DSS/NHMIS confirms this upward trend, it also highlights the fact that there is a dropout from first to third ANC visits. High antenatal dropout is further evident in the high reporting of first ANC visits compared to the low delivery attendance (DHS). This implies that mothers understand the importance of ANC but that there are other factors preventing them from getting to the service delivery points for second and third antenatal visits and delivery. As indicated above, the MOH and JSI/TASC are working with the service providers and facilities and the individuals and communities to recognize their respective roles in improving the link between them.

What happens during ANC is an indicator of facility performance. Of the five essential elements that should occur during an ANC visit (fetal heart rate (FHR) check, fundal height (FH) measure, blood pressure (BP) check, hemoglobin (HB) test, and iron folate given), record reviews from the 2003 maternal health facility survey indicate very high indications of fetal heart rate checking (98%), fundal height measuring (99%) and blood pressure checked (100%). However, the records reviewed show very low number of clients who had their HB tested and were given iron folate. DHS data validates low provision of iron folate. Four in ten mothers received iron tablets for their last birth in the five years preceding the DHS, and all of them took the tablets for less than 60 days.

Client retention of information provided during an ANC visit also highlights facility/provider performance. According

to client exit interviews (n=40) conducted in October 2003, services providers are providing some information about danger signs (68% of clients received information on bleeding as a danger sign) but 50% or less reported receiving information on headaches, visual problems, swelling of hands or face, abdominal pain, or the fetus not moving being danger signs. Identification of danger signs is critical in the early detection of obstetric complications and seeking prompt treatment and care.

Deliveries

According to the DHS, more mothers are delivering at formal facilities, more complications are being seen, more Caesarian sections are being done, and more mothers are being assisted. The EDHS of 1995 and 2002 show that deliveries in health facilities has increased from 17 % to 26%. In further examining the percent of births at facilities, 42% of first births are facility deliveries compared to 15% of sixth or higher births, indicating that younger mothers are improving their health-seeking behavior. The DSS confirms these findings, showing an overall increase in the total number of births at MOH facilities.

This increase shows positive signs and the absolute numbers remain low, however there remains a significant need for childbirth services. The EDHS 2002 indicates that although 70% of pregnant women receive antenatal care, only 26% delivered in health facilities with the assistance of trained health workers and only 10% of rural births are delivered in a health facility.

Emergency Obstetrics Care (EmOC)

According to TASC's training database, 179 service providers were trained in LSS/EmOC. During the EmOC endline, TASC looked to determine the breakdown of both those trained and the facilities in which they were stationed. Preliminary results showed that out of the 38 surveyed hospitals, health centers and health stations visited during the endline, two out of the 11 hospitals do not have a doctors trained in EmOC and all the 11 hospitals have at least one service provider (nurse, midwife or associate nurse) trained in LSS/EmOC. Sixty one percent of facilities had at least one staff member trained in EmOC, with midwives, nurses, and associate nurses the trained providers in most cases. In looking at the breakdown in Figure 6, it is important to remember that the percentage represents those facilities with *at least* one of each type of provider trained in LSS/EMOC and in fact many facilities have more than one type of provider trained.

The low percentage of facilities with at least one trained associate nurse indicates an area for future focus. These providers are in many situations the first line of contact with the community and therefore should have these important skills.

Figure 5: % of facilities performing Basic EmOC services

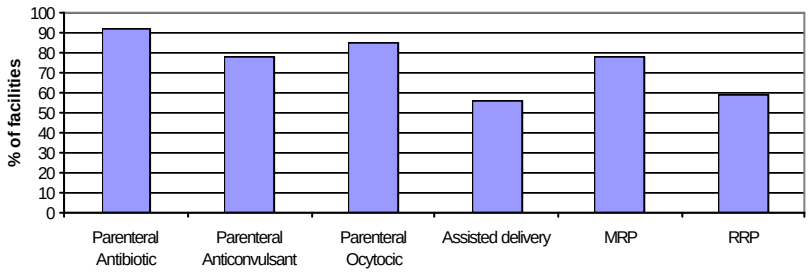
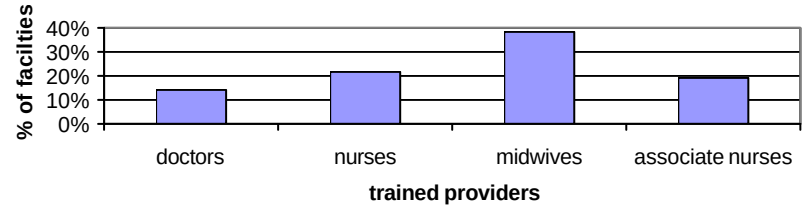
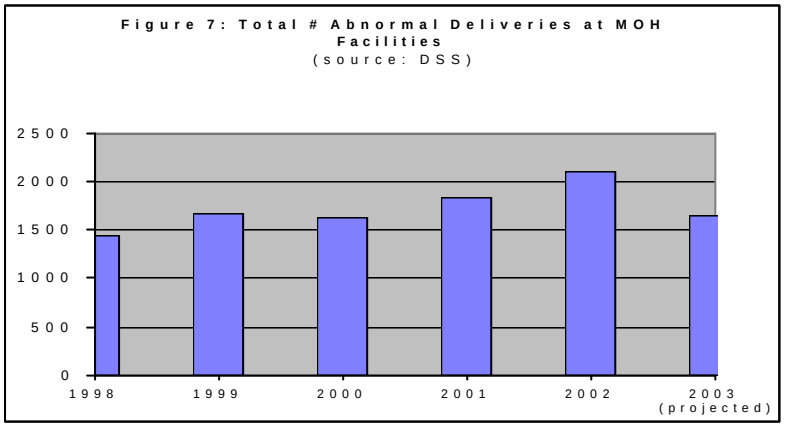


Figure 6: % of facilities with Staff Trained in EMOC/LSS by Type of Provider (n=37 facilities)

(source: 2003 MH facility survey)

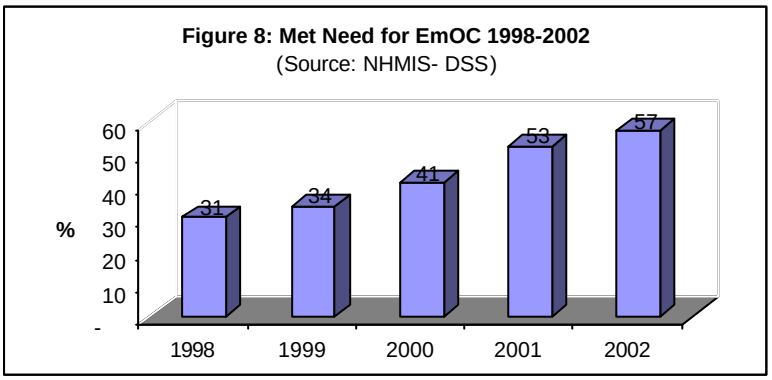


TASC's goal in supporting these trainings was to improve the quality as well as coverage of services. In the maternal health facility survey of 2003, 87 service providers were interviewed to determine knowledge level. Seventy-two percent of providers identified all major causes of postpartum hemorrhage (poor contraction, retained products, tears/lacerations). Seventy five percent of providers identified at least three of five common complications of pregnancy and 76% providers identified at least three out of four signs or symptoms of anemia. Lastly, 53% of service providers identified at least six out of nine signs or symptoms of pre-eclampsia.



TASC and the MOH adopted the maternal health process indicators used internationally as standard criteria for monitoring the use and availability of basic and comprehensive EmOC services. The EmOC facilities were then equipped according to the services expected for each level, i.e. basic and comprehensive emergency obstetric care levels. More than 50% of the 27 facilities (hospital, health center and health station) expected to provide basic EmOC (BEmOC) in the 2003 survey were found to perform all five BEmOC functions (parenteral antibiotic, parenteral anticonvulsant, parenteral oxcytocic, assisted delivery, manual removal of placenta and removal of retained products). Of these functions, facilities tend to be weakest in Assisted delivery (55.6%), RRP (59.3%), MRP (77.8%), and parenteral anticonvulsants (77.8%). This is likely because of staffing pattern and health centers and trained service staff does not consistently staff stations in rural facilities. For comprehensive emergency obstetric care (CEmOC), the sites must perform the basic functions plus surgery (cesarean section) and blood transfusion. In 2003, 7 out of 11 hospitals satisfied the criteria, essentially the same as in the baseline study of 2002. The four that do not offer all functions are Berentu, Adi Quala, Senafe and Edaga Hamus, and the services most frequently not offered were Caesarian sections (four sites), blood transfusions (two sites), assisted deliveries (one site) and removal of retained placenta (one site). As we mentioned, meeting the criteria for these functions does not only depend on having the needed equipment, it also requires having the qualified staff to perform the function. Doctors are required to conduct cesarean sections, resuscitate women in critical conditions, and make decisions on critical care needed.

Figure 8: Met Need for EmOC 1998-2002
(Source: NHMIS- DSS)



With the exception of 2003, there has been an overall increase in C-section and complicated deliveries at MOH facilities which is confirmed by the DSS. Again, with the exception of the 2003 projection, the following graph shows an increase in the total number of abnormal deliveries at MOH health facilities.

This increase in obstetric complications does not necessarily indicate that there are more complications. More likely, the number of women who are delivering complicated cases at a MOH health facility has increased. This translates into an increased met need of all births with complications (abortion care and counseling) attended to at an EmOC facility.

As seen in Figure 8, the estimated met need for EmOC services is increasing. This calculation was based on the percentage of all emergencies (15% of all pregnancies are expected to suffer from complications) managed in a health facility. Using data from the NHMIS in February 2003, TASC estimated that the met need has increased from 31% in 1998 to about 57% in 2002. Although the methodology for this indicator was not rigorous because of lack of an accurate denominator, there is an increasing trend that shows progress. The increasing met need is also substantiated by the focus-group findings in the TTBA 2002 study. The increase in met need is due in part to better equipped and staffed facilities as well as better linkage with the community regarding awareness of obstetric emergency danger signs and actions.

NHMIS/DSS shows that abortion complications rank high (ranged from 67%-63% between 1998 and 2002 respectively) of the most common inpatient incidence of obstetric emergencies in hospitals and health centers, indicating a need to focus on both postabortion care and family planning.

Figure 9: Family Planning Availability
Health Center level

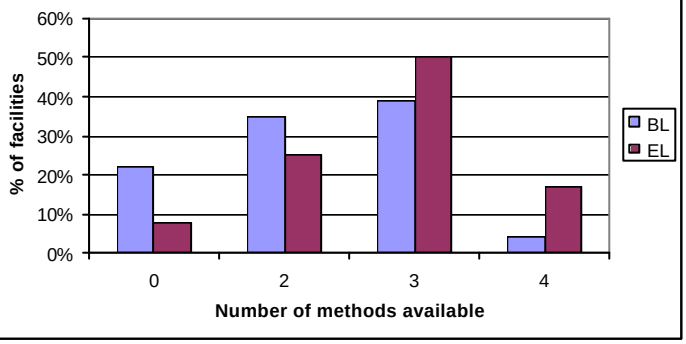


Figure 10: Family Planning Availability
Hospital level

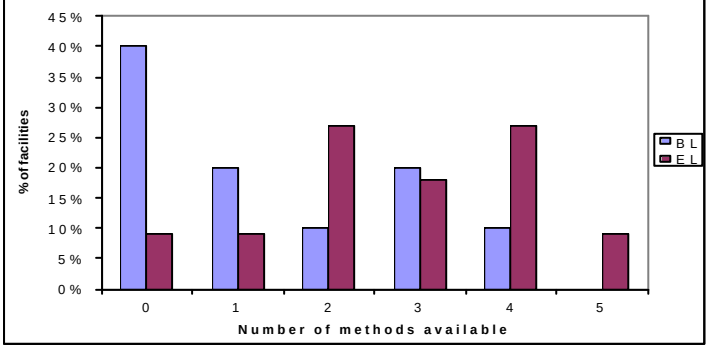
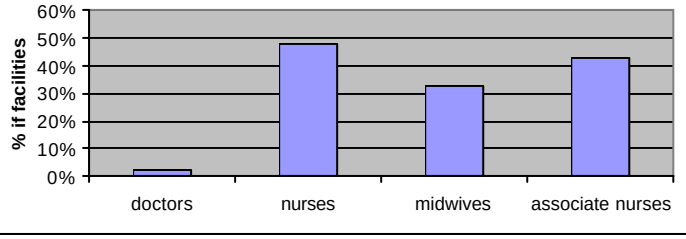


Figure 11: % of Facilities with Staff Trained in FP/RH
by Type of Service Provider
(source: 2003 MH facility survey)



Family planning

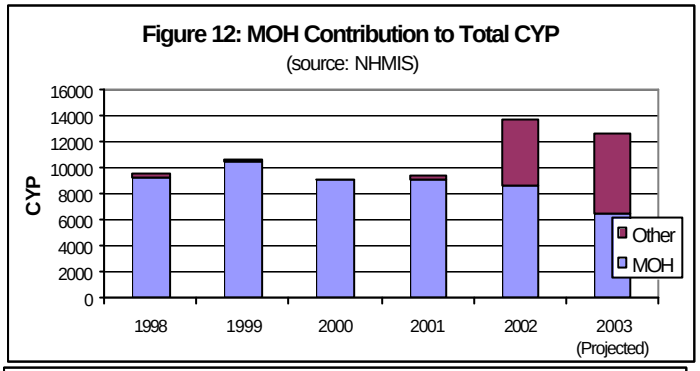
As indicated earlier, family planning is an important intervention in reducing maternal mortality. According to the DHS, CPR for modern methods has increased from 3.1% in 1995 to 3.8% in 2002. This is likely due to an increase in awareness of and demand for family planning, increased number of service providers trained, and improved commodity availability. The 2002 DHS indicates that the proportion of currently married women of reproductive age who know at least one modern family planning method has increased from 62% in 1995 to 85% in 2002.

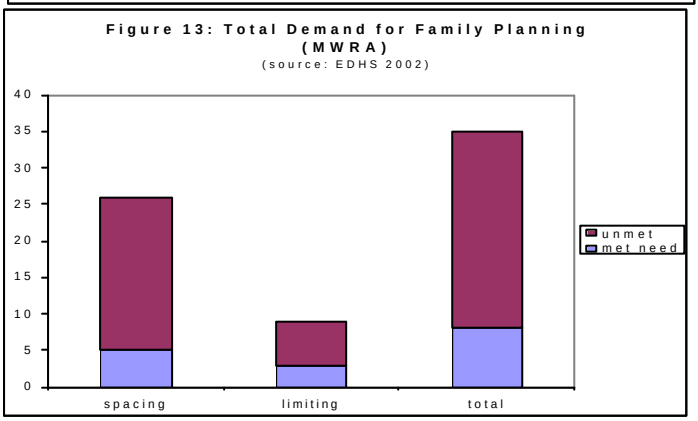
Determining through initial needs assessments that few service providers had been trained in family planning/reproductive health, TASC focused significant efforts on building the training capacity, the number trained and the coverage. According to the 2003 endline study that evaluated 37 health facilities, there was a moderate number of facilities with one or more staff trained in FP/RH. Of particular note is the percentage of facilities with associate nurses and nurses trained, as these are typically the first point of interaction with the client. The above graph shoes the percentage of facilities that have at least one of each type of service provider trained in family planning. Overall, by the end of the project 70% of facilities had at least one staff member trained in family

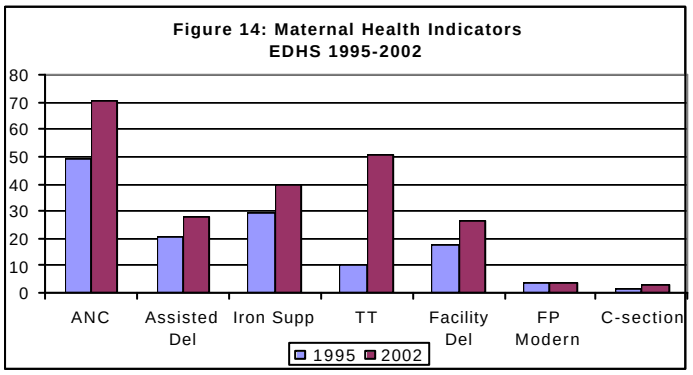
planning, representing an improvement over the project's initiation, but still leaving substantial room for further improvement.

In conjunction with activities targeted to improve the skills of service providers, TASC and the MOH worked to ensure product availability through ongoing follow up visits to improve the processes.

Between the baseline (2002) and endline (2003) studies there is an increase in product availability at both the health center and hospital level. However, each should have more available as well as an increase in method mix. For example, health centers should have a full range of products—defined as condoms, pills, injectables and IUDs—while a full range of methods at the hospital level consists of these methods plus implants and surgical methods. Less than 20% of health centers and less than 10% of hospitals were found to have a full range of methods.







While the CPR in Eritrea has increased, it is still very low. This is confirmed by the relatively stagnant CYP trend. Any increase made in CYP appears to be contributed by health facilities other than MOH sites.

The lack of MOH "share" of CYP may be due to insufficient product availability or an increased effort by NGO/other sites. Given the high unmet need, the MOH can play a significant role in the provision of FP and it is discouraging to see the downward trend in MOH CYP since 1999. In considering Figure 13, total demand for family planning (currently met and unmet) is 35%, with unmet demand four times that of the met demand.

In comparing the 1995 and 2002 DHS, all maternal health outcome indicators have increased, as is evident in Figure 14. TASC and the MOH contributed to many of these improvements. While this shows remarkable progress, the above findings also identify some areas for future focus and continued effort. The following section highlights some of the challenges and recommendations.

Challenges and Recommendations

TASC/Eritrea's strategy with the MOH was part of a continuum of a long-term effort to further improve the health status of women. There is more to be done encourage women to seek routine prenatal care and to increase awareness of basic obstetric warning signs. It is recommended that the MOH continue its holistic approach with an emphasis on:

- **Staffing and Resources:** Currently, there appears to be an inequitable distribution and insufficient number of midwives. The MOH and TASC responded to this gap by upgrading the lower cadre of service providers and training general practitioners in handling obstetric emergencies and emergency surgery. It is recommended that longer-term efforts focus on mechanisms for redistributing staff and training more midwives in the country. Improved coverage should respond to the findings in the EmOC section indicating that some of the facilities are not performing the basic or comprehensive functions.

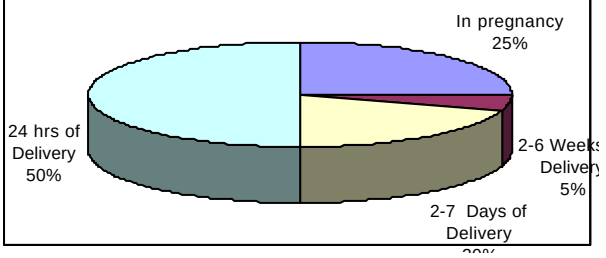
- **Interpersonal communication and counseling emphasis (IPCC):** Health providers' interpersonal communication and counseling skills need to be continuously emphasized so they can meet clients' needs in providing information.

- **Antenatal care (ANC):** According to both the DHS and the DSS, the quality of ANC visits needs to be improved. To determine whether the focus should be on training, supervision, protocols, or supplies, it is recommended that a root analysis be conducted.

- **Community-health system linkages:**
  - To address high ANC drop out and further increase the number of women (particularly in rural areas) delivering in facilities, TASC recommends that continued focus be placed on elevating the role of the partner; using the village health committee as an entry point and mobilize for change. JSI also recommends tapping into the TBAs' knowledge and roles and relations with expectant mothers and improving their relations with the MOH health system and providers. More information is needed about the type of care provided, patient outcomes, and the effectiveness of treatment in different geographic areas and facility in order to develop appropriate messages and address BCC in an integrated fashion at the community level.

  - The availability of early client referral, transport and communication at health stations will help link the health station and health facility level. At the community level, strategies should be explored to improve communications and transport systems to address the common barrier of lack of transport. This will positively affect clients who need to be moved to the next level of service.

Figure 15: When Do Maternal Deaths Occur?



- There are currently initiatives to introduce maternity waiting homes in Eritrea. The expectation is that these homes will address the problems mothers experience reaching a health facility at delivery time. The cultural feasibility, cost, and efficacy of these initiatives should be further investigated to determine if they should be replicated throughout the country.

- In order to treat life-threatening complications of postpartum hemorrage (PPH), eclampsia and puerperal sepsis, parenteral drugs need to be made available as near to communities as

possible. Availability of parenteral oxytocics, anticonvulsants, and antibiotics is essential at the health station level. Consideration should be given to train CHAs in the administration of parenteral oxytocin to control PPH at village level where access to a health facility is more than a one-hour walk.

- **Referral system:** Building effective referral systems that ensure that women who need emergency attention at the next level reach there in time are critical. This requires good communication, the availability of appropriate transportation and timely decision-making based on recognition of the need at different levels of care—from community to the higher levels of care giving settings.

- **Postabortion Care:** Postabortion care should include emergency treatment of abortion complications, family planning counseling, services and commodities and referral links to reproductive health services. Emphasis should be placed on improving the quality of postabortion care services and decreasing provider bias and discriminating behaviors that may target unmarried women. Additionally, greater emphasis should be focused on preventing unwanted pregnancies that may result in unsafe abortions. Strengthening family planning services and adolescent reproductive health services are two such strategies. The TASC/MOH implemented a PAC pilot study, indicating that there is a definite need for this service and the MOH should consider expanding the pilot to other areas.

- **Family planning/contraceptive security:** Unmet need for family planning is very high showing there *IS* demand for FP. Therefore adequate supply and availability of contraceptives is critical. Interventions should be identified to ensure contraceptive security (the assurance that no one be denied a family planning method when they need or want one). Continued focus on family planning training to ensure quality coverage at facilities is recommended. Additionally, by bringing family planning methods to the community, the introduction of community-based distributors would likely reduce access barriers and increase family planning use.

- **Adolescent reproductive health:** Adolescents, in particular unmarried adolescents, are a hard to reach group in Eritrea. They are also the future users of the reproductive health system. While indigenous NGOs such as the National Union of Eritrean Youth and Students (NUEYS) and Family Reproductive Health Assistance of Eritrea (FRHAE) are focusing on this target population, the MOH needs a comprehensive and coordinated adolescent reproductive health strategy. The efforts should be broad based and multisectoral, ensure the participation of youth in the design of strategies and activities, and community based to breakdown existing barriers facing youth.

- **Supervision:** Improved management of facilities and participatory/facilitative supervision and mentoring need to be institutionalized. For example, supervisory records can be better used for monitoring.

- **Postnatal care:** According to global findings, a majority of maternal deaths occur during the postnatal period. The EDHS further indicates that only 13% of mothers received vitamin A supplement during the two-month postpartum period of their last-born in the five years preceding the 2002 DHS. Postnatal care needs to be emphasized as part of the safe motherhood strategy.

- **Linkage with child health.** One of the IMCI recommendations is that there should be a focus on reducing the neonatal mortality rate. This is largely done through an increased focus on the mother and maternal health. There is also a recommendation in the IMCI section of this report to focus on adolescent health which also links with maternal and reproductive health. The MOH units should continue to look for overlapping issues and coordinate strategies.

- **Commitment to maternal health:** The pathway to maternal health is a slow process without "quick fixes" and immediate results. Despite this, it is critical that donors and the GOE and other stakeholders continue making it a priority.

INTERGRATED MANAGEMENT OF CHILDHOOD ILLNESSES (IMCI)

From the recognition of illnesses at the community level to care seeking patterns and quality of care at facilities, TASC and the MOH have ensured that the Pathway to Survival is well documented and understood.

Although there is evidence of a decline in recent years, childhood mortality in Eritrea is still high and child health continues to be a top priority for the MOH. As in many developing countries in the region, a large proportion of the causes of the mortality and morbidity are preventable. Under the Child Health Program, TASC/Eritrea and the MOH continued to build on progress made by the MOH PHC unit in the expansion of the integrated management of childhood illness. *IMCI focuses on changing key family and community practices to improve the health and survival of children under five in communities.* TASC and the MOH used this strategy as a foundation to build the capacity of the health system, health workers, families and communities to promote child health. An integrated approach to these elements ensures a comprehensive program. *While each element is critical, building linkages between them is key to success.*

WHO introduced the IMCI strategy in 1995. Since then, IMCI has been implemented and tested in more than 75 countries including most of sub-Saharan Africa, Latin America, and Southern and Central Asia. Through the BASICS Project and JSI's Center for Child Health, JSI has contributed to many of the efforts worldwide and has participated in updating and improving the strategy and corresponding tools. Based on these lessons and experiences, TASC supported the Eritrea MOH in designing their overall IMCI strategy. The desire was to not reinvent the wheel but to learn from both positive and negative lessons of other countries and to rely on the underlying concepts to ensure responsiveness to specific needs.

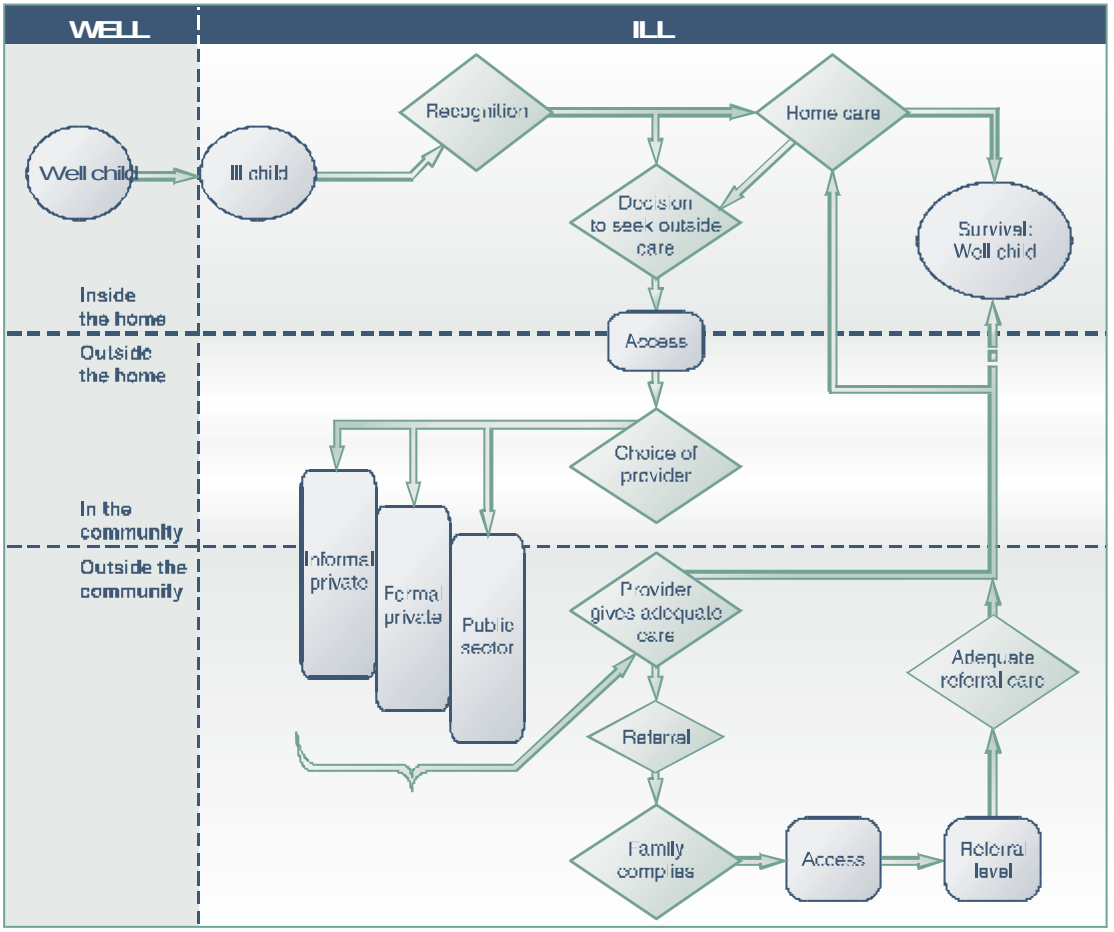
The MOH adopted WHO's IMCI strategy as the most cost-effective way to rapidly improve health worker case management skills.

In late 1995, with support from BASICS I, the MOH began the introductory phase of IMCI. As a result of the war with Ethiopia, the introductory process took longer than expected. TASC re-energized the IMCI strategy and all activities and materials were completed soon after the project start in 2000. While designing the IMCI strategy in Eritrea, TASC and the MOH looked to the wide array of experiences and lessons learned from other country efforts. It was, therefore, to Eritrea's advantage that the adoption of this strategy occurred after the IMCI approach had been launched in other countries.

TASC and the MOH recognized early on that improvements to child health in Eritrea needed to come from understanding and documenting community and facility-based behaviors. From the recognition of illness at the community level, to care seeking patterns, to quality of care at facilities, TASC and the MOH have ensured that the Pathway to Survival (a concept developed by the CDC, BASICS and USAID) is well documented and understood. Figure 16, shows the conceptual framework for most TASC and MOH research and actions in child health.

TASC focused on improving health worker performance and ultimately, health status.

The Child Health Unit of the MOH, with support from TASC and other partners, has documented and/or taken action on most steps in the Pathway to Survival. Research and interventions have addressed community knowledge, attitudes, and practices on most major illnesses, providing an understanding of how caretakers recognize illness and the decision making process involved in seeking care. The quality of care in primary level OPDs was documented in two surveys (HFA 2000 and 2003). The referral process was documented and is well understood, and, finally, the quality of care for hospitalized children has been assessed. Thus, the MOH Child Health Program is aware of the complete process of childcare from community to specialized medical care.



With TASC support, the MOH followed a three-component approach to implement IMCI:

- Improve health workers' skills
- Strengthen health facility support for the care of children
- Promote community involvement in child health

TASC Activities/Interventions

With TASC support, the MOH has developed a multi year workplan for IMCI implementation. The plan called for the establishment of a baseline of health

worker skills and health facility capacity in child health as the foundation for IMCI implementation. The findings from the health facility assessment (HFA), conducted in November 2000 using local expertise, indicated that although the physical infrastructure and commodity supply were in place to provide quality care, in fact, the care of sick children in facilities was poor and needed to be improved. By pinpointing specific problems and deficiencies, the TASC-supported HFA became *de facto* the most important source of data and information on the quality of child health services in Eritrea. The HFA is often quoted and used by many international organizations and collaborating agencies when discussing, planning and evaluating actions to improve child health.

Improving the skills of health workers

Overall, more than 995 people were trained or oriented in IMCI

In order to improve health workers skills, TASC built upon work by WHO, UNICEF, and BASICS. TASC supported the adaptation of case management guidelines and the development of the IMCI chart booklet, which has become the most important guideline for the care of the sick child in Eritrea. Another key activity was adapting and reproducing IMCI training materials, charts, and support materials. Once the materials were adapted, a comprehensive training plan was developed jointly with the MOH for training health workers at the primary level. The IMCI was new and no service providers had been trained in the approach. Therefore, training dealt with all the major causes of morbidity and mortality in Eritrea—malaria, pneumonia, diarrhea, malnutrition, measles, and ear infection. Additionally, for the first time in the care of sick children in Eritrea, IMCI training introduced counseling techniques to improve compliance by caretakers. TASC emerged as the principal supporter of the IMCI strategy in general and in building national training capacity for training primary level workers in particular. In 2003, WHO and UNICEF began supporting the in country training—ensuring a smooth transition of IMCI work as TASC was ending.

National—and zoba—level cadres of IMCI facilitators have been developed, creating an institutionalized capacity for IMCI training that will serve the country for years to come. The WHO-recommended ratio of one facilitator per four trainees was reached at the central and zoba levels. Additionally, TASC supported establishment and equipping of five IMCI training sites in Mendefera, Keren, Tesseney, Massawa, and Asmara.

Overall, more than 995 people were trained or oriented in IMCI in 42 training sessions supported by TASC:

- 512 health providers (nurses and doctors) were trained in IMCI case management
- 58 health workers were trained as IMCI facilitators
- 41nurses and doctors were trained for IMCI follow-up
- 51 nurses and doctors attended IMCI annual review sessions
- 78 nurses and doctors attended "Improving the care of hospitalized children" workshop (QAP activity with TASC support)
- 81 nurses attended IMCI refresher course
- 60 nurses and doctors were trained in household IMCI planning
- 22 Senior physicians and nurses attended a advanced pediatric life support resuscitation training in Asmara
- 9 MOH staff participated in IMCI study tour in Madagascar

Strengthening Health System Supports

TASC work to strengthen IMCI health system supports included research, documentation and interventions to improve:

- Zoba planning and management
- Availability of IMCI drugs and medical commodities
- Organization of work at health facilities for greater efficiency
- Quality improvement and supervision at health facilities
- Referral pathways and services
- Health information systems
- IMCI and health sector reforms

Linking training to monitoring and supervision is a critical aspect of this component, serving to reinforce skills, identify problems and solutions, collect data, and improve program planning and action through:

- A continuous monitoring process at central, zoba, and facility levels using quality assurance concepts that encourage reporting of activities and documentation and review of the implementation process.
- Quarterly visits by central staff to regional units.

Most of IMCI's impact on infant and child mortality will come from the ability of health workers to adequately refer severe cases and from caretakers' compliance with referral.

A key element of the IMCI strategy is the detection and referral of severely ill children. In fact, research on referral has been neglected in most countries where IMCI is implemented. In this regard, the Eritrean MOH was a pioneer conducting such research and helping to develop tools for the assessment of referral pathways and compliance. The "Status of Referral in Eritrea – Analysis of Referral Pathways in Children Under Five" found that only 38 percent of referred children are actually taken to the next level of care (compliance). This important finding has been incorporated into standard IMCI training to emphasize the use of referral slips and appropriate referral counseling. The tools originally developed in Eritrea were subsequently tested in Ghana and will soon be published by the BASICS II Project for global use.

Available data from some countries indicate that 40-80% of all child deaths occurs in the home without receiving any care from a trained health worker or attending a health facility. In Eritrea the discrepancy between official mortality records and the prevalent mortality rates indicates that a substantial number of child deaths go unreported with most of them probably occurring in communities.

TASC's strategy to institutionalize IMCI in Eritrea was to ensure that the national IMCI/Child Health Unit not only received technical support, but also was made aware of experiences and resources available for IMCI globally. The MOH focal person for IMCI traveled to WHO headquarters to visit the Child and Adolescent Health Department—the department responsible for IMCI worldwide—to be briefed on all aspects of IMCI implementation. Additionally, he traveled to Madagascar and Uganda to see first hand some of the best African examples of IMCI implementation. Finally, the focal person traveled to Washington, D.C., to present the Eritrean experience in IMCI at the Global Health Council Annual Meeting in 2003. He has used his new knowledge and national implementation has benefited from his exposure to other experiences.

There has clearly been significant knowledge and leadership transfer within the IMCI unit. For example, in September 2000, TASC/Eritrea managed and facilitated national planning in IMCI and the national consensus workshop with the MOH, and other stakeholders, resulting in a two-year workplan. Two years later, the MOH in collaboration with WHO and UNICEF, lead a national review of the IMCI strategy and developed an updated workplan. TASC was the lead supporter of this review.

Capacity in IMCI has been decentralized through the development of IMCI focal persons and the identification and training of facilitators/trainers and supervisors in each zoba. In addition, with TASC support, QAP developed self-assessment tools that are currently in use in three zobas. TASC/Eritrea has also supported follow up and supervision visits from the national level to the zobas and from zobas to districts. This strong support to follow up and supervision by TASC was one of the principal reasons for the improvements in case management documented by the health facility survey.

In addition to strengthening institutional capacity in IMCI at the central and zoba levels, TASC and the MOH worked to integrate the approach among other technical units and programs through regional networking and national meetings. Environmental health, malaria control, nutrition, EPI, and IEC, safe motherhood community health services program, CDC division, clinical services division, research and HRD and pharmaceutical services department all contributed to the implementation of IMCI. For example, the Malaria and IMCI teams agreed to work together to reduce overlap and maximize impact. For this purpose, the malaria team requested the IMCI unit provide training in the management of malaria in children.

Improving Family and Community Practice

Success in reducing childhood mortality and morbidity requires more than quality health facilities and well-trained health workers. Parents and communities shoulder an enormous responsibility in the health of their children. WHO community interventions seek to initiate, reinforce, and sustain household practices that are important for child survival, growth and development within the framework of community capacity development. Promoting health and preventing disease and death and the formation of strong links between the home and the health facility and between the caretaker/parent and the trained health worker are essential aspects of improving family and community health.

In September 2001, TASC supported a national consensus building, orientation, and planning workshop to determine the way forward and strategies needed for community IMCI. At the meeting, stakeholders agreed on 16 key behaviors at community level for the survival of children, focusing on growth promotion, disease prevention, home management of illness, care seeking, and compliance with treatment.

TASC followed up the September meeting with support to the development of the Household and Community IMCI Strategy (HH/C-IMCI) in early 2002. The current strategy is designed to use a multi-sectoral platform on which to launch interventions to improve the health of children and their mothers in communities. This platform will initially include partners in the Ministries of Agriculture and Education, but additional partners will be sought as the strategy evolves and matures. The strategy has three key elements:

1) Improving partnerships between health facilities and the communities they serve

2) Increasing appropriate and accessible health care and information from community-based providers
3) Integrating promotion of family practices critical for child health and nutrition

To support the HH/C-IMCI strategy, TASC/Eritrea worked with the MOH to develop IEC materials that help make facilities and service providers more client oriented and user friendly. For example, TASC developed Mother's Cards in Tigrigna, Tigre, Arabic and Kunama as well as wall charts for job aids and IEC posters and flip charts for recognition of diarrhea and ort use, malaria prevention, environmental sanitation and nutrition for children.

Additionally, TASC has provided support to the development of a picture-based community health worker chart booklet for managing child illness in the community as well as training guidelines and other educational materials for training community health workers. Importantly, TASC was key in helping the Child Health Unit convince national authorities to allow community health workers to dispense cotrimoxacole for the treatment of pneumonia at the community level under certain circumstances.

Results

The IMCI strategy in Eritrea received strong technical and operational support from TASC and has resulted in significant and verifiable advances in the management of sick children in public health facilities.

The focus on training was in direct response to one of the findings of the baseline health facility survey (HFS) indicating that care of sick children in facilities needed to be improved.

The results of the above interventions were determined mostly through the endline HFA conducted in October 2003. In comparing findings from this survey with those from the baseline HFA (2000), TASC, the MOH identified significant advances on which to build on as well as a series of lessons that will help the MOH fine tune the strategy in the future.

Health Worker Knowledge and Skills

As a result of IMCI training, there is now increased access and coverage of appropriate case management of children under five in health facilities. According to the HFA, 69% (31 out of 45 facilities) of facilities have trained IMCI personnel (at least one person trained). Additionally, of the total cases reviewed in the HFA (n=214), 127 (59%) were seen by an IMCI trained provider

A section of the HFA assessed knowledge of health workers to determine retention of training. According to the findings, a majority of the health workers know the appropriate schedules for all EPI vaccines; 90% of health workers knew how to interpret growth charts; all responded correctly that they would provide ORS for a child with watery diarrhea with no dehydration and 30 out of 31 health workers responded correctly to how they would reduce fever.

Despite these findings, a few areas still need improvement. Importantly, there is some confusion as to when to withhold vaccines from sick children. Also, few health workers knew the general danger signs that should cause them to refer a child to hospital.

While coverage and knowledge are important indicators, the application of skills by these trained providers is what counts. The endline helps us see changes in aspects of the facility and provider performance. Most of the indicators

mentioned below are WHO-CAH recommended IMCI indicators with precise definitions and formulas and comparable with any other conducted in the world. It should also be kept in mind that only 59 percent of cases were seen by an IMCI-trained provider, hence most IMCI indicators would not be expected to exceed 59 percent unless some spill over occurred (trained health workers teaching non-trained health workers). Also observed are indicators related to malaria and EPI training.

Assessment

There has been a dramatic improvement in the assessment skills of health workers since the beginning of implementation of the IMCI strategy (see Table 1). In the baseline, temperature was measured for only 26 percent of observed cases, compared to 71 percent in the current survey. Health workers also assessed the presence of fever by either asking or feeling for fever in 91 percent of all observed cases.

One of the critical assessment tasks in the IMCI guidelines is to check for general danger signs (i.e., convulsions, inability to drink or breastfeed, and vomiting everything) of all sick children presenting at the facility. These general danger signs have been shown to be essential factors in determining whether a child is severely ill and needs referral. A child in which at least one general danger sign is detected should be immediately referred to a higher-level facility. The checking of all three danger signs increased from zero to 37 percent (79 out of 214 observed children. The percentage of cases that were checked for at least two danger signs increased from 8 percent to 50 percent of observed cases (see Figure 17). Most improvements occurred among health workers trained in IMCI.

Table 1: Assessment Indicators

Indicator	Percentage Index 2000	Percentage Index 2003
Children checked for three danger signs	0.0	36.9
Children checked for two danger signs	8.0	50.0
Index of integrated assessment (max 10)	2.9	6.2
Children checked for cough, diarrhea and fever	25.3	89.0
Children under two years assessed for feeding practices	1	31.3
Index of children under two years assessed for feeding practices (max 3)	0.5	1.7
Underweight children who are assessed for feeding problems	0.0	21.1
Children whose weight is checked against a growth chart	2.1	53.3
Children whose vaccination is checked	18.5	58.0

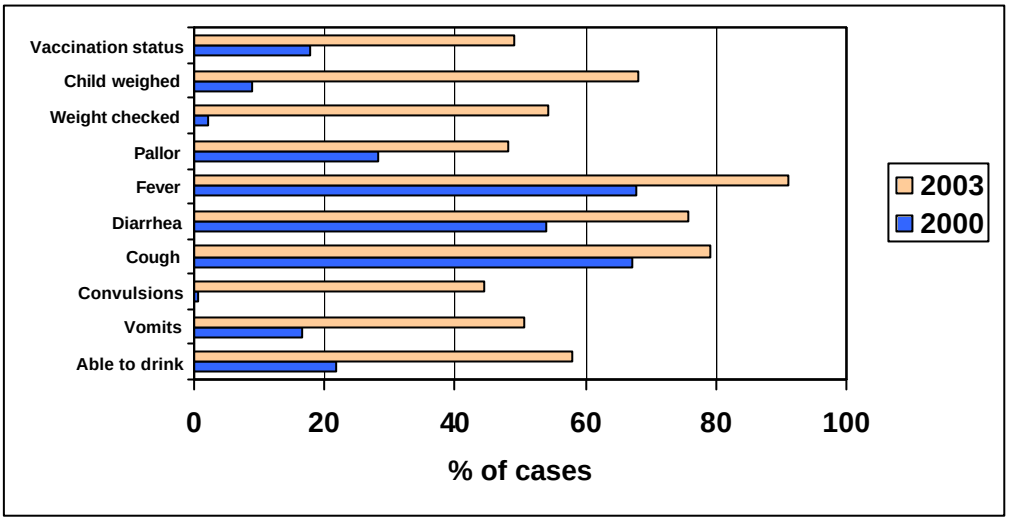


Figure 17 shows ten tasks that are key for the integrated assessment of a sick child. Some of these tasks are simply asking a particular question (e.g., does the child have fever, diarrhea, cough, convulsions, vomiting, or is the child unable to drink). Other tasks require the health worker to do a physical examination (e.g., check child's weight, palmar pallor, fever). In all cases there were significant improvements from baseline. When non-trained IMCI health workers are factored out, then it is clear that most of the improvement is related to IMCI training.

Classification and treatment

Once the assessment of the sick child is completed, health workers classify the condition and select the appropriate treatment. Treatment includes the use of antibiotics, anti-malarials, paracetamol, or other drugs. Referral recommend-ations and home care are part of treatment.

Oral antibiotic therapy is recommended for a limited number of conditions and a key concern of the IMCI guidelines is the reduction of the overuse of antibiotics. Table 2 shows that in 31.8 percent of conditions, antibiotics were used inappropriately in 2003 while 46.8 were inappropriate in 2000.

Table 2: Treatment Indicators

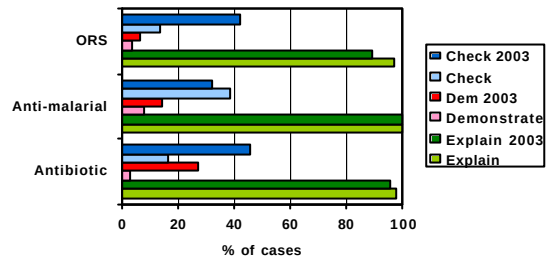
Indicator	Percentage Index 2000	Percentage Index 2003
Children who are inappropriately treated with an antibiotic	46.8	31.8
Percent of children needing an oral antibiotic who are prescribed the antibiotic correctly	55.6	60
Percent of children with pneumonia correctly treated	63.3	62.2
Percent of children with malaria correctly treated	11.4	23.7
Percent of children who receive first dose of treatment at facility	1.1	20.3

Although almost all health workers were aware that pneumonia needed to be treated with an antibiotic, "correctness of treatment" did not change much from baseline and it held at 62-63 percent. It is very probable that this apparent lack of change is due to observer bias. It appears that observers were more stringent in applying the operational definition of "correctly treated" in 2003 than in 2000. Also, this indicator is based on "validated" diagnosis by the observer. In the cases where the health worker missed the correct diagnosis, then it is counted as incorrectly treated, which would tend to decrease the "correctly treated" pneumonias. Malaria treatment improved significantly, but it is still below acceptable standards.

Counseling

The final stage of the IMCI consultation is the counseling of caretakers. Counseling includes giving specific recommendations on how to give the treatment, to give extra fluids and feeding, and on when to come back for follow-up or when to return immediately. Counseling messages are patterned for each classification, and they are prioritized so the caretaker is not overwhelmed with instructions.

Figure 18: Counseling actions for medications



Generally, this was the weakest area of sick child consultations, but there have been marked improvements in the counseling of caretakers. Although health workers and dispensers usually gave appropriate instruction on how to give medications (Figure 18), few medication dispensations were accompanied by demonstrations on how to give the medication, nor did health workers assure that the caretaker understood the treatments given by asking checking questions. When antibiotic treatments were given, 46 percent of caretakers were asked any sort of checking question, which is an increase from 16 percent from the baseline. There was also an increase in asking checking questions with ORS recommendations from 13 percent to 42 percent.

The more general counseling messages of: (1) feeding during illness, (2) when to come back for follow up and, (3) when to come back immediately, were infrequently conveyed by health workers in the baseline. Recommendations to continue feeding increased from 7 percent to 49 percent of cases. The number of caretakers advised on when to return immediately was less than 1 percent in the baseline, and in the 2003 study, 47 percent of caretakers were advised.

Client Knowledge/Capacity

The ability of the caregiver to retain a message provided during consultation indicates both the performance of the service provider to give all the necessary information in a client oriented way, as well as the capacity of the caregiver who now has the knowledge to change their health practices. Generally, there was a decline in caretaker knowledge of how to give antibiotics and anti-malarials, although there was an increase in knowledge of when to return immediately, and how to give appropriate home treatment. During the baseline, the health workers were only providing information on how to give the prescribed treatment to their child. In the IMCI protocol, health workers are now required to convey several messages; messages on treatment, appropriate feeding, and when to return to the facilities. With the increased number of messages during the consultation, it is possible that there would be a decrease in retention of certain messages to the caretaker.

Table 3: Caretaker Indicators

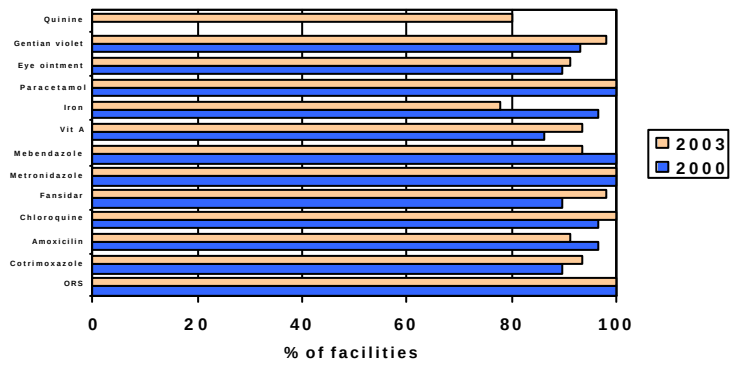
Indicator	Percentage Index 2000	Percentage Index 2003
Caretakers who are prescribed ORS and know how to give treatment	59	52
Caretakers who are prescribed an antibiotic and know how to give treatment	92	68
Caretakers who are prescribed an anti-malarial and know how to give treatment	92	75
Caretakers who know when to come back immediately	23	65
Caretakers who believe their children were seriously ill when they came to the facility	51	45
Average time from appearance of first symptoms of illness and attendance at the clinic	3.7 days	3.6
Caretakers who provided appropriate home care for diarrhea/cough/fever before coming to the facility	0	19
Caretakers who gave dangerous home care before coming to the health facility	0	0
Caretakers who sought care elsewhere before coming to the facility	8	7

Health system strengthening

Health system supports such as supervision, drug supply, quality assurance among others are key to IMCI implementation. In this regard, important successes were achieved. In addition to training, TASC and the MOH enabled facilities with the supporting infrastructure to provide IMCI services. In 69 percent of facilities, all essential IMCI equipment and materials were available on the day of the survey in health facilities, a substantial increase from 14 percent in the baseline.

Another example of TASC's work was the noticeable increase in the percentage of facilities receiving supervision, both in general and specific to IMCI. Of the 37 (82 percent) facilities that received a supervisory visit within the last three months, 62 percent of them (23 facilities) were for **IMCI follow-up supervision** in combination with other types of supervision. Of the facilities that received IMCI follow-up supervision, 87 percent observed case management of sick children. According to baseline findings, 69% of facilities received a supervisory visit and 49% of these were in case management of the sick child (note: baseline is for visits in the last six months). TASC supported every aspect of supervision.

Figure 19
Oral drugs available in health facilities

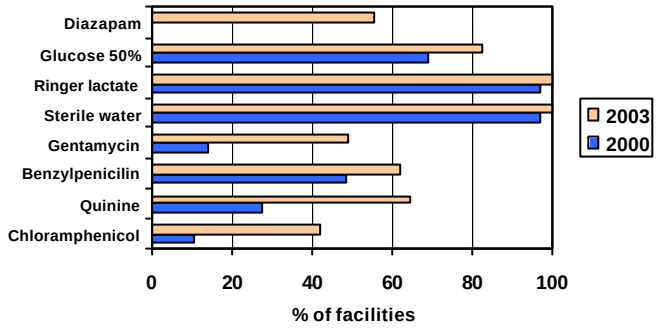


Oral medicines are one of the key elements of the management of child diseases and the success of the IMCI strategy. The Eritrea adapted, WHO-CAH essential drug index includes ORS, cotrimoxazole, chloroquine, fansidar, Vitamin A, iron, and paracetemol. Almost 70 percent of facilities had all the essential IMCI oral drugs available on the

day of the survey. Most often, iron and vitamin A capsules were medicines were not available. A drug was considered to be present if at least one full treatment was available in the facility on the day of the survey. Quinine was added to the drugs checklist in the 2003 assessment and it was available in 80 percent of the facilities. There were increases in the availability of most oral drugs but for iron and amoxicillin. The availability of IMCI essential drugs is one factor positively influencing the treatment indicators.

The initiation of injectable therapy for severely ill children when referred to a higher-level facility is an essential element of treatment under the IMCI guidelines. The importance of injectable drugs is magnified when referral is not possible and health workers must treat the severely ill child at the facility. The essential injectable drugs are quinine, gentamycin, benzylpenicillin, chloramphenicol, and diazepam. Although there have been general increases in the availability of the essential injectable drugs, most notably in chloramphenicol and gentamycin (Figure 20), they were all available in only 36 percent of the facilities. As in the baseline, health stations had a higher likelihood of not having injectable drugs than health centers or hospitals.

Figure 20
Injectable drugs available in facilities



Lessons learned and recommendations

General

- The principal lesson learned is that **IMCI works**. IMCI can significantly improve the quality of case management of sick children in public health facilities. **The Government of Eritrea should continue its implementation throughout the country and collaborating agencies should continue their support**.

- Eritrea benefited from a number of positive influences that helped them achieve success with the IMCI strategy.

  - The steadfast and continuous support from USAID through TASC allowed the strategy to have steady implementation without any major disruptions. This allowed IMCI to be disseminated in an orderly and comprehensive way. In other countries of the region where support has been erratic, the initiative has stumbled and has had serious implementation problems. But Eritrea demonstrates that **even in resource-constrained environments, as long as support is continuous and appropriate, the strategy can succeed**.

Three years into implementation, the IMCI strategy can be considered fully institutionalized.

  - Because Eritrea began implementation of IMCI later than most countries in the region, the country was able to benefit from the experiences of other countries. TASC supported a number of study tours allowing national managers to gain from the experience of others and avoid common mistakes. A typical costly mistake is immediately printing

adapted IMCI training materials in large numbers. Given that the first trainings usually identify many errors in the materials, Eritrea played it safe and only used draft materials for the first trainings, and did final printing in large quantities only once materials were deemed ready. Laying down a baseline with globally accepted indicators, which was done in only a few African countries, enabled cooperating agencies and national authorities to have concrete evidence of the impact of IMCI. **There are a number of indicators from the health facility assessment that now should be included in regular supervision, quality assurance protocols, and information systems.** Given that not all indicators can be collected in a regular information system, the **health facility survey should be repeated every three years.**

- **The strong political support from the higher echelons of the MOH and the enthusiastic and visionary leadership of the child health unit were key in the successful implementation of the IMCI strategy**. The IMCI directive from the national level was respected and accepted at all levels of the MOH structure. This fast uptake enabled the strategy to be institutionalized faster than in other countries. In fact, at this moment, three years into implementation, the IMCI strategy can be considered fully institutionalized. Examples of this institutionalization are; that the IMCI guidelines for managing sick children are now the national guidelines for sick child care. Similarly, essential drug lists have been modified or are being modified to include all the IMCI drugs. Also, training capacities have been established at all levels. National managers had the vision to make sure that all steps of the Pathway to Survival were documented and that data existed for their evaluation. At present there is information on child care available starting in the community and ending with quality of referral care—this has been done in only a few countries in the region—and is extremely useful as all levels are interconnected and changes in one affect the others.

- The presence of drugs and other commodities in public health facilities was essential for success. Oral drugs were generally available for all the illnesses included in the IMCI strategy. This meant that generally, when a child was seen in a public health facility his/her caretakers left the facility with the appropriate drug**. IMCI would not be useful at all if oral drugs were not available**. Timers, a precious commodity and a *stimulus control* for behavior change, were very important in getting trained health workers to count respiratory rate in children with cough. Facilities where a health worker had been trained had the IMCI charts on the clinic walls. Vaccines were also generally available at most sites. The one product category not widely available was injectable IMCI drugs, though availability improved substantially since the 2000 baseline. It is often said that “no product, no program.” In the case of Eritrea, most IMCI commodities except injectables were present, enabling health workers for the most part to provide the quality care they were trained to provide.

Health Worker Skills

Although overall health worker skills in case management improved significantly, **there are areas that require additional support and re-organization:**

Counseling

- The first and most critical difficulty was with counseling—from both the health worker and caretaker standpoints. There are a few explanatory factors involved. First, IMCI training usually represents the first time that counseling for sick child case management is included in any training. As such it may be a completely new behavior to health workers. From being accustomed to delivering only one message on how to give medicine the new IMCI counseling includes messages on how to give medicine, what signs to look for, when to come back and what to feed the child. Additionally, the health worker is directed to ask "checking" questions to make sure that the caretaker understands how to give treatment; give the first dose of the medicine; and show the caretaker how to prepare the medicine. It is easy to see why counseling indicators were not as high as other skills. The global experience is that counseling is the weakest part of IMCI training.[1] The recommendation is obvious for Eritrea and globally, **the counseling component of IMCI training needs to be strengthened as soon as possible. More time should be allotted to practicing counseling, it should be more individualized to each participant, and, if necessary, experienced counselors should be brought in to teach this component of IMCI training.**

- Another important reason why counseling indicators were apparently low was because in many situations, especially in larger facilities**, the health worker assessing and diagnosing is not the same person doing treatment counseling.** Often, the caretaker is directed to the pharmacy, where the pharmacist provides all counseling. Initially, the MOH did not target pharmacists for counseling training. The MOH has now developed training for the pharmacists in counseling, a practice that should be continued and expanded.

- From the caretaker's standpoint, counseling indicators also suffered. Caretakers remembered less of how to give treatments. The most plausible explanation for this is the fact that under IMCI caretakers are asked to remember many more items in the care of their child (see above). It is highly probable that the multitude of new messages and the inadequacy their delivery by the health worker may end up confusing her. National authorities should investigate this issue further and **improve health worker counseling training, specifically which messages to deliver first, which are more important and what is the best number of message to deliver at one time. Simple qualitative research can clear this up.**

Treatment

- Treatment indicators did not show any significant positive trends and should be studied further. One cause for this may be more stringent observation in 2003. In the HFA 2003 observers were better trained and probably more adept at detecting inadequacies in treatment than the

[1] Health Facility Survey Database – World Health Organization – Child and Adolescent Health Department. Personal communication.

surveyors in 2000 who were trained in all aspects of IMCI in less than a day. Whatever the reason, **national authorities should look into this issue as soon as possible through a small scale qualitative research study and determine the probable causes for lack of progress on these indicators.**

Training

- As in the HFA 2000, the HFA 2003 identified Associate Nurses as the principal providers of childcare in primary care facilities. Professional nurses and midwives were second in the provision of care, with physicians in third place. It is apparent from the HFA results that associate nurses can do as good a job—and sometimes even better—than higher level health workers. Consequently, **frontline primary health workers like the associate nurses should be given priority in IMCI training**. Although the health system in Eritrea stills needs additional physicians—both general practitioners and specialists—in higher levels of care, the primary level can be adequately attended to, at least in child health, by nurse auxiliaries.

Health systems strengthening

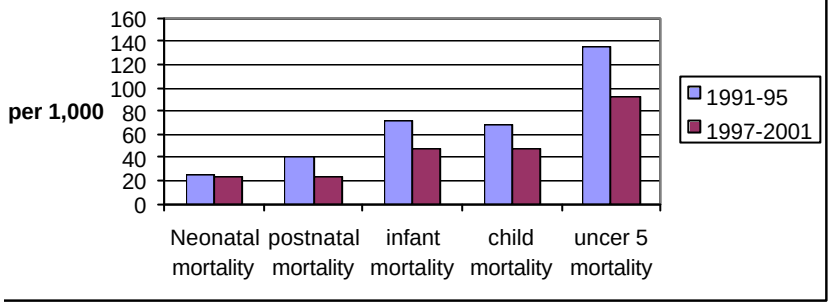
- As mentioned before**, oral drugs were generally available and contributed significantly to appropriate care in facilities,** however, injectable drugs needed for referral were frequently not available in the facilities that most need them. Although the number of referrals is small, the fact is that children who are referred are at higher risk of dying than children who can be treated at home. According to IMCI guidelines, a referred child should receive an injection before it is sent to the next level of care. These injections can be the difference between life and death and should be given as soon as possible. Unfortunately, many facilities did not have the required injectables. This should be remedied as soon as possible. **If necessary, further training should be given to nurse auxiliaries to re-enforce the need for pre-referral injections, and work may need to be undertaken with the logistics unit of the MOH to address any issues causing inadequate supply**.

Household and Community IMCI Component

- **The household and community component began late in the project and results are still being collected. This component should be of utmost importance to the MOH and will be critical in further reducing infant and child mortality**. Presently there is a large gap between official death statistics for children under five and the expected numbers of deaths according to the latest DHS rates (IMR, CMR). This means that a significant number of deaths are not being detected by official information systems. These "silent" child deaths are likely to be occurring in communities (as opposed to health facilities), in rural areas, in the less educated and poorest families. Two things must be done urgently, first, identify where and how these "silent" deaths are occurring. Either through improved reporting or through sentinel surveillance. And once these deaths are characterized, approaches to prevent them should be implemented. **Second, and this is related to the last point, the IMCI HH/C component, along with other community interventions should be emphasized to bring preventive and curative services closer to where they are needed.**

- **The IMCI HH/C strategy should be fully operationalized without creating parallel community activities and structures for IMCI.** As detailed in the strategy, IMCI should work with all of those structures and activities inside and out of the MOH (malaria, EPI, environmental health, agriculture ministry, etc.). For example, malaria community health workers can be tapped to support IMCI activities in their communities. Similarly, the agricultural extensionists can be given some IMCI training. Such collaborative approach will not make HH/C IMCI more effective, but it will be easier to institutionalize and costs will be less than if a complete parallel structure is created.

Figure 21: Trends in Childhood Mortality



- Encourage community-based management of pneumonia. Imbedded in the HH/C strategy is the idea of **allowing, under certain circumstances, community health workers to diagnose and treat pneumonia with cotrimoxazole.** Recent research[2] indicates that there is a significant impact on neonatal, infant, and preschool mortality. Although this approach should be followed nationally, it certainly can be useful in areas where the epidemiological and infrastructure conditions require it.

General Comments

Recent DHS data show that Eritrea is reaching an epidemiological threshold in the composition of under five mortality. The recent IMR 48 per 1000 live births indicates that now the most important contributor to overall child mortality is neonatal mortality. **The Child Health Unit should begin adapting IMCI materials and strategies to incorporate care of the neonate.** It should be clear that **any intervention to reduce neonatal mortality is invariably linked to maternal health.** That link should be explored to such an extent that, at least for the neonate, a continuum of care for the mother and child be established.

NUTRITION

The nutrition component of TASC/Eritrea focused on the nutritional status of children less than five years of age. The TASC strategic approach aimed at supporting the growth and development of children by:

- Building the capacity for growth monitoring, growth promotion (GMP), and counseling at the community and facility levels.
- Increasing the MOH capacity to manage malnutrition by strengthening the skills of the MOH service providers, particularly the staff in health centers

[2] Sazawal, S. et al. Effect of pneumonia case management on mortality in neonates, infants, and preschool children: a meta-analysis of community-based trials. *The Lancet Infectious Diseases; Vol. 3, Sept. 2003.*

and hospitals to effectively manage children with acute and chronic malnutrition.
- Supporting the MOH and its partners in developing national guidelines and polices that address selective feeding and increasing capacity for management of nutritional programs centrally and within the zones.

Growth monitoring, growth promotion, and counseling

Growth monitoring and promotion (GMP) refers to the process of using the information from growth monitoring to counsel and motivate actions to improve or maintain good growth.

Community based GMP is a preventive health and nutrition program that actively engages families of children under three years of age and the community in maintaining the adequate growth of young children. TASC responded to the MOH's desire to design, test, and expand a sustainable community-based nutrition program that engages communities in following up the growth development of their children under 36 months of age. The GMP program tracks improved child nutrition through monthly weighings in communities / villages and is carried out by community volunteers that have been trained to weigh children and to counsel mothers according to individual situations. This allows for ongoing monitoring within the community and allows managers to undertake appropriate interventions to improve results. To date, the community-based GMP has been introduced in 800 villages in all six zones of Eritrea. Supervision and program monitoring has been integrated within the usual PHC system.

GMP activities were based on assumptions and knowledge that most healthy young children grow steadily at a predictable rate; therefore, poor growth is indicative of health or nutrition problems. Big and small children may follow different growth paths (or growth curves), but most gain an expected amount of weight regularly if they are in good health. Of the many factors that affect children's growth (and hence their nutritional status), the two most significant are feeding practices and illness. When young children do not gain weight as expected it may be an early sign that they are not receiving enough food or are sick. Thus, it is possible to detect problems early by weighing them regularly.

Growth monitoring itself however cannot be expected to produce any changes in the child unless the information gained from it is used to take action when a problem is revealed. Growth monitoring and promotion (GMP) refers to the process of using the information from growth monitoring to counsel and motivate actions to improve or maintain good growth.

Through TASC/Eritrea, physicians learned to better monitor child growth and address nutrition issues.

In designing a GMP strategy, it was evident that planners, implementers, and communities had to clearly understand and internalize the well-defined objectives for conducting the program. Beneficiaries are more likely to be full participants when the program's purpose and potential benefits are clear to them. To this end, the objectives were:

a. To provide families with information on the growth of their individual children so they can take actions to maintain good growth and health or to improve the children's health when there is a problem.
b. To provide communities with information on the health of their children in order to create a supportive climate for families to take appropriate actions, and stimulate community actions that can

improve the health of the children.

The GMP program serves as a mechanism for early detection of poor growth as well as a system for making decisions about what action to take, and to provide counseling on the care and feeding of the child to restore proper growth, when growth falters. This model worked on an assumption that food security already existed within the households and that the weighing and counseling would help caretakers improve the growth patterns of the children. This was based on the feeding habits studies conducted as part of the IMCI food box design before IMCI introduction in 1998.[3]

Prior to TASC, in response to internal displacement due to either war or draught, some community-based GMP activities were on going in camps or in communities by PVOs. The GOE did not however have a clear policy or a standardized way of doing GMP.

Interventions/Activities

TASC/Eritrea worked with the MOH and partners to design the country's GMP program. A national consensus meeting on GMP held in early 2001 led to the design of the national GMP guidelines development. The implementation process and roles of various partners at different levels were agreed upon. Partners in GMP were expected to follow the agreed processes.

TASC worked with the MOH to develop tools that are used in initiating and implementing GMP. These include:

- The national guidelines for developing an effective GMP program. The guide gives step-by-step direction on the GPM process. It also specifies the roles of different actors in GMP.
- *The Manual for Community Child Health Promoters*. The manual, translated into Tigrigna, is a companion guide to promoters complete with illustrations that guide the promoter in his/her work (Tigrigna and English).
- Counseling cards used by promoters to support the mother's practice under different scenarios (English and Tigrigna).
- Redesign of the Child Growth Card. The new Growth Card reflects counseling messages and includes information that guides the caretaker on what milestones to expect at different ages.
- An Expected Weight Gain Table was designed for use with the promoter's manual.
- Registers were designed for all children under three in the community.
- Referral Booklet for the Very Sick Child from communities to facilities.
- Guidelines for supplementary/selective feeding (English and Tigrigna). Both community- and facility-based.

Indicators tracked include:

- Number of children less than 36 months registered in villages;
- Numbers attending weighing sessions;
- Number whose weight has increased or decreased;
- Trends in adequate growth;
- Two consecutive months of inadequate growth.

The tools serve all stakeholders working on nutrition at the community level to help standardize the process and ensure that all meet national criteria. The guideline, promoters' manuals, and trainers' guides were field tested and then utilized by GMP promoters and trainers. Each GMP promoter manages a register for children less than 36 months to accurately collect information on GMP attendance and dropouts.

[3] Household feeding practices survey : Adwoa Steele and Salma Mohammed 1998.

With the guidelines and tools standardized, TASC supported various GMP skill development and capacity building activities. At the central level, three MOH staff attended a workshop on GMP planning and management in Zambia, enabling them to transfer valuable skills planning to the MOH. Additionally, nine MOH staff participated in a study tour to Madagascar acquiring skills on integration of community IMCI and GMP. Because this is a community-based activity, efforts were made to simplify the monitoring and evaluation of GMP programs by developing basic indicators. Data is easily organized and compiled to reveal trends in indicators.

At the zoba level, TASC has worked with the MOH to establish GMP teams consisting of Primary Health Care Coordinator HC of zoba, GMP coordinator of zoba, and GMP coordinator of sub-zoba and in charge for each sub-zoba. Teams are responsible for training, implementation and supervision, and zoba-level GMP trainers of trainers are now present in all six zobas.

In addition to supporting GMP orientation at the national and zoba levels, TASC also supported GMP orientation at sub-zoba, Kebabi, and village levels in Debub, Maakel, Anseba, and Gash Barka. Additionally, orientation with TASC-produced materials has also occurred in Northern and Southern Red Sea Zones Zobas.

Finally, more than 500 community GMP promoters have been trained and have been holding GMP activities in zobas Maakel, Debub and recently in Gash Barka on an ongoing monthly basis. GMP activities have also been initiated in Anseba, Northern Red Sea Zone, and Southern Red Sea Zone with resources drawn from other sources but using training materials and guidelines developed with TASC/Eritrea assistance. Newly developed GMP trainer's guides have supplemented these trainings. The GMP promoters are trained in counseling caretakers about children's' appropriate nutritional needs and referring children to health facilities when they are undernourished at home.

Community-entry programs to monitor child growth and development are proving very effective.

The GMP coordinators are responsible for mentoring and supervising the training of nutrition growth promoters and regular progress reports and program surveys are used to monitor outcomes of implementation. This information is fedback to the community on a quarterly basis.

As a result of the GMP efforts:

- The MOH has now developed a highly effective community-entry process at different levels.
- GMP program has been launched in Debub, Maakel, and Gash Barka through TASC and in the other zones by other assistance mechanisms.
- Intersectoral coalitions have been constructed between various organizations running GMP and nutritional programs. The Ministry of Agriculture is involved at all levels of implementation.
- Implementation tools have been designed, pre-tested, and finalized. The materials for community-based GMP activities have been produced.

Increasing MOH capacity to manage and implement nutrition programs

Within the second strategy of improving overall MOH capacity, TASC worked with the MOH to develop guidelines and increase capacity of MOH Service Providers for management of severe malnutrition to improve skills in the management of children with severe malnutrition. **Eritrea is subject to the effects of prolonged draughts that often occur in the region. With under-nutrition rates ranging between 24-44%, children suffering from severe malnutrition are common.**

In 2000 the Ministry of Health did not have a relevant policy or standardized management guidelines. Management of children with severe malnutrition only occurred at the National Pediatric Referral Hospital.

As a first step, TASC/Eritrea developed national guidelines for the management of children with signs of severe malnutrition. TASC involved the local pediatric community in the development process to increase their interest and participation. Following the design of the management guidelines, the pediatricians were used as master trainers other health workers in different parts of the country. The international and local PVOs participating in humanitarian response were oriented to the guidelines and encouraged to use them.

The second step was to encourage the MOH to seek from donors' food supplements, therapeutic milk—F100, F75, and ReSomal. The supplements are used for the clinical management of children admitted with severe malnutrition. The availability of these supplements is crucial to the successful use of management skills acquired in training sessions.

TASC supported the training of 76 health providers in therapeutic feeding of severely malnourished children.

Additionally, TASC supported the MOH in the development of guidelines for selective / supplementary feeding. Prior to this, the Ministry of Health did not have a tool for decision making on when and with whom to initiate supplementary feeding before severe malnutrition sets in.

Lastly, TASC focused on *increasing capacity for management of nutritional programs centrally and in the zones* by equipping of Nutrition Unit offices with the necessary hardware and software for better program management. With the IEC/BCC Unit, a nutrition communication strategy was developed.

Accomplishments

- TASC supported the development of guidelines for better management of children with severe malnutrition. At the national level, *Guidelines for the Management of Severe Malnutrition in Children in Eritrea* were produced and a consensus workshop held for its ratification. These guidelines ensure consistent and appropriate management of severely malnourished children.

- Capacity building for nutrition planning has occurred at national and zoba levels.
  - Six pediatricians at the national pediatric referral hospitals participated in guidelines design and development and are now Master Trainers. Over 76 health workers have been trained in the management of severe malnutrition (therapeutic feeding of severely malnourished) with support

from TASC. Other agencies and PVOs have trained more staff using the same tools.

Results

Nutrition interventions took place at both the community and facility levels. To link these interventions, facilities are expected to undertake nutrition outreach activities in the community to better link the community to the health system and improve health care outside of the system. The 2003 HFA showed that over half of facilities visited (53%) had undertaken such outreach activities within the most recent three months. As this is a new activity, it is impressive that so much outreach has already occurred; yet there are still many sites that are not doing it and that need to be encouraged.

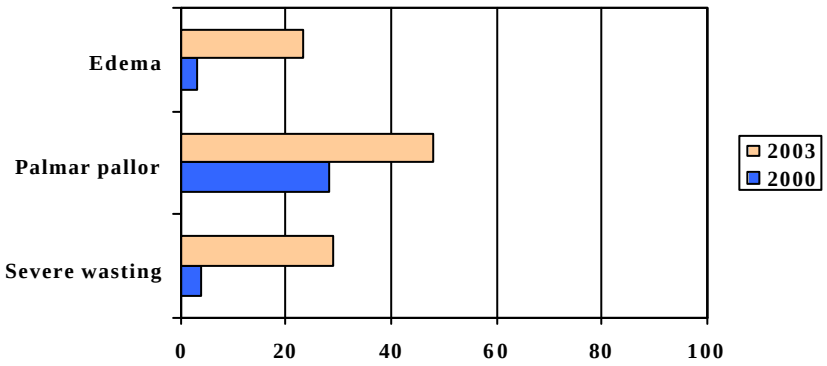
Nutrition-related indicators from the HFA are shown in Graph XX and Table 3. In general, most indicators improved dramatically. Still, for most indicators, correct actions were taken in only about 50 percent of the cases or less, indicating substantial opportunity remaining for improvement.

The following indicators from the HFA findings indicate significant increase in assessment practices. The survey shows that in 2003, 31% of children were assessed for feeding practices. In 2000, only 0.7% of the children was assessed. Similar substantial increases are seen in the percentage of underweight children assessed for feeding problems (from 0% in 2000 to 2% in 2003).

Table 3: Assessment Indicators (HFA findings)

Indicator	Percentage Index 2000	Percentage Index 2003
Children under two years assessed for feeding practices	0.7	31.3
Index of children under two years assessed for feeding practices (max 3)	0.5	1.7
Underweight children who are assessed for feeding problems	0.0	21.1
Children whose weight is checked against growth chart	2.1	53.3

Figure 22 further delineates the index of children under two years who are assessed using clinical features of malnutrition examining the percent of children brought to facility that were assessed for edema, palmer pallor and severe wasting. Edema and palmar pallor assessment is done on all children seeking care at facilities. While all underweight children are assessed for severe wasting, the figure shows that such assessment has clearly improved but is still generally not as good as it should be.



In addition to assessment indicators, the HFA also examined counseling indicators for nutrition. Counseling includes giving specific recommendations on how to give the

treatment, to give extra fluids and feeding. Counseling messages are patterned for each classification, and they are prioritized so the caretaker is not overwhelmed with instructions. Dramatic improvements occurred in the general nutritional recommendations to care takers. For example, zero percent of the caretakers of underweight children received correct nutritional counseling in 2000. In 2003, however, the percentage of caretakers receiving this information increased to 53%. The more general counseling messages of feeding during illness were infrequently conveyed by health workers 2000, but by 2003 had dramatically improved from 6.8% to 48.9%. In 2003, 48.9 percent of caretakers were advised to give extra fluids and continue feeding during illness—in 2000, only 6.8 were given this recommendation. The child management guidelines recommend that caretakers of children under two years of age be given nutritional counseling. This occurred in 5.4 percent of cases in 2000 but jumped to 49.2 in 2003.

Table 4: Counseling indicator (HFA findings)

Indicator	Percentage Index 2000	Percentage Index 2003
Underweight children whose caretaker received correct nutritional counseling	0.0	52.6
Children less than two years of age whose caretaker received correct nutritional counseling	5.4	49.2

In terms of the coverage, there has been significant increase in the number of health facilities managing children with severe malnutrition with therapeutic feeding. According to MOH records, only 1 hospital (the National Pediatric Hospital in Asmara) of 19 hospitals provided this service in 2000. In 2003, 17 of 19 hospitals, and 28 health centers were admitting and treating children with severe malnutrition.

Growth Monitoring and Promotion (GMP)

Results of the growth monitoring and promotion interventions can be examined at the facility and community levels. In terms of facility-level management of GMP, TASC used the HFA and routine GMP reports to determine facility capacity and skills available at facility level. Facilities are expected to track improvements in infant and child nutrition through GMP tally sheets. In 2003, 80% of facilities had up-to-date GMP tallies.

Figure 23: GMP materials and supplies (HFA)

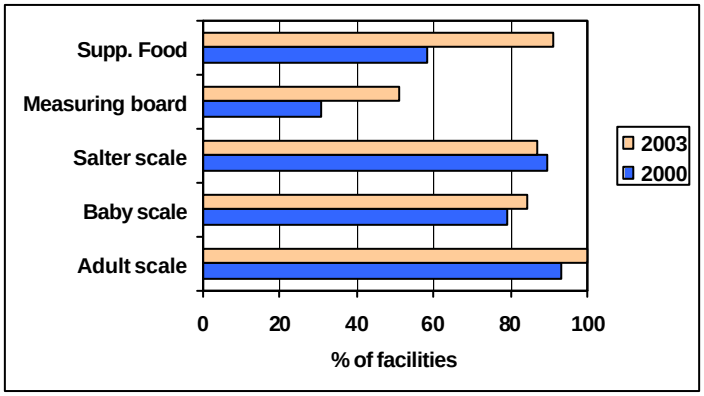


Figure 23 shows that most facilities have adequate supplies for effective GMP services, with the exception of measuring boards. Supplemental food, not widely available in 2000, was found to be widely available in more than 90% of facilities in 2003.

Community-based GMP

The participation of the children in the weighing sessions has been very positive. The children attending these sessions has increased from 0% (as there were no

weighing sessions at community levels) to about 87% of registered eligible children. The participation varies by village, but generally ranges from as low as 66% and as high as 94%. With introduction of supplementary feeding, communities participation picked up in areas where it had been low.

In the three communities, the proportion of children with adequate weight ranged from 42% in Maakel to 64% in Emni Haili. In one year of the GMP program, the proportion of children with inadequate weight has gradually reduced to 50% in Emni Haili. The same reduction has been observed in all the other communities as well. Only in Maakel (which has been operational for three months only) was there a small gain.

The non-appreciable improvement in the proportion of adequate weight in children could be due to the low-food security within household experienced in Eritrea in 2002-2003 as a result of the draught. The MOH has intensified efforts for food availability for households through other mechanisms.

The proportion of children with inadequate weight or inadequate weight gain over the GMP has not changed markedly. In Emni Haili and Segyeneti communities, the baselines were 36% and 38% but then rose gradually to 51% in each of the sites in March and February 2003 then gradually fell to 46% and 45% respectively. Again here, the non-reduction is thought to be due to the effect of draught, which occurred around the same time of the GMP initiation.

Table 5: Baseline and Endline GMP Performance in Three Communities

	Emni Haili		Segyeneti		Maakel	
	Sept 02	Sept 03	Nov 02	Sept 03	June 03	Aug 03
% children weighed	81	84	95	87	87	66
% with adequate weight	64	50	62	50	42	47
% with inadequate weight gain	36	46	38	45	58	53
% with inadequate weight gain twice	0	11	0	15	0	12

Challenges and Recommendations

- Nutrition status in Eritrea has been strongly affected by the war and drought. These issues jeopardize the gains that might be achieved from a program like GMP. Additional measures such as supplemental food increase GMP effectiveness. **The GOE and its partners should continue addressing the availability of food within households through other support mechanisms.**

- The staffing pattern at the Nutrition Unit has been inadequate. With only one nutritionist in the entire country, support to programs and decision making on key issues at the MOH has been slow. **The national Nutrition Unit should be provided with more technical support to effectively put in place management and supervisory mechanisms** for supervision of both

therapeutic feeding programs for the severely malnourished and the community based GMP programs.

- Community-based growth monitoring was a new initiative desired by the Ministry. There was anxiety however about the slow start. Human resources for materials design were scarce, particularly as this related to having materials in local language. **Initiation of a new program such as GMP requires heavy inputs of time and involvement of technical expertise at early stages.**

- GMP coordinators identified for some zobas were not health oriented, hence training them on health issues and at the same time expecting them to supervise the promoters was difficult. Supervision of community-based implementers requires staff well versed in health issues. **GMP coordinators at zoba and sub-zoba levels should be well versed on health issues.** They should have some health training background.

- **Strengthening nutrition components is as high a priority as maintaining immunization coverage or improving the quality of sick-child care.**

III. CROSS CUTTING COMPONENTS

The preceding sections focused on the technical components in which TASC worked. In addition, TASC supported the MOH in building capacity in several cross-cutting issues, such as behavior change communication, human resource development (which includes training and the national health management information system) and logistics. This section of the report will describe TASC's contributions in these areas, including the strategic vision, interventions/activities, results, and lessons learned/recommendations. These cross-cutting issues support the technical work implemented by TASC and the MOH. Therefore, the results section of these cross-cutting issues will largely focus on process outputs, with the outcomes addressed in the appropriate preceding technical area.

USAID Support for BCC Capacity Development in Eritrea

Phase 1: 1996-2000: BASICS
- National policy
- National strategy for organizational development
- Basic training in health communication

Phase 2: 2000-2003: TASC
- Zonal capacity development
- Partnership development
- Expansion of IPC training
- Production of tools and materials
- Implementation of campaigns

Phase 3: 2004-2008: TASC 2
- Community capacity development
- Quality improvement in BCC and counseling
- Large-scale BCC interventions

Behavior Change Communication

The strategic focus of the behavior change component (BCC) component of TASC, consistent with the mandate of USAID's task order, has been on *implementing a variety of capacity development interventions to enable the national and zonal levels of the MOH to plan and carry out effective health communication programs.* The BCC component has also substantially supported TASC's technical programs in maternal and reproductive health, child health, and nutrition through the provision of BCC strategic thinking, training, and support materials. In addition, with TASC's BCC advisor working and fully integrated with the MOH's Health Promotion Unit (HPU), TASC/BCC has also supported a number of other MOH BCC activities, including HIV/AIDS, FGM, and malaria.

This section of the report focuses on TASC results in BCC capacity building. Results reflecting BCC inputs into specific TASC maternal and child health interventions are included in those sections of the report.

Background

The institutional strengthening of the MOH in health education under TASC has been a continuation of the process of capacity building begun in 1995 by JSI and AED under the BASICS Project. Initial consultancies resulted in 1996 in one of the first explicit health communication policies to be developed in Africa, laid out in broad strokes the directions the MOH should take in building up its health communication resource base, and identified priority areas for communication interventions.

The following year, 1997, the initial capacity development effort focused on the Zonal Health Management Teams, and also covered MOH central level staff, trainers from health training institutes, and staff of other national institutions.

This initial capacity development effort under BASICS resulted in a number of positive outcomes. It introduced the scope, process, and benefits of research-driven communication in Eritrea, and stimulated an interest in communication at all levels of the MOH and among partner agencies. Key health managers, newly oriented in communication for development (advocacy, social mobilization, and BCC), became advocates for it. New ideas and recommendations on BCC needs, structure and staffing were generated. Demand for BCC training increased at the MOH and among partner organizations. Training in interpersonal communication (IPC) was initiated to meet growing demand, and BCC was integrated into the curricula of several training programs of MOH and Asmara University. A BCC Steering Committee (comprising all senior MOH managers) was formed within the MOH, and a Technical Advisory Committee, bringing together all agencies working in health communication, created to advise the Health Promotion Unit.

The Power of IPC

Tirhas Wouldeab, Nurse-in-Charge of the Kitmewlie Health Station in Maakel Zone, described the IPC course as very useful and eye opening. After the course, she realized that there were problems in the way people seeking services at her health station were received and handled. It dawned on her that this might be the cause of the low utilization of services offered at the station. She was particularly interested in trying out the "caring communication" she had learned at the IPC course, so Tirhas gathered her colleagues together to talk about her concerns and share her learning. Since that time, staff of the health station have made an effort to apply caring communication, with an emphasis on greeting and welcoming clients, giving patients time to speak and explain their problems without interruption, and asking questions to make sure the clients understand.

She now believes that giving patients time to explain their problems—instead of telling them what to do all the time—is in itself a cure. Patients feel at ease and honor return appointments much more readily if they have been treated with courtesy and have been allowed to explain themselves. "This approach has brought a whole new environment to the health station and has trebled the number of people coming for services," Tirhas says.

TASC BCC Interventions and Activities

Building on the solid foundation created under BASICS while recognizing much remained to be done, particularly at the zonal level, to continue and deepen the capacity building process, TASC laid out a number of objectives and intervention plans in a comprehensive BCC plan developed in mid-2000. The main TASC interventions include:

- Advocacy, training, and organizational development to improve planning, management, and coordination of BCC in the MOH at national and zonal levels.
- Design and completion of formative research studies and communication strategies to guide development of BCC interventions for different technical programs.
- Expanding and reinforcing training of health staff at both national and zonal levels in BCC skills, with a special focus on interpersonal communication and counseling (IPCC).
- Developing standards, manuals, and other tools needed to guide communication activities.
- Establishing and sustaining effective partnerships and coordination among agencies and individuals working in health promotion.
- Developing and implementing targeted behavior change programs in selected technical areas to catalyze and sustain desired behaviors among key target audiences.
- Stimulating development of community-based approaches to changing and maintaining desired health behaviors.
- Monitoring, evaluating and documenting all important activities and processes, sharing findings with stakeholders, and using them to strengthen plans and improve processes.

Results

The key BCC capacity-building results TASC has achieved are summarized below.

Result 1: The organizational structure, management, and coordination of BCC in the MOH at the national level have been substantially strengthened.

- The Health Promotion Unit has been moved to the Minister's office reflecting its higher status and perceived value to the Ministry

- The Minister himself has become an active advocate for health promotion, as evidenced by his championing of this year's National Health Promotion Day.
- The staff of the national Health Promotion Unit has been enlarged to 9 staff, including a 3-person materials development unit and IEC officers for child health and HIV/AIDS. Job descriptions have been re-written for each position.
- The Unit now holds weekly staff planning and coordination meetings.
- An integrated BCC planning format has been developed and is being used as a basis for coordinating BCC inputs of all agencies working with MOH on health communication.
- The Health Promotion Unit now works routinely with different technical units of MOH to plan health promotion activities.

The launch of the maternal health campaign in Mendefera was celebrated with a parade and other activities to engage the community.

Result 2: The BCC planning and management capacity at the zonal level is also now much stronger.

- Zonal BCC Officers have now been appointed in all six zones to facilitate, manage, and coordinate health communication activities on the ground.
- Zonal BCC officers now produce their own annual BCC plans for the zone.
- All referral hospitals also now have a BCC focal person responsible for coordination of IEC activities including in-service communication training.
- 14 model communities have been selected to serve as a focus for HIV/AIDS prevention activities and a laboratory for developing Eritrea-specific community based approaches.
- The IMCI community strategy, which includes a large BCC component, has been developed and implementation begun in 2 zones.

Result 3: BCC skills of numerous health staff at national and zonal levels have been upgraded and extended.

- 1882 health providers have been trained in interpersonal communication and counseling (IPCC).
- 35 health providers have been trained in social mobilization.
- 21 national and zonal BCC officers have been trained in strategic communication planning.
- 34 trainers from maternal health, IMCI, Nutrition and the referral hospitals trained as IPC trainers and are integrating IPC content in their respective program area training activities
- `6 zonal IEC focal persons, 9 HPU staff 26 partner staff trained in IEC message and materials development
- 42 health service providers in zoba Debub oriented to IEC campaign planning and management and message dissemination for the maternal health campaign.
- More than 50 staff from MOH and partner agencies have received training in formative research and taken part in the various formative research activities that have taken place with TASC support.
- 10 BCC implementers from MOH and partner agencies were sponsored on a study tour of community-based BCC programs in Kenya.

- BCC training has been integrated into the regular pre-service training of doctors and nurses.
- 1 staff of the graphic unit trained for 3 weeks in Nairobi on new computer graphic packages to strengthen materials design
- 2 IEC officers at the HPU trained in basic computer skills to enhance IEC documentation.

Religious leaders, both Christian and Muslim, helped celebrate the launch of the women's health campaign in Mendefera.

Result 4: Partnerships with many governmental and non-governmental organizations have been established or reinvigorated to extend and coordinate effective BCC programming.

- A multi-sectoral IEC technical advisory committee was established and is functional. It meets every first Wednesday of the month. This has strengthened coordination of activities and information sharing among stakeholders.
- The HIV/AIDS BCC coordination committee was established with technical guidance and support from TASC.
- Members of the TAC were given a one-week introductory communication course and a refresher course of 6 days on IEC/health promotion planning and implementation.
- The TAC now meets on a monthly basis or more regularly to share strategies and materials.
- Senior Ministry of Information staff was given a BCC orientation seminar, and MOI producers and reporters a one-week BCC orientation course.
- 32 partner agencies and MOH programs participated planning and implementation of the May 31, 2003 national Health Promotion Day.
- The IEC/TAC was instrumental in the planning and implementation of the 2003 maternal health campaign.

Result 5: New tools have been developed to guide and support future BCC program planning and implementation.

- Strategic Communication Planning Guide
- Materials Development Guide
- Safe Motherhood Key Message Guide
- Communication Skills Training guide for Health Workers developed in collaboration with UNFPA

Result 6: Monitoring and Evaluation approaches and tools have been introduced to the Health Promotion Unit as an integral element of the BCC process.

- An independent assessment of BCC capacity development was commissioned by TASC in 2000 and a case study completed (*The Dynamics of a Scientifically Planned BCC Health Intervention: A Case Study of Eritrea,* Dr. Waithira L. Gikonyo, November 2000)
- A nationally representative baseline KAP survey was carried out in 2001 providing quantitative data for planning and evaluation purposes on a wide range of topics including maternal and child health and environmental health.
- 45 health staff from different technical programs participated in review and dissemination of KAP studies.
- More than 60 individuals were trained in quantitative data collection as part of baseline KAP study.

- An M&E framework for the Health Promotion Unit has been drafted and a comprehensive set of indicators developed for monitoring knowledge and behavior change for all of the MOH's main programs.

Result 7: MOH staff and partners have utilized newly gained BCC skills to plan and implement large-scale BCC programs and develop support materials.

- Formative research studies have been carried out and communication strategies developed in virtually all major areas, including maternal health, child health, environmental sanitation, HIV/AIDS and malaria.
- Numerous BCC print materials on the subjects of safe motherhood, antenatal attendance, malaria, environmental sanitation, FGM, coughs and colds, diarrhea, and HIV/AIDS have been produced, including 15 posters, 5 laminated posters, 8 flipcharts, and 9 brochures.
- The HPU planned and is implementing a national maternal health campaign, launched by the Minister of Health on September 10, 2003. The campaign, which involves both community-based promotion by village health agents and mass media support on the subjects of antenatal care and safe delivery, is supported by 6 TV spots being broadcast on national television, 8 radio spots being aired on radio, and the distribution of 100,000 brochures, 15,000 posters, 22,000 car stickers, T- shirts. head caps and other print materials.
- The HPU planned and coordinated a major national event, Health Promotion Day, on May 31, 2003, involving an exhibition of health promotion materials from more than 30 organizations, a "Walk for Health" led by the Minister of Health, speeches from prominent government leaders, performances by artists, children's groups and the Air Force band, distribution of health education materials (10,000 health posters and 10,000 brochures), extensive coverage by the mass media, and a visit by the country's president.
- Malaria Prevention Campaign code-named 'Mosquitoes kill- Kill Mosquitoes' has been designed using the strategic communication planning guide and materials are under production
- A comprehensive health promotion program was organized in several of the country's largest camps for IDPs which included formative research; development of an BCC strategy; communication training for leaders and health workers; training of lower level health workers and motivators from partner agencies; and health promotion activities.
- A 52-episode health serial radio drama in Tigre was produced aired and is currently being translated into Tigrigna and a video version of it under recording. This covers health issues including maternal health, malaria, sanitation, nutrition, and FGM.
- An HIV/AIDS video, "Bessela," was produced in partnership with NUEYS and is currently being used on the mobile video units at community level and on national TV.

Result 8: BCC training, particularly training in interpersonal communication, is contributing to increased client utilization of and satisfaction with health services.

- 68% of antenatal clients receive information on danger signs of pregnancy
- Delivery at health facilities has increased from 17% to 26% (EDHS 2002)
- 42% of first deliveries are now health facility based as compared to 15% of 6^{th} or higher parities an indication that young mothers are responding to maternal health information and counseling

These results reflect the inputs and outcomes of TASC's focus on building the capacity of the Ministry of Health to conduct effective BCC interventions at both national and zonal levels. Result 7 in particular demonstrates a strong set of outcomes in terms of the MOH's application of new BCC skills in planning and implementing large-scale behavior change programs. The more distal results of these efforts—i.e. impacts on the knowledge and behavior of clients—are reported in part under Result 8 and also and in the maternal and child health sections of this report. Client behavior change as a result of the BCC campaigns TASC supported is expected but not yet demonstrated. TASC planned to follow-up the 2001 KAP survey with a smaller survey in selected zones to assess the impact of the 2003 safe motherhood campaign. However, delays in the production of campaign materials and competing MOH priorities moved the launch of the campaign to September, and TASC determined that fielding an evaluation survey in November/ December would be impossible given the project's end date in December. It is one of TASC's recommendations (see below) that a follow-up KAP survey be a priority for the Health Promotion Unit under TASCII.

Keys to Success

Obviously, many factors have contributed to the MOH's success in creating a strong health promotion capability in a relatively short time. USAID's technical and financial support through BASICS and TASC/Eritrea over the past 8 years has clearly been a major factor. Other key factors, both large and small, cited by senior MOH managers include the following.

- **Full-time BCC managers at the zonal level**: The decision in 2002 to appoint full-time BCC focal points in the zones, and make them responsible for coordinating the development and implementation of BCC plans and programs, was a critical organizational turning point; it lent essential manpower and credibility to BCC initiatives at the zonal level and below.

- **Joint planning with technical program managers:** Most managers of MOH technical programs now see the value of involving the HPU early on in the planning of new initiatives; they acknowledge the BCC team as a source of strategic thinking on how their programs will be perceived and accepted by clients, not just a source of posters or brochures.

- **Networking with partners**: The reinvigoration of the BCC Technical Advisory Committee and increased networking with agency partners such as WHO, UNICEF, and UNFPA, has proven an invaluable mechanism for coordinating program and materials development plans and avoiding duplication of effort.

- **Communication strategies**: The HPU's practice of developing written communication strategies based on formative research has enhanced BCC quality. While these strategies have sometimes been overly ambitious and complex, they have given clear direction for action, heading off ad hoc approaches, and because they have usually been developed in a workshop setting with partners, are sources of consensus building as well.

- **Materials distribution plan**: During the recent safe motherhood campaign, the HPU for the first time developed a detailed distribution plan for the BCC materials supporting the campaign and hired individuals to distribute the

materials to shops and other display points. This practice ensured the materials reached all intended sites.

- **Weekly staff meeting at Health Promotion Unit:** While it is a relatively "small" best practice, the HPU's regular weekly meeting, where staff members report on their activities and problems encountered, is a valuable basic management tool and reflects the seriousness with which the unit has approached its own development.

Challenges

In addition to the best practices or success factors listed above, senior managers at the HPU have also noted certain ongoing constraints to the development of the MOH's BCC capacity.

- **BCC viewed as competition**: Some technical program managers view the HPU's proactive approach to involvement in their programs as vying for a role their own staff should play; they are reluctant to cooperate because of a concern that involving the HPU may lead to a reduction in their own program's role and resources.

- **Expectation that BCC should happen faster:** Some program managers do not understand the time required to develop quality BCC strategies and materials; they are reluctant to cooperate because "BCC will slow them down."

- **Limited local capacity to produce materials:** There are few agencies or individuals in Eritrea with the capability of producing high-quality broadcast or print materials for BCC programs. With its own limited internal capacity, this situation forces the HPU to plan materials production with the best local producers very far in advance, explore options outside the country, or put up with less quality local production.

- **Management issues hampering BCC**: Basic management problems in health facilities are limiting the effectiveness of BCC programs. As one HPU manager noted, one reason why the HPU's interpersonal communication training efforts are not paying higher dividends is that health facility managers are not supervising the performance of IPC by their staff.

Several other constraints or issues to be addressed in the future are included among the recommendations in the following section.

Health Promotion Day 2003:
A Case Study in BCC Capacity Development

The rapid progress Eritrea's Ministry of Health has made, with support from TASC, in building its capacity in BCC was beautifully personified by the country's first national Health Promotion Day, held on May 31, 2003.

This major event was planned with the aim of fostering stronger partnership among government ministries, local and international agencies, and the community for the promotion of health at national and community level. The Minister of Health, His Excellency Saleh Meky, spearheaded it after he was positively

Health Promotion Day combined an exhibition of health promotion materials from more than 30 organizations, a "Walk for Health" led by the Minister of Health, speeches from prominent government leaders, performances by artists, children's groups, and the Air Force band, distribution of health education materials (10,000 health posters and 10,000 brochures), and extensive coverage by the mass media. It was held on the grounds of the new Orotta Hospital complex in Asmara. The event drew an estimated 3000 participants, including His Excellency President Isaias Afwerki. It was considered so successful that the Ministry has decided to make it an annual event both at the national and zonal level.

For TASC, Health Promotion Day was a gratifying culmination to the project's BCC capacity building program with the Ministry of Health. In addition to the personal advocacy of the Minister of Health, the event demonstrated the leadership and managerial competence of the Health Promotion Unit. The HPU provided overall coordination of the event and produced many of the materials displayed and distributed. It also demonstrated the effectiveness of the BCC Technical Advisory Committee (TAC), which has been working closely with the HPU and TASC this past year on a variety of initiatives. This influential group of governmental and NGO partners also played a major role in making Health Promotion Day happen.

While one of the aims of the Health Promotion Day was to disseminate health information to the public, both at the event itself and through related health programming by radio and television, its importance was not primarily as a mechanism for health communication. Rather, the event symbolized the growing recognition of the importance of partners working together in health promotion at several levels: At the level of organizing effective health promotion programs, partnership among different agencies working in health is essential and participation of other sectors is equally important—artists and designers, the media, print houses, policy makers, politicians, religious leaders, outreach workers in other ministries. At the community level, partnership for effective health promotion is also crucial, among health workers, community leaders, and individuals.

This partnership theme was echoed in the HPU's own evaluation and write-up of the outcomes of Health Promotion Day:

"*The planning and implementation process of this event brought different partners and program officers together and demonstrated partnership and teamwork as strengths for health promotion. So partnership and teamwork was strengthened. . It was very clear that with well-defined activities for a cause, resources, both human and material, could easily be mobilized. This is building on the long-term experience in the country that draws on the days of the struggle.*"

- **Long-range planning**: The Health Promotion Unit should take the opportunity of the start of the TASC-II Project to do an assessment of its overall current situation and its progress to date and develop a new long-term (e.g. 5-year) strategic plan.

- **Monitoring and evaluation**: As a crucial input into a long-term strategic plan, the HPU should conduct two overdue quantitative evaluation studies: one looking at the impact of the MOH's extensive IPC training to date and the second a follow-up to the 2001 KAP survey which examines changes which have occurred as a result of the safe motherhood campaign and other media initiatives. In the longer-term the HPU should further develop the M&E framework begun under TASC1 and make regular and systematic monitoring of its programs a routine activity.

- **Training**: As a corollary to the evaluation of the impact of IPC training to date, the HPU should undertake a comprehensive BCC training needs assessment and develop, as part of its long-term plan, a staff training plan covering both national and zonal BCC staff. A range of training plans should be considered, including in-service/refresher training for health staff, advanced external training for senior HPU managers, and the development of an in-country course that would provide some kind of certification from a university or other recognized institution.

- **Staffing**: The HPU needs at least two additional IEC officers to plan and manage BCC initiatives with different technical programs. The Unit would also benefit from the addition of a monitoring and evaluation officer to oversee formative research studies and materials pre-testing as well as M&E.

- **Community-based approaches**: With the emphasis TASC II gives to the intensification of health programming at the community level, the HPU will need to give special attention in its long-term strategies and staffing and training plans to what resources will be needed to implement quality community-based programs. At the least, BCC staff will need training in approaches for mobilizing resources and working with communities, such as PLA.

- **Information sharing**: In addition to its substantial research studies and communication strategies, the HPU has already produced some very nice short reports on special events, such as Health Promotion Day. The HPU should regularize the publication of such reports into a newsletter for sharing BCC news and results with Ministry and external partners. In the longer term, the Unit should explore linking itself and the BCC focal points in the zones into a network, building on current work in the MOH on local area computer networks (LANs). This would be a mechanism for rapid communication and coordination of BCC plans and news, electronic sharing of BCC materials, and simplification of M&E data collection.

Human Resource Development (HRD)/ Training/

Health Management Information Systems (HMIS)

The development of Human Resources for Health is among the top priorities on the MOH's agenda. Under the Research & HRD Division falls training, research, and MS. Therefore, TASC and the MOH identified the following objectives for this component:

- To develop an *HRD policy and strategic human resources development plan*
- To develop and conduct special *training* programs and short term fellowships to improve performance and capacity in maternal and child health and to conduct and support *research* in the area of maternal and child health
- To ensure accurate and timely data collection and dissemination and further strengthen the existing *HMIS*

The mission statement of the Human Resource Policy is to "ensure availability of good quality health services throughout the country through the planning, training, deployment and development of competent and efficient health professionals in sufficient numbers."

Human Resource Development

As part of the MOH's endeavors to build its human resources, the Research & HRD Division (now Department) embarked on the improvement of the standard of education given in its midlevel health professional schools by developing competency based curricula, effective utilization of human and material resources and training of tutors. It has also developed fellowship plans and short-term training programs. TASC's strategy to build HRD capacity focused on working with the MOH to develop an HRD plan and policy.

In order to respond to the official GOE policy of "Basic health services that will be made available to primary health care and immunization programs…" in both urban and rural populations, a formal a health and human resource development policy was needed for the health sector, for human resource development and deployment. Therefore, the HRD policy principles were designed to include relevancy, competency, equity, quality of care, gender sensitivity, efficiency, and community involvement. Consequently, printed versions were made available for distribution.

The policy development process relied on input from different parts of the government and a team from R & HRD Unit developed the first draft. With the help of a TASC consultant the draft document was reviewed by stakeholders and completed.

In order to meet the policy statement that "The HRD shall ensure the availability of human resources with the right qualifications, skills and attitudes at the right time, in the right numbers, to deliver good quality of health services at all levels," the strategies set forth included:

- Maintain and continuously update a national human resource database of all health professionals at different levels, with a periodic inventory of the trained staff.
- Conduct a national needs assessment of human resources for health.
- Develop standard staffing patterns (norms) and update periodically as necessary.
- To address attrition rates, establish the personnel periodic skills assessment, consistent job titles, and qualifications for each category of health care provider.
- Design clear career paths.

HRD Training Summary

- 9 HRD training sessions were held for different technical areas. Three for EmOC and surgery for physicians, two for human resource policy design, two for operating theatre technicians, one for regional anesthesia training and one licensing and accreditation.
- 60 attended an HR policy consensus session.

HRD Plan

With the help of a TASC consultant, a draft HRD Plan was designed. This was developed following wide consultation within the MOH units to assess the needs and to understand the skills development needs of different functional units and arms of the ministry.

Fundamental considerations in the planning process include: the need to ensure primary health care is delivered in the rural areas, the general goal of equity in health care for all in Eritrea, and, the impact that training one group of people would have on another, (e.g. clinical specialists being trained and thereby reducing the number of general physicians).

Some of the major HRD planning issues identified include:

- Uncertainty regarding crucial factors of attrition in human resource planning, such as the introduction of retirement, the introduction of permission to resign and the impact of decentralization and the introduction of private sector hospitals.
- Slow progress in increasing staffing vs. increasing the number of physical facilities.
- Policy for upgrading lower cadre staff to fulfill the registered nurse positions creates shortages at lower levels.
- Uncertainty regarding future losses in the Ministry of Health staff, in particular through the introduction of private sector hospitals. This will be of major concern with regard to doctors.

Training

Investment in human capital is an important MOH objective for self-sufficiency in the implementation of maternal and child health programs. TASC supported this MOH objective through institutionalizing in-country training capacity as well as focusing on performance improvement through various trainings, networking opportunities, and mentoring.

TASC supported the training of more than 8000 people in a range of topics.

Institutionalizing training capacity

TASC/Eritrea worked closely with the MOH to develop their skills to upgrade their manpower—thereby institutionalizing training capacity in the country. As described in each of the technical components, TASC and the MOH have adopted a holistic approach to building the country's capacity in training. With TASC support, the MOH:

- established and equipped training sites
- developed or updated curriculum, training materials and guidelines
- trained TOTs and master trainers
- established supervisory tools and checklists
- conducted and supported facilitative supervision.

TASC has worked with the MOH to decentralize some of this capacity at the zoba level to increase the scope of the training and increase access to the service providers.

Supporting training and skill development

Identifying skills that required improvement was done jointly with the relevant MOH units. TASC offered technical support where necessary. In some areas the needed technical support in training already resided within the MOH so TASC provided an enabling environment for the skills development by either

coordinating the delivery of the training or ensuring that the needed materials were available for the training.

To maximize knowledge transfer, TASC-supported trainings were participatory and based on adult learning principles building on the existing skills of the trainees.

To upgrade the health manpower, TASC and the MOH relied on findings from project assessments undertaken during the project. The MOH used evidence from these studies to determine areas where skill development was most needed.

To maximize knowledge transfer, TASC-supported trainings were participatory in design and based on adult learning principles building on the existing skills of the trainees. The training adopted innovative methodologies that were competency based and conducive to the existing resource constraints. Some of the TASC supported methodologies included: on the job training, peer training, whole site training, self-assessment, problem-solving and pre- and post-basic training methods. The trainings focused on clinical skills, program planning techniques, organizational and managerial skills, counseling and interpersonal communication.

In total, TASC supported the training of more than 8000 people in a range of topics. The following is a summary of TASC training. This includes TOT's and master trainings with many of those trained as trainers conducted the following trainings.

Table 6: TASC/Eritrea Training Totals

Type of training	# trained
HMIS	1238
HRD	201
IEC	2233
IMCI	1022
Infection Prevention	879
LMS	485
Management	277
Maternal/RH	1238
Nutrition	776
Total	8,349

"According to the head of DPS, there was a 'quantum leap in capacity and commitment' of central DPS managers as a result of the TASC-sponsored study tours and TOT."

Bernardo Kefleyesus
Director General
Regulatory Services Department

Networking

In addition to in-country training, TASC supported various networking opportunities to build capacity. Networking and study tours to learn from more established programs have proven effective in building the capacity of the MOH. Eritrea personnel attended conferences, study tours and professional meetings to exchange information, best practices and lessons learned in management and performance.

Table 7: Networking Activities

Technical Area	Networking Topic	Country	Participants
HMIS	RHINO workshop	Uganda	1
Human Resource Development	Licensure and Accreditation	USA	1
	Tobacco Control	Switzerland	1
	Linkages with Schools of Nursing	USA	2
IEC/BCC	HIV/AIDS Programs	Uganda	8
	HIV/AIDS Programs	Kenya	16
	ARV Programs	Kenya/ Uganda	5
	HIV/AIDS Communications	USA-Baltimore	1
	HIV/AIDS - M&E	Uganda	2
	HIV/AIDS - M&E	Zambia	2
IMCI / Child Health	Household IMCI	Madagascar	9
Logistics Management	LMIS	Kenya	12
	LMIS	Kenya & Uganda	7
Management	Health care financing	Tanzania	5
Maternal/ Reproductive Health	Safe Motherhood	India	2
	Safe Motherhood	Tanzania	2
	Young Adolescent Reproductive Health	Tanzania	1
Nutrition	Breastfeeding	UK	1
	GMP International updates	Zambia	3
Total			**81**

Mentoring

One of TASC's most effective strategies to transfer knowledge and skills was mentoring the MOH staff. In the TASC/MOH partnership every aspect of TASC work was done in collaboration with the appropriate MOH counterpart. The mentoring offered integrated skill strengthening and holistic thinking. TASC made a conscious effort to "guide from behind," working to develop MOH skills, with TASC serving as a resource when needed. This supportive role and the resulting skill development is one of the single most important contributions that TASC has made in helping to build the leadership capacity of the MOH.

Research capacity

In the area of research, TASC engaged in strengthening capability through training health workers in health system research methodology. It also focused on building the country's data for decision-making capacity.

In-country capacity to serve as future resources for research, analysis and studies includes:

- 1 person trained in Uganda on monitoring and evaluation of population and health programs
- 1 person attended RHINO workshop in Washington DC USA
- 1 MOH staff trained in gender analysis of DHS data
- 14 senior MOH staff trained as trainers on health system research, data analysis, and on report writing.

Health Management Information System

"The mission statement of the National Health Management Information System is to ensure the use of accurate, relevant, complete, and timely health information to support informed decision making for health policy, health services planning and management at all levels to improve the health status of Eritreans" (site).

TASC's NHMIS component aimed to strengthen the existing capacity of the HMIS Unit and the entire MOH to adopt a culture of information and to use routine information in the planning and management of health programs. This emphasis on information for responsible decision-making and action will improve the quality and access of health care in Eritrea.

The institutional strengthening of Eritrea's National Health Management Information System under TASC has been a continuation of the process of capacity building begun in late 1995 by JSI under the BASICS Project. The SEMISH (State of Eritrea Management Information System for Health) system was developed and put in place in 1996-1997. In November 1999, a workshop for data users and producers was organized to examine the functional status of the new HMIS after two years. The participants, who represented the central level of the MOH as well as the peripheral health services, made a series of recommendations on further restructuring of the system.

TASC HMIS

TASC's goal was to make the MOH's data management system more user friendly and to improve the infrastructure to guarantee data use in planning and management.

In 2000, TASC upgraded SEMISH to a Windows-based system (Visual Basic and Microsoft Access).

Health facilities now have well-kept and well-managed record keeping systems.

In 2001, the TASC/Eritrea conducted an assessment to identify gaps in the NHMIS. It was found that the system was fully functional for data entry at the zonal level, and there were no problems either with data entry or data transmission to the national level. However, the SEMISH system needed strengthening in terms of its analytic capacity. The system permitted summary reports for any level, and for any period, but comparison reports between health facilities, sub-zones, or zones were not available. The Health Information System staff were capable of preparing very thorough annual reports, but the production of these reports was very labor intensive, in that most tables and graphs in the report involved re-entering data from numerous system outputs into Excel spreadsheets. Thus the system output did not provide adequate feedback for decision-makers at any level of the system, and the production of appropriate feedback was not possible in a timely fashion.

In April 2001, TASC consultants assisted the Ministry of Health in the development of the NHMIS five-year development plan for health information system strengthening. This plan, which covers the period of 2001-2005, took into account the recommendations of the 1999 workshop, as well as new programmatic developments in the areas of IMCI, safe motherhood, tuberculosis treatment, and disease surveillance. This plan included the development of a powerful Decision Support System (DSS) to improve the analytic capability of the

As a result of recent trainings, the NHMIS has noticed a "shift in perception where program managers and health providers value data more [understanding that the] whole environment from planning to M&E is based on information."

HMIS, data-user workshops, revision of the data collection instruments, and implementation of computerized networking within the MOH.

In 2002, the National Health Management Information System Decision Support System (NHMIS DSS - © John Snow, Inc. 2002) was developed with technical assistance from JSI's Center for Health Information and Monitoring & Evaluation (CHIME). The NHMIS DSS allows decision-makers to visualize health indicators collected through the routine health information system in easy to interpret tables, graphs and maps.

To support the new DSS and ensure its responsiveness, the NHMIS unit sent out a questionnaire to each of the MOH programs requesting input for the indicators. In November 2002, the MOH conducted a Consensus Building Workshop with TASC support to ratify the new indicators. Further decisions were to be made on the age and gender desegregation that some newer programs needed. The meeting also reviewed and revised data collection tools so they met the new data needs. Fostering the collection and reporting of data, TASC and the MOH created the *NHMIS Data Collection and Reporting Guideline Manual* in 2003.

TASC also worked with the MOH staff in NHMIS unit to develop a Data Use Training Manual for Health Workers to help health workers at different levels of management use the available health information for different management purposes.

In May 2002, the Ministry of Health, in collaboration with TASC, held a workshop to launch the DSS. The NHMIS DSS Launch Workshop was attended by over 60 participants, including health professionals from the Eritrean central Ministry, zonal health offices, USAID, WHO, and UNFPA. The workshop was facilitated by the Director of Research and Human Resources of the MOH, Chief of the NHMIS Unit, the NHMIS Staff, and TASC.

The training component for HRD and NMIS has been crucial in increasing the capacity and number of people who can manage data within the MOH. TASC and the MOH worked together to identify training needs to build data management capacity in the country. The NHMIS Unit staff members were trained in the use of Microsoft Access queries, functions and procedures to create data tables and record sets appropriate for use in annual reports, indicator calculations, data processing, and data cleaning. A training guide on the DSS was developed and a TOT was also conducted so that the NHMIS Unit is now conducting their own trainings. Additionally, the following training occurred:

- 1,634 trained in data management
- 158 trained in the use of DSS
- 43 people participated in the design and review of the new indicators and data collection tools for the NHMIS tools for DSS.
- One staff member attended the international training on M&E of Population and Health in Uganda and conducted by the Measure Evaluation Project.
- 1 trained at the RHINO workshop in the US
- In total, TASC and the MOH trained or oriented 1,238 people in HMIS in 29 training sessions.

To ensure use and application of information, TASC has been assisting the MIS Department of the MOH to conduct routine supervisory visits in data

management. According to NHMIS records, they visited 147 facilities in 2002–64% of the total health facilities. One of the ongoing constraints to conducting more and regular supervision is a lack of staff.

TASC/Eritrea assisted the MOH in connecting its offices in a computer network through the setup of a local area network (LAN). This network makes the NHMIS DSS available to all ministry officers. TASC provided technical assistance in specifying and procuring the hardware—including 25 computers—and assessing training needs for this network. The DSS was installed for program managers and in each of the zobas. The health facilities report monthly to the HMIS unit.

As a result of the training, systems, and infrastructure, the reporting rates are extremely high. NHMIS reports show reporting rates from all zones and all types of facilities to be consistently above 90% throughout the period of TASC/Eritrea. This significant reporting rate allows for high confidence in the NHMIS data. According to the HMIS Unit Head, this reporting rate is due to the "commitment of the health worker. We have tried to make it part of their duty and obligation and tried to help them feel a part of system."

Findings from the IMCI Health Facility Survey further confirm health worker commitment and the value of information. According to the HFA, 100% of the facilities surveyed had up-to-date patient registers, 80% had current GMP tallies, and 96% had up-to-date immunization registers (HFA, 2003).

The development of a reliable MIS system appears to have helped the Eritrea MOH in a number of ways. First, it has put a manageable amount of timely, accurate, and useful data in the hands of managers throughout the system, allowing for improved, evidence-based decision making. DSS is widely installed throughout central and zonal levels of the MOH, enabling managers at those levels to do their own analysis without having to consult the MOH NHMIS unit. This data is fed back down through the system, improving data availability down to the facility level, although this practice appears uneven and feedback could be improved. According to the NHMIS Health Service Activity Report of 2002, the unit has noticed a definite increase in data use. For example, the unit reported that 60% of the facilities in 2001 were using and analyzing data while in 2002, this increased to 90%. Although anecdotal, a TASC consultant confirmed this noting that "most health facilities identify common diseases in their area and calculate certain program coverage."[4]

Data is also routinely used and fed back to the MOH program managers and zoba heads at MOH annual meetings. At these meetings, the NHMIS provides summaries of the analyzed data during the respective program report-outs. Similarly zobal-level teams report their analysis. Data for all major indicators is summarized each year by the NHMIS unit through their *Annual Health Services Activity Report*, which is a highly useful source of information for managers or evaluators at any level. In fact, that Annual Report and DSS data provide much of the information presented in this report. Because the system is technically viable, with a cadre of well-trained staff, and relies on routine data, it appears to be a sustainable system that can continue serving Eritrea's service data needs for the foreseeable future.

[4] Mehari Woldeab, Report to TASC on data management and use, Nov. 2003.

Lessons Learned and Recommendations

HRD and Training

- There are gaps between the available and required number, quality, and category of health professionals at all levels. Furthermore, approximately 30% of physicians and associate nurses and more than 40% of nurses and almost all x-ray technicians are at retirement age. Because of the insufficient number of MOH staff in Eritrea, it is critical that the MOH maximize those they do have. It is recommended that the MOH continue to review and standardize staffing patterns to address immediate needs and train more staff as needed.
- It is important for the MOH to build a longer-term strategy to ensure this capacity. Specific issues to be addressed include: the retirement policy, private sector hospitals, decentralization, and retention issues.
- The MOH should finalize and disseminate the HR plan and update the HR database.
- Capacity is strong within the MOH but because of lack of staff, much of this capacity is based with only one person—and this is precarious. This dilemma is also seen at the facility level where lack of staff are often identified as the prime barrier to quality service provision.
- TASC's strategy for building capacity was to first focus on training needs identified through assessments. There should now be an emphasis on quality through strengthened feedback and supervision system.
- The structure of TASC consultancies and activities fostered an environment for mentoring and close collaboration with designated counterparts. This was an effective strategy for capacity building because it provides comprehensive knowledge transfer (leadership, management, planning, technical, etc).
- Based on the multitude of trainings conducted by the MOH with TASC support, this may be an appropriate time to conduct a training needs assessment to further focus and refine the training strategy to ensure responsiveness. Future training strategies should focus on institutionalizing training capacity within the country, through training of trainers, in-service training, and other approaches.

NHMIS

- Despite the feedback mechanism at the quarterly MOH meetings, there remains a lack of routine, in-depth feedback to all levels. Relatively low supervisory visits confirm that feedback is not happening at many sites. TASC and the MOH have been working together to provide the infrastructure (training, computers, etc.) necessary for feedback and use of the DSS. It is now recommended that the process become routine. The process must ensure that feedback occurs at all levels, from central to zoba from sub-zoba to facility. Evident in the high reporting rate, facilities clearly understand the value of reporting and they should therefore benefit from the results of their efforts.

- Currently the DSS/NHMIS reports from the facility level up. However, many of the program areas are implementing community-based strategies and collecting community-based data. It is recommended that the DSS be expanded to incorporate community-based information.

- Capacity to analyze and use complex data at all levels of the health system is lacking. The central level lacks sufficient skill in statistical and epidemiological analysis. Additionally, because of inadequate feedback from

zoba level to the lower levels, the capacity of using DSS/NHMIS has not been expanded and developed. DSS should be made available to all program officers who have the compliant software: they should be encouraged to use the system for doing their routine reports where possible. Capacity building within the NHMIS unit for DSS data analysis and management needs to continue. The MOH needs continued assistance in the best use of the network and Internet for data sharing and information processing.

- Quality of data. There is need for strengthening the performance of some service delivery points. Some provide incomplete reports, that are confusing interpretation between non-reporting or non-service delivery.

- Despite many improvements during the period of TASC/Eritrea, there remain some technical issues that prevent DSS from being as user-friendly as it could be, and occasionally lead to confusing results. These need to be addressed under TASC II.

- The MOH needs to develop a patient based, hospital management information system for the hospitals. As patients enter the National Referral Hospitals, their patient register information would be computerized, and that information would then be available at various stations in the hospital (x-ray, lab, etc.).

Logistics Management

The assurance of product availability is paramount to the success of health programs.

The strategic approach of the logistics component of TASC/Eritrea focused on strengthening the Logistics Management Information System (LMIS) of the MOH, especially in the Department of Pharmaceutical Services (DPS) to ensure all have access to medicines and contraceptives. As the assurance of product availability is paramount to the success of health programs, TASC's approach supported the MOH's goal of improved health status for all.

Background

TASC's interventions have enabled rural health care facilities, such as this one, to better plan and ensure well arranged and stocked medicine shelves.

The MOH Department of Pharmaceutical Services (DPS) has been functioning effectively for the past ten years. Pharmaceutical Services serves an expanding number of health facilities throughout Eritrea—now numbering more than 218, including hospitals, mini-hospitals, health centers, and health stations. The drugs and medical supplies management system is carried out by Central Medical Stores (CMS) located in the capital, Asmara, and six peripheral zonal medical stores. The CMS and the zonal medical stores supply all of the health facilities in the country.

Since 1996 JSI has been working with the DPS to upgrade the capacity of staff directly involved in drug/pharmaceutical supply management in order to improve the efficiency of the system and ultimate product availability.

In 1997 and again in November 1999, JSI through the SEATS and Family Planning and Logistics Management (FPLM) projects conducted an assessment of the logistics supply management system. At that time, the MOH logistics system was described as "fundamentally sound" though a number of areas were identified for strengthening including upgrading computers, computer training and conducting study tours.

TASC/Eritrea Interventions

TRAINING

- 21 senior pharmacy and drug stores staff trained as trainers in logistics information management.
- 271 MOH staff responsible for drug orders and commodity management trained on LMIS
- 25 MOH staff trained on Procurement
- 19 MOH staff from CMS attended a study tour to Kenya and Uganda on Logistics management
- 132 rural / community vendors trained on rational drug use and updated on newer drug use technologies for their levels.
- Supported the printing of the Drug Bulletin, a journal of the MOH for pharmaceutical community.
- Developed posters for advocacy and rational drug use especially for diabetic for insulin use.

TASC/Eritrea has been instrumental in assisting and promoting a number of activities to strengthen the logistics management component of the drugs and medical supplies system in Eritrea. TASC consultants assisted the MOH to develop a Logistics Improvement Plan (LIP) to address areas that support improving data collection for forecasting and increase logistics skills of pharmacy staff at Health Center and Health Station levels of the health system. In support of this plan, TASC conducted assessments, trainings and other activities to increase the capacity of the MOH to initiate changes in the system.

A five-year action plan—2001 to 2005—was put in place by the MOH/Department of Pharm-aceutical Services.

Despite Eritrea being newly independent, the DPS had made great progress in developing a logistics system. To promote collaboration and learning from other countries, TASC **coordinated study tours** to nearby countries for DPS staff to learn from others' successes and lessons learned. TASC sponsored 12 medical stores staff for a study tour in Kenya which focused on planning and management of expanded LMS. Additionally, 7 medical stores officers took part in a study tour to Kenyan and Ugandan automated medical logistics systems to examine state-of-the-art initiatives and bring back ideas for improving work processes in Eritrea. The DPS operationalized much of what they learned from these study tours. For example, in delineating roles and responsibilities, the DPS determined that Pharmacor would store, procure, distribute commodities to zoba level and the MOH would serve in a management role. From Uganda they learned that this could shorten the lead time by reducing the number of distributors (from both the MOH and Pharmacor to just Pharmacor).

TASC also focused on activities to **computerize the inventory control program**. Computer equipment and inventory management software were installed at six (6) zonal medical stores and 17 staff were trained to use the inventory control program to extrapolate and evaluate data. This program helps staff prioritize, plan, and make decisions.

A **Logistics Manual** was developed with guidelines on proper storage and record keeping for Health Centers and Health Stations. In 2002, TASC and the MOH revised the manual adding standardized forms, procedures, and job aids. The TASC/MOH roll out strategy to orient staff on the revised manual and tools for Health Centers and Health Stations included training 21 MOH medical stores and pharmacy personnel as trainers. Subsequently, these trainers trained more than 271 pharmacy staff at Health Centers and Stations in the revised procedures. TASC supported the printing and distribution of the manuals and forms to staff to help them maintain the skills developed.

TASC further supported these trainings by partnering with the DPS to provide supervisory systems and capacity. TASC/MOH developed logistics monitoring and supervisory tools for use at HC/HS levels based on the LMS Procedures Manual and established logistics monitoring & supervisory system with quarterly visits from zoba levels to HC/HS. The expectation is that staff will use consumption forms to provide continuous reporting and quality by early 2004. This supervisory and monitoring system serves both to facilitate feedback and improve reporting.

TASC has also worked with the MOH on building their capacity in planning and policy actions. TASC supported the MOH in regularly reviewing their process of reviewing their essential drug list (EDL). This included conducting a national workshop review and reclassification of pre-referral drugs. A TASC consultant facilitated the process of policy change and revision of the list, culminating in its publication and distribution in 2001.

TASC worked with the MOH to update the standard treatment guidelines. TASC sponsored 6 central MOH staff for IMCI training and exchange in Uganda. These 6 staff facilitated the development of guidelines and shared them at a national consensus workshop in September 2000. To respond to the concern of malaria resistant drugs, the MOH established a committee—consisting of the IMCI and malaria units as well as TASC and other stakeholders—to revise treatment guidelines.

Together, the EDL and STG are used to rationalize drug use and monitor drug reaction. TASC sponsored four people to attend a Therapeutic Drug Committee in Nairobi. This group used the information learned in Nairobi to work with the MOH to establish hospital committees to identify misuse of drugs and poor compliance.

As training and logistics activities were increasing at the HC and HS levels, the MOH made a decision to restructure pharmaceutical services privatizing the Central Medical Stores (CMS) and incorporating all of its functions into the local parastatal drug supply company. They began work on incorporating all CMS functions under its roof in October 2002 and officially began operations and distribution to zonal medical stores in March, 2003. CMS ceased to exist at the end of February 2003.

TASC/Eritrea played a role in promoting the idea of handing off Central Medical Stores operations to the local drug supply company which, as a private company, has been building its credibility and capabilities for a number of years. This move has increased efficiency of distribution to zonal medical stores and provides better information for tracking and forecasting. Work completed to date on strengthening the lower levels of the system will also feed into better information collection for decision-making and forecasting.

Policies / Guidelines / Protocols

- Developed Drug Stores Procedure manual for use in health centers and health stations

- For better management of the medical/drug stores, developed Stock Control Cards, ordering and reporting cards; destruction authorization systems put in place.

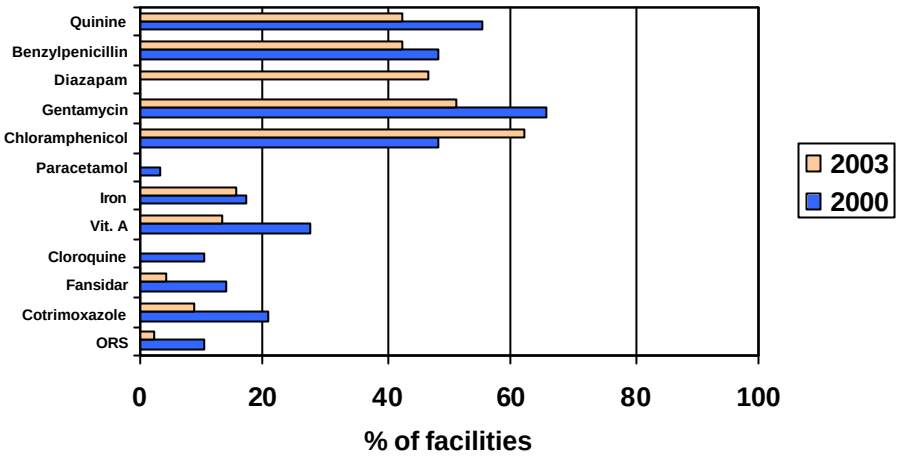


Figure 24: Stock out of Essential drugs in previous month (HFA, 2002)

Results

According to the IMCI HFA 2003, product availability has improved since 2000 and is high for vaccines and IMCI essential oral drugs and moderate for injectable drugs.

Table 8: Availability of Stock (HFA report)

Indicator	Percentage Index 2000	Percentage Index 2003
Index of availability of IMCI essential oral drugs (max. 7)	5.6	6.6
Facilities with no stock-outs of any essential oral drugs in the previous month	44.8	62.2
Index of availability of injectable drugs for pre-referral treatment (max 5)	1	2.7
Facilities with equipment and supplies to support full vaccination services	93.1	97.8
Index of availability of four vaccines (max. 4)	3.7	3.9

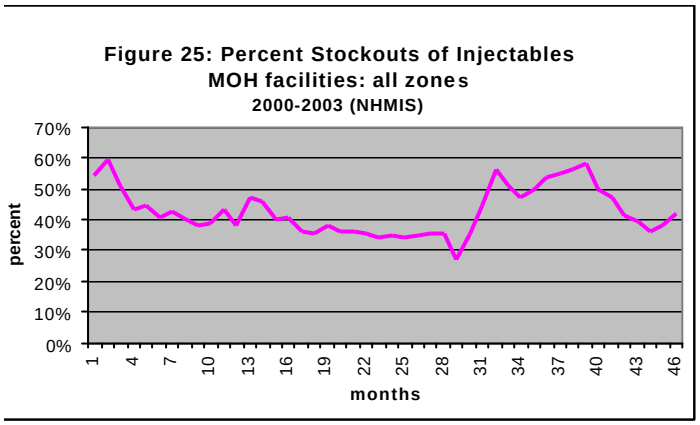
In further analyzing the findings, there is also a notable decrease in stock outs of all essential drugs except chloramphericol from 2000 to 2003.

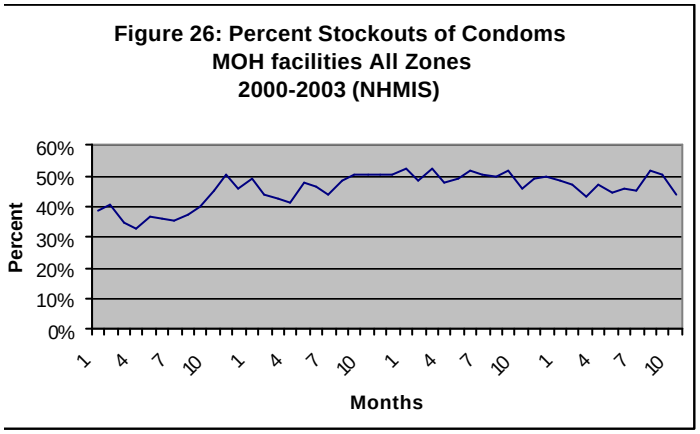
The overall finding from the HFA was that oral drugs are available and injectable availability is improving. The IMCI unit credits much of its success to the guarantee of needed products at the facility level.

While the MOH has made remarkable progress in the area of IMCI, family planning commodities are not as secure. The following graphs show that the percentage of sites stocked out of injectables and condoms remained at 40-50% over the past two years. Given the high level of unmet need mentioned in the maternal health section, improving the family planning supply situation is an important step to improving care in that area.

Lessons Learned and Recommendations

In many aspects, Eritrea is leading the way in logistics management. As many countries struggle to integrate products in their LMS, Eritrea has achieved this. It would be beneficial to both Eritrea as well as other countries to investigate some of the challenges and successes the DPS faces in managing an integrated system.



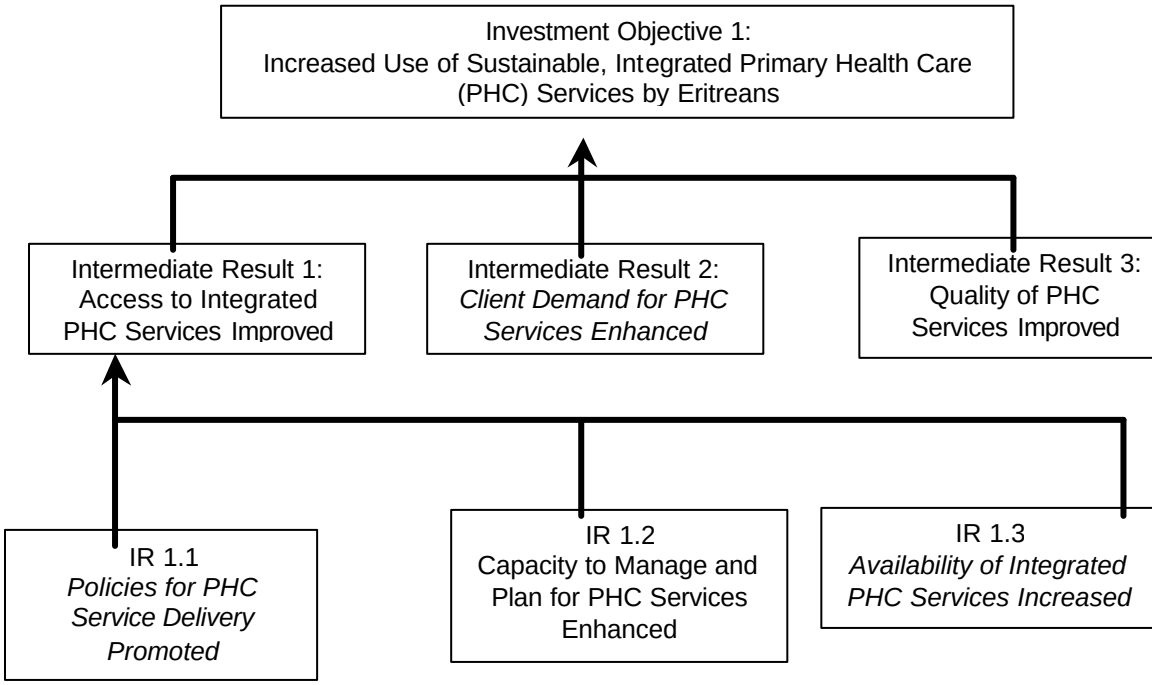


- **Technology and information**. Any staff in the MOH have worked half their lives in logistics management. "Computers can help if they give them reliable data than can accelerate quantification" "Consider (technology) a tool, not a replacement (for skill)
- **2004 evaluation.** Assess progress and needs and then develop strategy to fill in gaps
- **Work toward health commodity security** (long-term product availability) by developing a comprehensive strategy addressing all barriers to product availability (i.e., propose policies for logistics system, logistics financing, and coordination effort.). Strengthen the UNFPA-facilitated task team or working group which aims at supporting commodity security for reproductive health. It is recommended that the MOH and TASC II participate in this and other efforts.
- **Integrate logistics training in the preservice curricula** and that of other short course trainings—may offer success to sustainability.

III. TASC CONTRIBUTIONS TO USAID/ERITREA STRATEGIC OBJECTIVES AND INTERMEDIATE RESULTS

Thus far, TASC achievements have been presented in terms of the functional areas of the project. These areas represent departments of the MOH, with whom activities were carefully designed to enable them to carry out more effective work plans and achieve their goals and objectives. **Yet the efforts of both TASC and the MOH are ultimately designed to achieve broader objectives related to improving the health status of all Eritreans**. These broader goals cut across all functional areas and should help stakeholders work toward a more holistic approach to health provision. One way to conceptualize such objectives is through the USAID results framework for Eritrea as seen in Figure 27.

Figure 27: USAID Eritrea PHC Strategic Framework



This framework shows how three main intermediate results:

- Access to Integrated PHC Services Improved;
- Client Demand for PHC Services Enhanced; and
- Quality of PHC Services Improved

are expected to work together to bring about increased use of health services, and ultimately, improved health outcomes in the Eritrean population. Clearly, improved access, demand, and quality are essential to any successful health program, and all the functional areas in which TASC worked toward improving them in order to achieve optimal results. Operationally, TASC was expected to organize much of its assistance around the results framework and the three IRs. As such, it is worthwhile reexamining some of TASC's achievement in terms of this results framework and it's various components.

Most data in the table comes either from DHS surveys (1995 and 2002), the IMCI HFA (2000 and 2003), the maternal health facility surveys (2002 and 2003), and NHMIS data (continuous over the entire TASC period). Thus baseline and endline figures may come from different years and may not always directly show results attributable to TASC. Further, regarding the indicators measured by DHS, clearly many forces beyond TASC contribute to their achievement, and TASC is just one of many entities that influence the outcomes shown. In no way do we claim to have been the only cause leading to the favorable results observed. Nevertheless, TASC's activities were clearly designed to work toward achieving the indicators shown, and for the most part the processes were carried out successfully, so it seems justified to say that TASC at least contributed partially to the indicators shown. TASC can claim more direct credit for improvement in the more micro-level indicators that are directly related to TASC's work, such as facility-based work in IMCI.

In many of the most important health categories, Eritrea has achieved levels placing it well above average among African countries.

Most of the indicators in the table are taken directly from the USAID's Performance Monitoring Plan (PMP). Indicators that were outside of the realm of TASC's work were not included, nor were those for which there was no endline data. Some indicator definitions were changed slightly to conform with the way they were measured, usually with explanations. And finally, some indicators that pertain directly to TASC's interventions were added if they provided useful information and insights as to improvements (or lack of improvement) in a given objective or IR.

Sub-Goal: Improve Health Status of Eritreans

Eritrea has made impressive gains in most health outcomes in recent years. All indicators shown under the sub-goal in Table 11 improved between baseline and endline, and indeed this would be true of most of the broader health outcome indicators in Eritrea that one could choose to analyze. In many of the most important health categories, Eritrea has achieved levels placing it well above average among African countries.

The first four indicators shown in the table were chosen by USAID to measure achievement of this sub-goal, while the fifth one is included for additional information and interest. Between 1995 and 2002, total fertility decreased by 27 percent, from 6.1 to 4.8, and infant and child mortality declined by 50 percent and 46 percent, respectively. Malnutrition indicators did not improve as much and remain relatively high. Maternal mortality was not measured in the 2002 DHS, but case management records from hospitals indicate that the rate probably declined from the very high levels estimated by the DHS in 1995. Although these overall results are noteworthy, they still remain high by objective standards in many cases. Some of the drop in TFR may have been caused simply by the mobilization of men for extended periods for the conflict with Ethiopia. In sum, there remains substantial room for improvement in all of the indicators.

Investment Objective 1: Increased Use of Sustainable, Integrated PHC Services by Eritreans

The indicators for this objective demonstrate whether use of services increased over time—an important determinant of the health outcomes described above.

As with indicators for the sub-goal, those for this indicator were measured through the DHS over the period 1995-2002, so they do not overlap exactly with the period of TASC interventions.

Again, all indicators improved substantially. Modern method contraceptive prevalence increased from 3.1 to 3.8 percent among all women, and 4.0 to 5.1 percent among married women. Antenatal care visits increased by 44 percent, and ORT use increased by 47 percent. TASC worked extensively in each one of these areas, so it is fair to suggest that the project made some contribution to the improvements observed.

As with the sub-goal indicators, the gains observed under the investment objective, while impressive, still leave room for improvement. For example, although CPR improved substantially in percentage terms, it remains very low, even by sub-Saharan African standards. In fact, as was mentioned previously in the section on maternal health, *unmet* need for family planning is notably higher than met demand, suggesting that demand for family planning exists, and CPR could be much higher than at present if even a portion of existing unmet need were met. Regarding antenatal care, although the gains in ANC visits is impressive, with 70 percent of pregnant women now receiving antenatal care from a health professional, only 26 percent delivered in health facilities with the assistance of trained health workers. Only 40 percent of mothers received iron tablets for their last birth in the five years preceding the DHS, and all of them stopped taking the tablets before 60 days. The DHS further indicates that only 13 percent of mothers received vitamin A during the two-month postpartum period of their last-born child. All of these results point to areas that the MOH and TASC II can focus on in the future.

In addition to these population-based measures, the MOH collects information on service utilization (through the NHMIS) that can also be used to measure progress toward the investment objective or the sub-goal. A sample of certain services used over most of the period of TASC is shown in the table below. These are just a small sample of indicators related to service utilization that are available routinely from the NHMIS system, meant to complement those from the DHS. Coming from routine MIS systems, they provide managers with highly informative data on a more frequent basis than large population surveys such as DHS, allowing them to make better-informed decisions during the periods between DHS surveys.

Table 9. Utilization of Selected Health Services and Select Service Coverage Achieved (Source: MOH Annual Health Services Activity Report0

Type of Service	Year				% Change 1999-2002
	1999	2000	2001	2002	
Initial ANC visits	44,806	44,727	53,012	61,963	38.3%
Total ANC visits	138,365	140,226	158,782	193,018	39.5
ANC dropout rate	20.0	11.1	14.9	6.8	(66.0)
New family planning visits	25,988	17,090	18,733	22,324	(14.1)
Number of STI cases attended	9,939	14,629	6,552	6,722	(32.4)

These figures show that for a sampling of services, use increased during the period of TASC activities. Increases occurred in a much wider range of services that are not shown due to space limitations. The utilization figures generally correspond with outcome figures shown previously. For example, ANC visits increased by almost 40%, and dropouts declined, which is in turn reflected in the

increases in ANC coverage in the greater Eritrean population. Family planning new acceptors, on the other hand, declined between 1999 and 2002, although the trend in the last three years has been up. This may explain continued low but increasing contraceptive prevalence, and points to an area that appears to call for greater attention and interventions. The trend in STI cases attended is difficult to interpret; on the one hand, it is gratifying to see declining STI cases if it reflects lower incidence in the community, but on the other hand, if it reflects fewer people seeking treatment, it would be a cause for concern. Despite these caveats, most service utilization trends in Eritrea are positive, which is surely one of the main reasons health outcomes have improved.

Intermediate Result 1: Access to Integrated PHC Services Improved

Adequate access is a vital component of health program success, and is one of the main determinants of service utilization. Access can take many forms, including sufficient facilities, equipment, supplies and drugs, trained personnel, favorable organization of the service environment, etc. TASC set out to increase access mainly through development of the MOH's capability to design and adopt technical and human resource policies that would lead to accelerated delivery of quality services by skilled personnel at different levels of the health system. Effective methods of service delivery for MCH activities, (e.g. IMCI for child health) were supported. TASC/Eritrea also undertook to support the design, pre-testing, and rolling out of acceptable community-based programs that address maternal and child health issues in needy communities of Eritrea. The extensive training of service providers in many different capacities also helped expand access as well as improve quality (IR 3).

The following were some of the specific strategies carried out by TASC in support of this IR.

<u>Policies for PHC Service Delivery Promoted</u>

- To support the development of key technical policies and guidelines that will lead to improved service access by clients through training and technical assistance.
- To support development of MOH priority policies that assure improved management of program development and implementation, and national MOH planning, e.g. HRD, staffing standards, continuing education, etc.

<u>Capacity to Manage and Plan for PHC Services Enhanced</u>

- To support MOH senior management capacity to develop at the national level policies and service delivery programs through training, technical assistance, etc.
- To support at the zoba level technical capacity of MOH personnel to plan, manage, and implement basic MCH services through training, supervision and follow-up, technical assistance, and pilot program interventions.
- To support national capacity building for facilities and communities through in-house training, external workshops, and decentralized training at zoba, sub-zoba, and community levels.

<u>Availability of Integrated PHC Services Enhanced</u>

- To support the implementation of new approaches to MCH service delivery through pilot programs (C-IMCI, EmOC, nutrition) through training, supervision, provision of equipment, and research.

- To assist the MOH to develop new approaches that strengthen the link between communities and health facilities through pilot programs, training at the community level, supervision and follow-up, and research.
- To assure commodity security through support of the MOH to strengthen the logistics management system at the central and peripheral levels though capacity building, monitoring availability of commodities, and using logistics data for planning and decision-making.
- To provide technical assistance to support research on selected MCH issues that will improve service utilization through operations research, training, and funding specific research studies.
- To support the MOH in developing and operationalizing a holistic and integrated IEC framework that shows a shift from communication based on knowledge only to a behavior change orientation. The materials for health promotion and demand creation will be integrated and holistic, based on research, and covering a range of child health areas (e.g., safe motherhood, ANC, FGM, environmental health, malaria, coughs and colds, and diarrhea).

As seen in Table 13, most indicators associated with this IR improved between baseline and endline measures. IMCI facility readiness improved dramatically, but from a very low starting point. Sixty nine percent of facilities are adequately equipped and have someone trained in IMCI, but the expected target was 100 percent, so there is still room for improvement. Likewise, contraceptive availability improved but remains at very low levels. Only one out of 11 hospitals had the five contraceptives a hospital should have (pills, condoms, injectables, IUD, and VSC or Norplant), and only four of 24 health centers had the four methods expected of them (pills, condoms, injectables, and IUD). Stockouts of individual methods were far more frequent than desired, as shown under sub-IR 1.3. Injectable IMCI drugs were also frequently stocked out, though other products were in better supply. Product availability is one of the key determinants of program success ("no product? → no program"). Clearly, availability of contraceptives and IMCI injectable drugs is an area that needs more emphasis under TASC II.

Lack of availability of contraceptives may be one reason that family planning service utilization has not increased as much as may have been expected. Although couple-years-protection (CYP) was 47% higher in 2002 than in 1996, the trend in MOH facilities has been downwards since 1999. Although to a certain extent the decline in MOH service has been offset by an increase in NGO services—a potentially favorable phenomenon that was mentioned in the maternal health section of this report—the overall low levels of CPR and high levels of unmet need call for improved interventions in this area.

The percent of deliveries assisted by trained personnel, and the met need for EmOC services, also increased impressively, albeit from low levels. The percent of deliveries assisted by trained personnel increased by 37% and met need for EmOC increased by 88 percent, but both remain well below the targets established for 2001.

Finally, it is worth mentioning that the Eritrean Government has continued expanding its network of health facilities, and training staff to operate them, to allow them to reach increasing numbers of clients. The total number of health facilities operated by the MOH increased by approximately 8% during the period of TASC/Eritrea. Although TASC did not directly support the construction of new facilities, the project did supply materials in some cases, and trained over 8,349

persons in various skills, allowing the expansion of sites to be more effective. Both the increased numbers of facilities and trained providers to staff them are important measures of increased access. MOH sites make up approximately two-thirds of all facilities in the country, and health stations account for about two-thirds of MOH sites, as seen in Table 10.

Table 10: Health Facilities by Type and Ownership

Facility Type	MOH	Non MOH	Total
Hospitals	22	2	24
Health Centres	40	9	49
Health Stations	140	29	169
MCH Clinics	5	1	6
Clinics	36	31	67
Total	**243**	**72**	**315**

Intermediate Result 2: Client Demand for PHC Services Enhanced

To achieve this IR, TASC/Eritrea focused on reorienting health service delivery personnel to provide client-oriented and quality services, assuring client satisfaction, and reaching out to communities in order to respond to their health care needs by developing strong linkages between facilities and communities. The focus on interpersonal communication and counseling capability of the health personnel was identified as a major need that would enable strengthened partnership between health personnel in facilities and the communities that they serve.

With the MOH, TASC designed mechanisms for increasing client awareness about health promotion, prevention and curative services that are available at different levels of the formal and community-based health care programs. These efforts were mainly though extensive IEC interventions and community-based health promotion programs.

Specific implementation strategies for IR 2 included the following:

- Developing MOH capacity to develop and implement the delivery levels of IEC from the national to community levels in IMCI, EmOC, and nutrition through activities in the 3 target zones.
- Assisting the MOH to implement communication strategies in areas of safe motherhood, female genital cutting, HIV/AIDS, and malaria through materials development, use of media, studies, and research.
- Assisting the MOH to develop and implement communication strategies for 16 key IMCI health areas and implementing these strategies in pilot areas of the three target zones through training, materials development, studies and research.
- Continuing to assist the MOH to develop its capacity within training programs to include interpersonal communications and counseling skills for client-centered approaches to delivery of health care services, (e.g. IMCI, RH, EmOC, nutrition, and counseling skills for pharmacists).
- Assisting the MOH in the support of IEC focal persons' activities (zoba level) in the three target zones through technical assistance, supervision, and mentoring.
- Developing technical capacities of the MOH in behavior change and IEC through study tours, workshops, and training.

As seen in Table 14 indicators chosen to measure progress toward this IR are knowledge of ARI practices, knowledge of family planning methods, and knowledge of condoms as a means of HIV prevention. All three are measured through the DHS, and thus do not directly demonstrate the effect of TASC. Nevertheless, all three showed notable improvement, and TASC did work to improve knowledge in each of the areas. Endline knowledge of family planning methods exceeded the expected target, while endline knowledge of ARI and condoms were below their targets. People still do not view condoms as an acceptable means to prevent HIV/AIDS transmission. Condom use falls below TASC targets. This should be another focus area for TASC II.

Intermediate Result 3: Quality of PHC Services Improved

Quality of care (QoC) is an important component of any service delivery, particularly in public health. QoC implies performance according to standards that are known to be effective. TASC/Eritrea supported quality improvements through many different interventions, particularly service provider training, improved supervision, and improved monitoring. TASC supported the development and adoption of technical policies and management protocols that mandate improved quality of maternal and child health service delivery in the public health system. With QAP, JSI/TASC facilitated the institutionalization of supportive mentoring visits using simple tools for self-assessment and process reviews. Use of data for measurement of continuous quality improvement was encouraged. As a result of these interventions, MOH senior management improved their skills to plan and manage quality MCH programs, and to ensure that policies, guidelines, and protocols are in place for effective high-quality services. Furthermore, health care providers gained improved technical and interpersonal counseling skills to deliver quality services.

<u>The main strategies for IR 3 included the following:</u>

- Working with the MOH to develop a quality IMCI implementation and monitoring system and tools (in collaboration with QAP).
- Assuring quality of care in MOH PHC delivery system through infection prevention promotion, e.g. training, monitoring, research, etc.
- Assisting the MOH in building the capacity of its health care providers on quality-centered services, e.g. clients' rights, strengthening technical capacity of providers through training.
- Ensuring that quality assurance is an integrated part of all of the MOH's MCH training programs.
- Assisting the MOH in developing a supervisory and monitoring system for health care facilities through training (pre-service, on-the-job), follow-up, and tools development.
- Developing with the MOH clear indicators and tools to monitor QoC in community-based programs, e.g. EmOC, nutrition, IMCI in pilot areas in three target zones.
- Assisting the MOH to disseminate guidelines, protocols, and standards to health care providers.

Table 15 shows the results of selected indicators that measure progress toward improved quality of care. Several of the proposed indicators of the original PMP needed to be modified or dropped as they were not measured in the way proposed. For three indicators (provider assessment of childhood illnesses and

safe motherhood, and treatment of childhood illnesses using IMCI), rather than attempting to provide a single number for the measure, TASC determined that it would be more informative to present the results in terms of specific and measurable components. An interesting finding is that IMCI assessment skills improved dramatically, while treatment skills did not improve by as much, and in some cases appeared to worsen. These results may be misleading, however, as rollout IMCI training was still ongoing at the time of the endline, and many providers observed in the endline HFA survey had not yet been trained. When treatment skills were cross-tabulated against whether the provider was trained in IMCI or not, those trained in IMCI demonstrated treatment skills of substantially higher quality than those not yet trained. Clearly, completing all planned IMCI training is strongly advised, continuing into TASC II if necessary. If possible, remaining training should focus more on reducing inappropriate treatment with antibiotics, as this appears to be a major problem. In 68 percent (100 – 32) of observed cases where the child did not require antibiotics, they were prescribed anyway. This practice is not only wasteful from an economic standpoint; it can lead to undesirable health outcomes as well.

Other indicator results showed moderate accomplishments and/or slight improvements from the beginning of TASC/Eritrea. The percentage of facilities receiving supervisory visits within the previous three months, for example, increased from 79% to 82% in the case of IMCI supervision, and were found to be 78% for maternal health supervision in 2003. Training coverage indicators, on the other hand, were not so encouraging. Despite the heavy investment in training undertaken by TASC/Eritrea, there were still 30% of sites without any staff trained in family planning, and 39% of target sites with out staff for EmOC.

In conclusion, it can be seen from the results above that much progress has been made in Eritrea toward improved capacity, increased use, and improved health. Most indicators improved by substantial amounts during the period of TASC/Eritrea. Nevertheless, in almost all cases, results are still below optimal levels. Hopefully, the results and recommendations presented in this report can help the MOH and TASC II determine the most effective areas and strategies to focus on in the future in order to build on the outstanding progress made to date.

ANNEX 1: SOURCES

The results presented in this report come primarily from the following sources of information:

National Health Management Information System (NHMIS): This routine information system collects information on dozens of important health indicators at all levels, including inputs (e.g., number of facilities and service providers), processes (e.g., costs recovered, supervision), outputs (e.g., service utilization), and outcomes (e.g., disease patterns, case mortality rates, contraceptive prevalence estimates). The **Decision Support System (DSS)**, an Access-based tool developed by TASC/Eritrea, is the main mechanism for analyzing NHMIS data. Reporting rates are outstanding (in excess of 90%), data quality is adequate, and the system has covered all health facilities in Eritrea (MOH, NGO, and private sector) since before TASC began. Every year, the NHMIS department issues an *Annual Health Services Activity Report*, which is an excellent source of information on many health indicators.

TASC/Eritrea Training Database: This simple database was constantly updated and includes information on all training activities carried out by TASC/Eritrea since the beginning of the project. It is the data source for all indicators related to training.

Program Records: Useful as a record of inputs to the project (e.g., procurement).

Supervisory and Field-Worker Records: At various times throughout the project, TASC/Eritrea has used supervisory records to collect information on maternal health and nutrition.

- **Maternal Health.** A series of tools was used in the early stages of the project to allow supervisors to assess health-worker and facility performance. The tools consisted of records reviews, observation of care-giving sessions between provider and client, service provider interviews, and client interviews. More recently, a streamlined set of supervisory instruments was developed by Quality Assurance Project (QAP) to collect similar information more systematically. As enough records are collected, the result from a monitoring standpoint becomes almost like carrying out a facility assessment, so these forms are an important source of information about TASC achievements in maternal health (especially antenatal care, EmOC, and family planning). Though not completely comparable, there are enough equivalent questions to allow comparisons over time between the earlier and more recent versions. Along with the special studies in maternal health cited below they provide the information in this report on maternal health results.
- **Nutrition.** To monitor progress toward improved nutrition, forms were developed for field workers to report attendance and results of growth monitoring programs. Developed toward the end of the project, these forms have only been used in 800 villages to date, and provide some useful information on achievements.

Once in place, these and other routine approaches allowed the Eritrea MOH to track and improve service quality continuously as part of ongoing supervision. In theory, the forms and approaches can be expanded slightly to cover other types of service provision.

Special Studies: TASC/Eritrea designed some special studies for monitoring and evaluating specific project results, while others were more for operational improvements, but all contain potentially useful information about project achievements. The following are examples:

- **Assessment of the Performance of Emergency Obstetric Care Services in Health Centers and Hospitals in Four Zones in Eritrea.** In addition to the supervisory records described above, TASC/Eritrea carried out facility assessments to measure program capacity for EmOC. The forms including records review of services provided, and assessment of availability of drugs, contraceptives, and equipment. The baseline was carried out in August of 2002, while the end line was carried out in October 2003. These surveys are the main source of information on the number of sites capable of providing basic and comprehensive EmOC services, as well as product availability.
- **Factors Contributing to the Low Utilization of Delivery Services in Rural Health Facilities of Southern Red Sea Zoba.** A study on the low use of health facilities for delivery to identify factors affecting use.
- **A Study of Teenage Pregnancy in Zoba Anseba, Patterns and Characteristics**. A descriptive comparative study describing the pattern and traits of teen pregnancy in Anseba including age of pregnancy, school dropout rates, desired age at marriage and pregnancy, knowledge and practice of contraception and recommendations for possible solutions.
- **Dropout Rate of ANC Attendants in Gash Barka: Magnitude and Factors.** The study's aim was to identify major contributing factors to the dropout problem.
- **TBA assessment.** The knowledge, attitudes and practices of trained traditional birth attendants (TTBAs)
- **Baseline Study on Maternal Health: Household Survey Results of Seven Villages in Zoba Debub, August 2003.** The study was carried out in catchment areas where the MOH was implementing community-based maternal and child health (MCH) care to provide baseline information for continuous monitoring.
- **Maternal Health Review.** To ensure focus and relevance of its strategy addressing maternal health, TASC/Eritrea conducted a review of the existing maternal health program implemented in Eritrea by the Ministry of Health and other key partners.[5] The elements for this strategy were based on a series of process indicators recommended in the "UNICEF/WHO/UNFPA Guidelines on Monitoring the Availability and Use of Obstetric Services."
- **Reducing Maternal Mortality in Eritrea: Determining Gaps, What Works, and What Does Not?** Part of doctoral dissertation by MOH official.[6]
- **IMCI Baseline and Endline Health Facility Assessments (HFA).** These were facility-based studies of child health services, including case management observation, records review facility assessment, staff surveys, and client interviews. The baseline was carried out in 30 facilities in all six zobas in November 2000, and the endline in 45 facilities in October/

[5] Review was conducted by Dr. Barbara E. Kwast, March-April 2001.
[6] Mismay Gebrehiwet, MD, MPH, Johns Hopkins University, Baltimore: Doctoral Dissertation, 2003

November 2003. This was perhaps the most formalized evaluation activity used by TASC/Eritrea, and serves as the main source of information for progress and improved outcomes in child health.

Other studies related to child health.

- Assessing the Quality of Care for Hospitalized Children in Eritrea 2002
- Status of Referral in Eritrea/Analysis of Child Under 5
- Follow-up IMCI study of facility performance in child health in Debub, Maakel, and Anseba zobas (2003)

- **Growth Monitoring Program Baseline.** The baseline results are compared with more recent routine data described above (field-workers' records) to provide some insights on program results, as well as current strengths and areas needing improvement.
- **Knowledge, Attitudes, and Practices Studies.** These were used primarily by TASC/Eritrea's IEC component to assess potential clients' knowledge and needs that could be addressed through IEC campaigns or promotional materials. They focused on the following areas:
  - Child, maternal, and environmental health (2001)
  - Trained TBAs
  - 12 primary health subjects
  - RH, FP, and FGM in three subzones of Maekel, February 2003, and in two subzones of Debub, April 2003.

  Other studies supporting IEC
  - Formative studies in all the zobas in 2001 on different aspects of maternal/RH, and in environmental.
  - Formative Research Report on Health Behaviors in Selected Camps for Internally Displaced Persons (IDPs) in Eritrea
  - Formative study for HIV/AIDS (done with and for PATH Kenya).

Previous Project Endline Information: Both SEATS and BASICS carried out important surveys in Eritrea before TASC began. In many cases, these reports provide useful baseline information.

Qualitative Discussions with MOH Program Managers: In August and November 2003, two JSI staff carried out brief qualitative interviews with MOH program managers to determine to what extent MOH capacity was improved during the period of the TASC/Eritrea project. Results of these interviews help qualify the information collected through the mainly quantitative studies outlined above, as well as providing insights into lessons learned, remaining areas for improvement, and recommendations for future interventions.

Demographic and Health Surveys: DHS surveys were carried out in Eritrea in 1995 and 2002. Although the period between surveys does not correspond exactly to the TASC/Eritrea project timeframe, it does give provide scientific information on how outcome level health indicators have changed in recent years. Such changes occur as a result of many different factors, only one of which is the work of TASC/Eritrea. It is reasonable to suggest that the work of TASC/Eritrea contributed to improved health outcomes.

ANNEX 2: SUMMARY SHEETS

MODIFIED USAID/ERITREA PERFORMANCE MONITORING PLAN WITH RESULTS PRESENTED

Table 11: Sub Goal: Improve Health Status of Eritreans

Performance Indicator	Definition and Units		Baseline 1995	Endline		% Change 1995-2002
				2001 Target	2002 Actual	
Total Fertility Rate (TFR)	An estimate of the number of children that would be born per woman if she were to pass through the childbearing years bearing children according to a current schedule of age specific fertility rates. Unit: Children per woman Data Source: DHS		6.1	5.73	4.8	(27)
Infant Mortality Rate (IMR)	The estimated number of deaths in infants (children under age one) in a given year per 1000 live births in that same year. Unit: Deaths per 1000 live births Data Source: DHS		72	NA	48	(50)
Maternal Mortality Rate (MMR)	The estimated number of maternal deaths per 100,000 live births, where a maternal death is one which occurs when a woman is pregnant or within 42 days of termination of pregnancy from any cause related or aggravated by the pregnancy or its management. Unit: Maternal deaths per 100,000 live births Data Source: DHS for 1995; NHMIS for facility-based rate in 2002		998	600	320*	NMF**
Under Five Mortality Rate (U5MR)	The estimated number of deaths among children under 5 in a given year per 1,000 live births in that same year. Unit: Deaths per 1,000 live births. Data Source: DHS		136	100	93	(46)
Child Nutrition	The estimated percentage of children under five years classified as malnourished according to height-for-age (stunted), weight-for-height (wasted), and weight-for-age (underweight) Unit: Percent Data Source: DHS	Stunted	38	NA	38	(0)
		Wasted	16	NA	13	(19)
		Underweight	44	NA	40	(9.1)

* Facility based rate estimated from NHMIS, shown for illustrative purposes. Population-based rate was not measured in 2002 DHS.

** No meaningful figure, as population and facility-based rates are not strictly comparable, and the facility-based rate likely underestimates true maternal mortality

Table 12: Investment Objective 1: Increased Use of Sustainable, Integrated PHC Services by Eritreans

Performance Indicator	Definition and Units		Baseline 1995	Endline		% Change 1995-2002
				2001 Target	2002 Actual	
Modern Contraceptive Prevalence Rate	An estimate of the proportion of women of reproductive age who are using (or whose partner is using) a modern contraceptive method at a particular point in time. Unit: percent Data source: DHS	All women	3.1	9.3	3.8	23
		Married women	4.0	NA	5.1	28
Prenatal Consultation during Pregnancy	Percent of births whose mothers were attended at least once during pregnancy by medically trained personnel for reasons related to pregnancy. Unit: percent Data source: DHS		49	80	70.4	44
ORT Use Rate	Percent of the proportion of all cases of diarrhea in children under age five treated with oral rehydration salts (ORS) and/or a recommended home fluid Unit: Percent Data Source: DHS		38	80	55.7	47
Immunization Coverage	Percent of children 12-23 months who had received BCG, measles, 3 doses each of DPT and polio at any time before the survey Unit: Percent Data Source: DHS		41	NA	76	85

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Table 13: Intermediate Result 1: Access To Integrated PHC Services

Performance Indicator	Definition and Units		Baseline		Endline*		% Change 1995-2002/03
			Year	Value	2001 Target	2002/03 Actual	
Facility-Based IMCI Coverage	The percentage of targeted service delivery points where IMCI offered Unit: Percent Data Source: Health Facility Assessment	At least one person trained	2000	0	100	69	NMF
		All essential IMCI equipment	2000	17	100	69	306
Facility-Based FP Coverage	The percentage of targeted service delivery points where a full range of FP services (according to MOH guidelines) is offered. Full range is defined as 3 methods at a health station, 4 methods at a health center and 5 methods at a hospital.** Unit: Percent Data Source: Maternal Health Facility Survey	Hospitals n=10 (BL) n=11 (EL)	2002	0	NA	9.1	NA
		Health Centers n=23 (BL) n=24 (EL)	2002	4.3	NA	16.7	288
Safe Delivery Coverage	The percentage of deliveries in target areas assisted by trained medical personnel. Unit: Percent Data Source: DHS		1995	20.6	60	28.3	37
Proximity to Health Facility	The percentage of population that lives within 1 hour of a health facility Unit: Percent Data Source: DHS		1995	35.6	NA	TBD	TBD
Met Need for EmOC Services	Percent of women admitted with hemorrhage, eclampsia, septic shock, or obstructed labor who are treated at a designated (targeted) EmOC facility *** Unit: Percent Data Source: NHMIS		1998	32	100	60	88
Availability of EmOC Services	The percentage of hospitals equipped to provide basic and comprehensive, EmOC services, TASC zobas Data Source: Maternal Health Facility Survey		2002	TBD	NA	TBD	TBD
Availability of EmOC Services	The number of hospitals providing basic and comprehensive EmOC services per 100,000 population, TASC zobas Data Source: Maternal Health Facility Survey		2002	TBD	NA	TBD	TBD

* Endline was 2002 for DHS, 2003 for all other data sources

** The endline maternal health survey only included two health stations—not enough for meaningful analysis, so only hospitals and health centers are included here.

*** Denominator calculated based on the assumption that 15% of all deliveries in any population will develop complications (including conditions listed in the indicator definition). Numerator is the number of cases treated at MOH EmOC facilities, from NHMIS data.

Table 14: Sub-Intermediate Result 1.3: Availability of Integrated PHC Services Increased

Performance Indicator	Definition and Units	1999	2000	2001	2002	% Change 1999-2002
Couple Years of Protection (CYP)	An estimate of the protection against pregnancy provided by family planning services during a period of one year, based on the volume of all contraceptives sold or distributed free of charge to clients during that year. Unit: Couple years of protection (MOH sites only) Data Source: NHMIS	10,483	9,040	9,038	8,694	(17)

Performance Indicator	Definition and Units		Baseline 2000	Endline 2003	% Change 2000-2003
Drug Supply	An estimate of the proportion of targeted health facilities not experiencing stock outs of 13 essential oral drugs listed on the IMCI list. Unit: Percent Data Source: Health Facility Assessment		45	62	38
Drug Supply	Index of availability of seven essential oral IMCI drugs Unit: Number of available drugs (min = 0; max = 7) Data Source: Health Facility Assessment		5.6	6.6	18
Drug Supply	An estimate of the proportion of targeted health facilities with equipment and supplies to support full vaccination services. Unit: Percent Data Source: Health Facility Assessment		93	98	5.4
Drug Supply	Index of availability of four vaccines Unit: Number of available vaccines (min = 0; max = 4) Data Source: Health Facility Assessment		3.7	3.9	5.4
Drug Supply	Index of availability of five essential injectable IMCI drugs for pre-referral treatment Unit: Number of available drugs (min = 0; max = 5) Data Source: Health Facility Assessment		1.0	2.7	170
Contraceptive Supply	An estimate of the proportion of targeted health facilities with key contraceptives available Unit: Percent Data Source: NHMIS	Pills	78	59	(32)
		Condoms	60	53	(13)
		Injectables	55	54	(1.8)

Table 15: Intermediate Result 2: Client Demand for PHC Services Enhanced

Performance Indicator	Definition and Units		Baseline 1995	Endline 2001 Target	Endline 2002 Actual	% Change 1995-2002
Knowledge of ARI Practices	The proportion of children under three with cough and rapid breathing who were taken to a health facility or provider. Unit: percent Data Source: DHS		37	70	47	27
Knowledge of FP Methods	The proportion of women of reproductive age who know at least one modern family planning method. Unit: Percent Data Source: DHS	All women	66	NA	87	32
		Married women	62	80	85	37
Knowledge of HIV Preventive Practices	The proportion of adults [women] surveyed who recognize condom use as an acceptable means of protection from HIV infection Unit: percent Data Source: DHS		35	70	54	54

Table 16: Intermediate Result 3: Quality of PHC Services Improved

Performance Indicator	Definition and Units	Baseline 2000	Endline 2003	% Change 2000-2003
Service Provider Knowledge and Skills	The proportion of health workers who can correctly identify the following safe motherhood and child health conditions or perform the following functions Unit: Percent Data Source: Health Facility Assessment for IMCI and Maternal Health Facility Survey for safe motherhood	Measured by multiple indicators below		
Safe Motherhood	• Signs and symptoms of anemia (knows 3 0f 4 symptoms)	NA	76	NA
	• Signs and symptoms of pre-eclampsia (knows 6 of 9 symptoms)	NA	53	NA
	• Correct causes of postpartum hemorrhage (knows 3 of 3 symptoms)	NA	72	NA
	• All common pregnancy complications (knows 3 of 5 complications)	NA	75	NA
IMCI *	• Check children for cough, diarrhea, and fever	25	89	256
	• Assess children under two years for feeding practices	0.7	31	NMF
	• Check children for vaccination status	19	58	205
	• Index of integrated assessment (max 10)	2.9	6.2	114

* For IMCI, the unit of measurement was cases of children treated (i.e., 25% of children observed in the baseline were correctly checked for cough, diarrhea, and fever). This should correspond closely but not exactly to the percent of service providers correctly performing the action, the difference being that some service providers were observed treating more than one patient.

Performance Indicator	Definition and Units		Baseline 2000	Endline 2003	% Change 2000-2003
Extent of Supervision	The proportion of target health facilities with personnel reporting one or more visits every three months by supervisor. * Unit: percent Data Source: Maternal Health Facility Survey and Health Facility Assessment	Maternal Health	NA	78	NA
		IMCI	79	82	3.8
HMIS Feedback	The proportion of health facilities receiving feedback on HMIS reports in a timely manner. Unit: Percent Data Source: HMIS Report survey		0	Not Measured**	NA
Training Coverage	The proportion of target facilities with staff trained in EmOC and reproductive health Unit: Percent Data source: Maternal Health Facility Survey	FP	NA	70	NA
		EmOC/LSS	NA	61	NA
Provider Performance of IMCI	The proportion of patients in targeted facilities diagnosed by health care provider who are prescribed treatment in accordance with the national policy (regarding diarrhea, malaria, and ARI). Unit: Percent Data Source: Health Facility Assessment		Measured by multiple indicators below		
	• % of children inappropriately treated with an antibiotic (not appropriate to the condition)		47	32	(47)
	• % of children needing antibiotics who are prescribed the antibiotic correctly		56	60	7.9
	• % of children with pneumonia correctly treated		63	62	(1.8)
	• % of children with malaria correctly treated		11	24	108

* The exact indicator was the percent of facilities receiving a supervisory visit in the *past three months.*

**Anecdotally, the NHMIS Unit reported that in 2002approximately 90% of health facilities use MIS data for record-keeping and decision-making. According to the 2003 HFA, 100% of facilities had up-to-date patient registers, 80% had current GMP tallies, and 96% had up-to-date immunization registers.