

SHTP II End of Project Technical Report

SHTP II

January 7, 2013

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**Sudan Health Transformation Project, Phase II
2009 – 2012
End of Project Report
*Final Draft***

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Mother and child wait to be seen outside of a primary health care center in South Sudan.

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Acronyms

ACT	artemesian combination therapy
ANC	antenatal care
BPHS	Basic Package of Health Services
CCM	community case management
CHD	county health department
CLTS	community-led total sanitation
CPA	Comprehensive Peace Agreement
DPT	diphtheria, pertussis, and tetanus vaccination
EPI	Expanded Program on Immunization
ER	Expected Result
FFSDP	Fully Functional Service Delivery Point
FY	Fiscal Year
HHP	Home Health Promoter
HMIS	Health management information systems
IEC	information, education, and communication
IPT	intermittent presumptive treatment
LLIN	Long Lasting Insecticide-treated Net
LDP	Leadership Development Program
M&E	monitoring and evaluation
MOH	Ministry of Health
MSH	Management Sciences for Health
PBC	performance-based contracts
PHCC	primary health care center
PHCU	primary health care unit
PPH	postpartum hemorrhage
PSI	Population Services International
QI	quality improvement
SBA	Skilled Birth Attendance
SCP	sub-contracting partners
SHTP II	Sudan Health Transformation Project, Phase II
SIAPS	Systems for Improved Access to Pharmaceuticals and Services
SMOH	state ministries of health
TOT	training of trainers
USAID	United States Agency for Development
VHC	village health committee
VSI	Venture Strategies Innovations
WASH	water and sanitation
WHO	World Health Organization

Project Timeline

This report discusses the SHTP II project by fiscal years (FY) as follows:

Project Start Up	February, 2009 – September, 2009
FY 10	October, 2009 – September 2010
FY 11	October 2010 – September 2011
FY 12	October 2011 – July 2012

SHTP II conducted mostly administrative and project start-up activities during the first 7 months of the project, including “bridge contracts” to existing partners to prevent interruption of services. SHTP II service delivery activities and data collection began in full in October 2009. However, our full monitoring and evaluation component was not yet in place and the data provided was of poor quality during the bridge period and does not align with later project indicators. Therefore the data from this project start-up phase is not included in this report.

Based on the contractual agreement with USAID, SHTP II ended facility-based activities on July 31, 2012 and, therefore, FY 12 reflects only 10 months of data, not a full 12 months. Target achievements for this this period in FY 12 are prorated to account for this shortened time period.

Executive Summary

The second phase of the United States Agency for Development (USAID)-funded, Sudan Health Transformation Project (SHTP II) was implemented in 14 counties across all 10 states of South Sudan for 3 years and 8 months. The overarching goal of the project was to, “build on the decentralization of primary health care services to improve the health status of the Southern Sudanese people.” SHTP II was developed to achieve three mutually reinforcing results:

1. Expanded access and availability of high impact services and practices
2. Increased knowledge of and demand for services
3. Increased Southern Sudanese capacity to deliver and manage services

The project achieved results through nine sub-contracting partners (SCPs) working in 14 counties through performance-based contracts (PBCs) that linked performance to payments. Working in conjunction with the Ministry of Health (MOH), SHTP II rapidly expanded primary health care services throughout project-supported counties. These services are based on the MOH’s Basic Package of Health Services (BPHS) and focus on seven high impact areas: child health, nutrition, malaria, maternal health, family planning, water hygiene and sanitation, and HIV & AIDS within the primary health care structure focusing on both facility and community services.

The gains made in these areas reported here are very impressive in a relatively short period of time and will serve as the foundation for the continued development of the newest nation’s primary health care system. In just over five years, supported counties increased vaccination coverage for the third dose of the antigens for diphtheria, pertussis, and tetanus (DPT3) from a baseline of 20 percent to 86 percent¹ among children under one, with a huge shift to vaccinations occurring through fixed facilities, rather than through campaigns. Vitamin A supplementation coverage for children under five also increased from an estimated 40 percent to more than 51 percent. Pregnant women receiving at least one antenatal care (ANC) visit rose from 40 percent to 83 percent, and women receiving four ANC visits or more rose from 18 percent to 42 percent. Women supported by skilled birth attendants at delivery increased from 7 percent to 13 percent.

These results were a product of the project’s full health systems strengthening approach, which focused on utilizing key strategies and led to mutually reinforcing gains. SHTP II’s strategies, primarily the Leadership Development Program (LDP), the Fully Functional Service Delivery Point (FFSDP) toolkit, performance-based contracting (PBC), and a heavy investment in proper monitoring and evaluation (M&E), built capacity and improved service delivery. The project’s focus on improving community mobilization contributed to wider community knowledge of services and basic health and hygiene behaviors.

SHTP II trained more than 6,000 health workers in the major BPHS technical areas and in management areas such as M&E, health management information systems (HMIS), pharmaceutical management, and leadership development. Several of the training programs developed by the project for improving the quality of and expanding access to the BPHS have been adopted as national training policies, notably the home health promoter, reproductive health, and maternal / newborn health training programs.

¹ Baseline data is from the 2006 Sudan Household Health Survey. Results data demonstrates coverage in SHTP II-supported counties in FY12.

The road to a full transformation of health services in fragile states like South Sudan is an arduous journey, and completion is beyond the scope of a three and a half year program. Despite that, the gains made over the course of SHTP II are significant, and this report outlines these achievements in detail. The report also demonstrates areas of notable challenges and lessons learned, which can guide further strengthening of the primary health care system and thus, benefit the overall health of the South Sudanese people.

Introduction

Country History and Context

South Sudan is a nascent country with a turbulent history. The nation is recovering from nearly 50 years of civil war with the north, which culminated in the signing of the Comprehensive Peace Agreement (CPA) in 2005. This agreement officially ceased hostilities between northern and southern Sudanese forces and established an interim semiautonomous government. The CPA also set a timeline for a 2011 referendum to determine the nations' independence. In January 2011, 98 percent of South Sudanese adults voted in favor of independence and, in July 2011, South Sudan became the world's newest country.

After these events, South Sudan experienced a massive influx of returnees from the north and neighboring countries. As of June 2012, more than 390,000 people had returned to the country, taxing an already overwhelmed health and social service sector. Over the life of SHTP II, South Sudan faced internal displacement and insecurity caused by intertribal fighting, conflict between various rebel groups, and renewed tensions with the north.

This legacy of the war, as well as decades of underdevelopment, has left in its wake a conglomeration of problems. Chronic displacement from conflicts, coupled with a dearth of available education, health care, food, and infrastructure have left South Sudan in a fragile state and its residents in desperate need.

Table 1: Health indicators for South Sudan compared to East and Southern Africa

Indicator	South Sudan ²	East and Southern Africa ³
Maternal Mortality	2,054/100,000	760/100,000
Infant Mortality	102/1,000	76/1,000
Child Mortality	135/1,000	120/1,000
Neonatal Tetanus Protection	30%	81%
Children Under Age 1 Receiving DPT3	20%	78%
ANC (at Least 1 Visit)	40%	72%
Households with at Least 1 Long Lasting Insecticide-treated Net (LLIN)	12%	39%
Contraceptive Prevalence	3.50%	32%
Use of Improved Drinking Water Sources	48%	59%

Health Status

²Ministry of Health (Southern Sudan), Federal Ministry of Health (Sudan), Southern Sudan Centre for Census, Statistics and Evaluation (SSCCSE), Central Bureau of Statistics (Sudan). Sudan Household Health Survey, 2006.

³United Nations Children's Fund (UNICEF), *State of the World's Children*, 2008.

This legacy of conflict has left South Sudan with some of the worst health indicators in the world, much worse than its East and Southern African neighbors (see Table 1), especially in maternal and reproductive health. Due to the war, the nation's health system was non-functional outside of large urban areas until 2005. Facilities offered services on an *ad hoc* basis, often responding to emergencies and humanitarian crises more than addressing routine health needs.

Data from the 2006 Sudan Household Health Survey indicated that South Sudan's maternal mortality ratio is the worst in the world, with 2,054 maternal deaths for every 100,000 live births. This rate correlates with the nation's incredibly low rates of contraception use (3.5 percent), first ANC visits (40.1 percent), skilled attendance at deliveries (10 percent), and facility deliveries, either skilled or unskilled (13.7 percent). Additionally, only 40 percent of women in South Sudan report having heard of HIV, and only 9.8 percent of women could identify two methods to avoid HIV transmission. Although HIV prevalence is estimated to be 3 percent in South Sudan, populations in urban and southern border areas most likely have much higher rates than the overall population.

Similarly disheartening numbers exist for child health statistics. The same 2006 household survey estimated infant mortality at 102 deaths per 1,000 births, and mortality for children under age 5 at 135 per 1,000. Only 2.7 percent of children were fully immunized, and only 20.2 percent of children had received DPT3 by their first birthdays, as is recommended by the World Health Organization (WHO). The survey's nutrition data showed that 32.8 percent of children qualified as moderately to severely underweight.

Malaria remains the leading cause of morbidity and mortality in the country⁴. The disease contributes to increased anemia, itself a compounding health risk, particularly for children and pregnant women. Despite this, only 11.6 percent of households in 2006 reported owning a long lasting insecticide treated net (LLIN). Additionally, low standards of hygiene contribute to morbidity and mortality by propagating waterborne diseases, both through parasites and fecal contamination. Only 48.6 percent of households reported access to improved drinking water sources in South Sudan.

Program Overarching Strategy and Principles

Suzanna Ile is a 26-year-old South Sudanese woman. Suzanna had been pregnant twice and, each time, she lost the babies during childbirth. When Suzanna discovered she was pregnant for a third time, she visited a facility supported by SHTP II. The midwife who examined her detected a contracted pelvis, and informed Suzanna that delivering in a hospital via Cesarean section would greatly increase her child's chances of survival. Suzanne did deliver in a hospital and now has a healthy young boy, her very first.

SHTP II addressed health needs like Suzanna's by providing integrated services at 163⁵ primary health care facilities that adhere to the Ministry's BPHS and focus on seven high-impact areas (see Figure 3, page 7).

The WHO's six building blocks provided a framework for the project's health system strengthening approach. These building blocks include service delivery, leadership and governance, information systems,

⁴ UNDP. Status of MDGs in Sudan in 2012. http://www.sd.undp.org/mdg_fact.htm

⁵ This number reflects the number of facilities supported at the close of SHTP II. Over the course of the project, SCPs occasionally absorbed or released supported facilities based upon changes in agreements with state and national ministries of health. For consistency, this report uses 163 as the number of supported facilities, but at various times, this number was +/- 3 facilities.

human resources, health systems financing, and pharmaceutical systems. As seen in Figure 3 (page 7), SHTP II integrated all six components together to create a strong, sustainable health system in South Sudan.

The project used this comprehensive approach to prioritize and plan the most effective interventions and approaches. This involved building leadership and management capacity, bolstering human resources by conducting needs-based training and mentoring, and supporting service delivery through PBC with the project’s nine SCPs.

SHTP II’s holistic systems approach ensured that Suzanna knew about health services available to her and had access to a facility that was open, adequately staffed with trained personnel, amply stocked with essential medications for pregnant women to receive intermittent presumptive treatment (IPT) 2, and sufficiently equipped to provide her with quality services that led to a successful outcome.

Project Design

The three-year SHTP II project was designed to address the public health challenges facing South Sudan. The project worked as a follow on to the first SHTP project (2004-2009), and both worked in partnership with the MOH. SHTP made the first steps toward shifting the nation’s primary health care system to a

more long term, sustainable model. Building off lessons learned and partnerships built within the first project, USAID funded SHTP II for three years and eight months, and supported implementation of BPHS activities through nine SCPs in 14 counties across all 10 states of South Sudan. The overarching goal of the project was to, *“build on the decentralization of primary health care services to improve the health status of the Southern Sudanese people.”*

The project focused all health service delivery interventions in seven high-impact areas that combine to form the BPHS:

- Maternal health
- Child health
- Nutrition
- Malaria
- HIV & AIDS
- Family planning
- Water and sanitation (WASH)

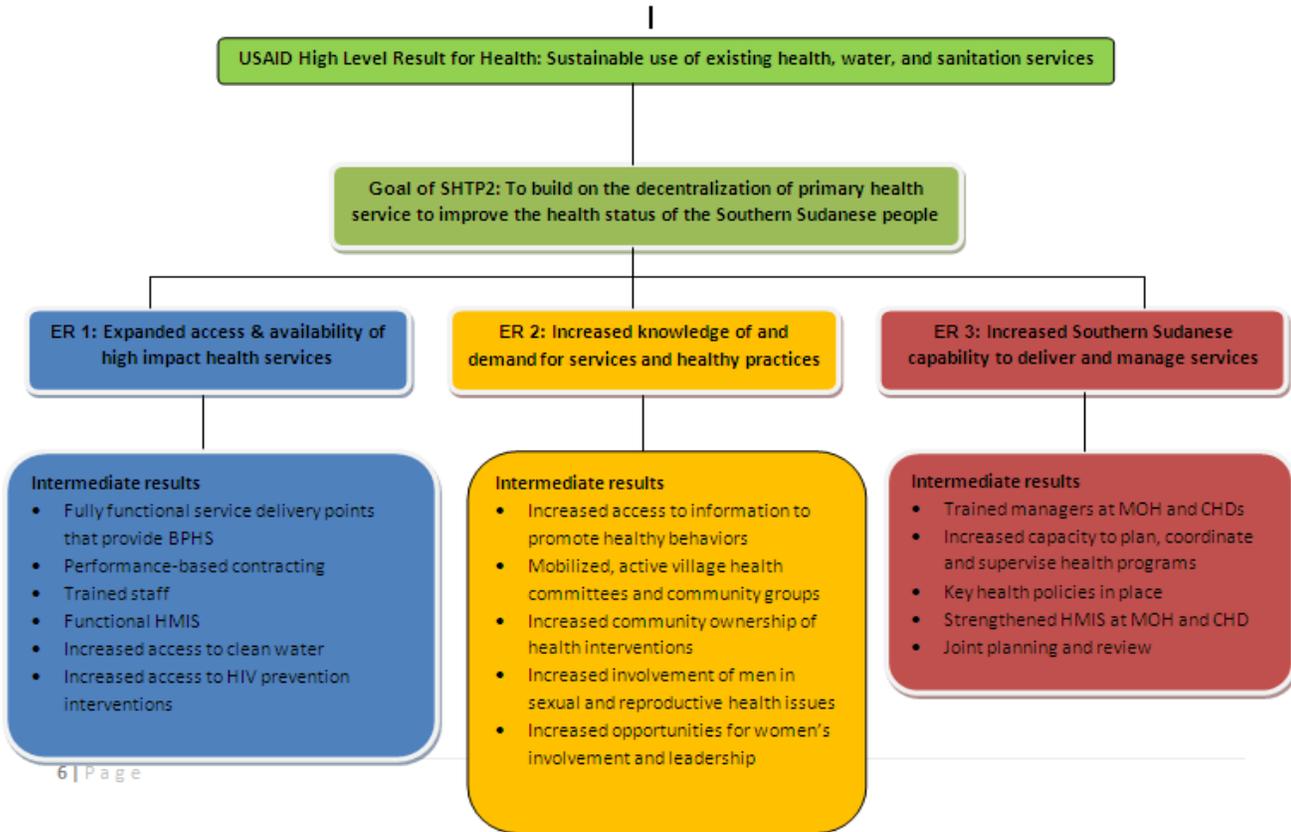


Figure 1: Map of SHTP II Population Coverage, 2012

- Total population in focus counties: 1.37 million
- Number of children under age 1: 54,983
- Number of children under age 5: 274,911
- Number of deliveries: 48,110

In addition to service delivery, the project design focused on community mobilization to expand both access to and demand for health services and worked on building the MOH’s capacity to provide those services. The SHTP II Results Framework outlines the three Expected Result areas (ER), and each sub-result area that guided all project activities.

Figure 2: The SHTP II Results Framework

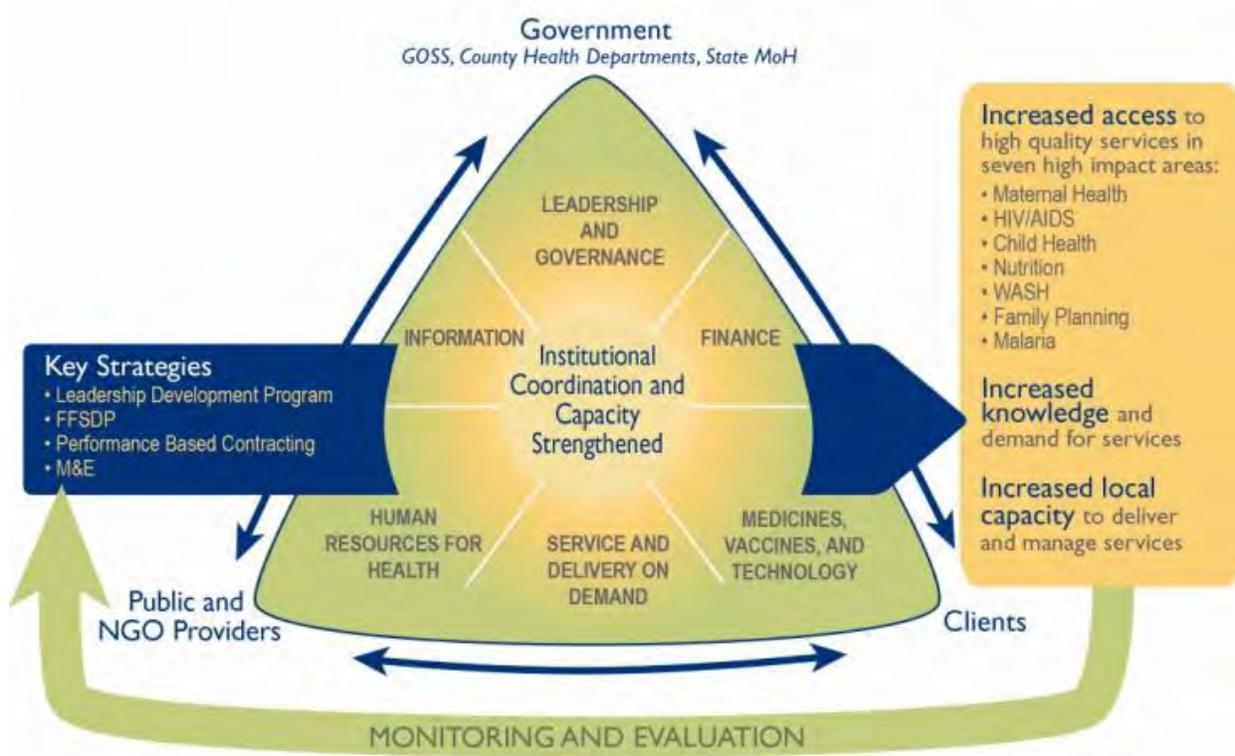


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Management Sciences for Health (MSH), the prime contractor for implementing the SHTP II, has worked for decades in post-conflict, fragile states. With extensive experience in implementation of the BPHS approach in Afghanistan, Liberia, the DRC and Haiti, MSH has developed an approach to strengthening health systems in fragile states to improve access to and the quality of the BPHS. This approach stresses that governments must lead development initiatives, and engagement in partnerships with local service delivery organizations and the private sector, usually NGOs, faith-based organizations, and other community-based organizations is essential to success.

SHTP II recognized the need to build the capacity of South Sudan’s MOH to perform policymaking and coordination activities, exercise good leadership and management, and monitor and evaluate health services at all levels, especially at the county and state levels. This approach strengthens the MOH’s capacity to provide universal access to the BPHS, while building the health system capacity to sustain services. Achieving these twin objectives were very challenging in the post-conflict, fragile environment of South Sudan, but SHTP II made significant progress towards achieving these three Expected Results, and paved the way for this work to be maintained and expanded in the future. Figure 3 below illustrates SHTP II’s overall strategic approach.

Figure 3: SHTP II’s Strategic Approach



During SHTP II implementation, technical activities in each of the six health system building block components proved essential to overall project success. These are summarized here and are discussed in more detail in the body of the report.

1. **Health Service Delivery.** In support of the MOH policy on universal access to health care, SHTP II ensured that policies, guidelines, job aids, and information, education, and communication (IEC) materials were available to support BPHS delivery in the seven high impact areas. The project also provided supervision and support to facilities and staff to bolster both the quality and quantity of services provided. The SHTP II quality improvement process, using a standards-based approach combined with the MOH supervisory checklist, improved both quality of and demand for services in project-supported counties. Once community members perceived improved quality of services, this stimulated increased utilization of services, especially in child health and maternal and reproductive health.
2. **Human Resources for Health.** SHTP II conducted training programs for all staff in key technical and management areas to improve their knowledge, skills, and practices. The project also worked through its SCs to develop a human resources management system to employ and pay 1,100 staff at county and facility levels. SHTP II staff also conducted joint supportive supervision visits with county health department (CHD) staff using MOH guidelines and a quality improvement approach for on-the-job mentoring and training.
3. **Information Systems.** SHTP II strengthened and harmonized the project’s HMIS based on the MOH system and tools. Data quality improved significantly in supported counties after the project implemented a consistent data quality analysis approach at all levels, and corroborated these improvements through regular supervision and monitoring visits. SHTP

It also worked with the MOH to standardize the national M&E system; all reports now share the same format and consistency of data.

- 4. Leadership and Governance.** The project held quarterly meetings with state ministries of health (SMOH), CHD, and SCP staff to review progress, identify gaps, and develop action plans to improve performance. Project goals focused on improved planning, budgeting, and M&E capacity of CHDs through training and mentoring. SHTP II implemented the Leadership Development Program in each county, using local facilitators to improve management and leadership practices and, in turn, improve project performance.
- 5. Health Systems Financing.** SHTP II provided salary support to 68 percent of the MOH service staff to ensure consistent salary payments and retention of personnel. The project also used performance-based contracting with the SCPs, which linked payments to performance and helped to improve indicator achievements.
- 6. Pharmaceutical Systems.** To strengthen the pharmaceutical system within primary health care service delivery, SHTP II conducted training programs for ministries of health, CHDs, and SCP staff on pharmaceutical management. The project worked with facility and county staff to improve stock controls and forecast needs of essential medicines. The project also worked with CHDs to strengthen cold chain systems and increase vaccination coverage, while simultaneously partnering with the MOH and Systems for Improved Access to Pharmaceuticals and Services (SIAPS) to track stock outs of medications and re-distribute pharmaceuticals among facilities, as needed. This was most effective for anti-malarials (artemesian combination therapy (ACT) and sulfadoxine/pyramethamine), contraceptives, and antibiotics.

Key Technical Approaches

In order to focus priority actions and achieve results, SHTP II's design centered around four key technical approaches:

1. Performance-based Contracting (PBCs)
2. The Fully Functional Service Delivery Points (FFSDP) tool
3. The Leadership Development Program (LDP)
4. Monitoring and evaluation based on improving quality data collected within the HMIS.

Performance Based Contracting (PBC)

Many fragile states that emerge from decades of war with an undeveloped health infrastructure rely on NGOs to provide health services. In most cases, including South Sudan, these NGOs have often worked within the country for decades providing services with their own resources or through donors. In South Sudan, the MOH views the continuing use of NGOs as a bridging strategy until the government has the resources to provide the nation's health services directly, through government-supported health workers.

Based on this "contracting out" approach, a bilateral agreement between the MOH and USAID established that SHTP II would contract out the BPHS in 14 counties in 10 states to NGOs. In the project start-up phase, bridge subcontracts were used to continue existing services and requests for proposals were issued to guide selection of the partner NGOs. By the end of FY 10, a competed subcontract was issued to an NGO in each of the 14 counties.

Based on past experience working in fragile states, MSH elected to use PBCs as a mechanism for all sub-contracted Partner (SCP or NGOs). PBCs linked payments to the SCPs' performance, as measured by specific indicators that focused on key BPHS and management functions.

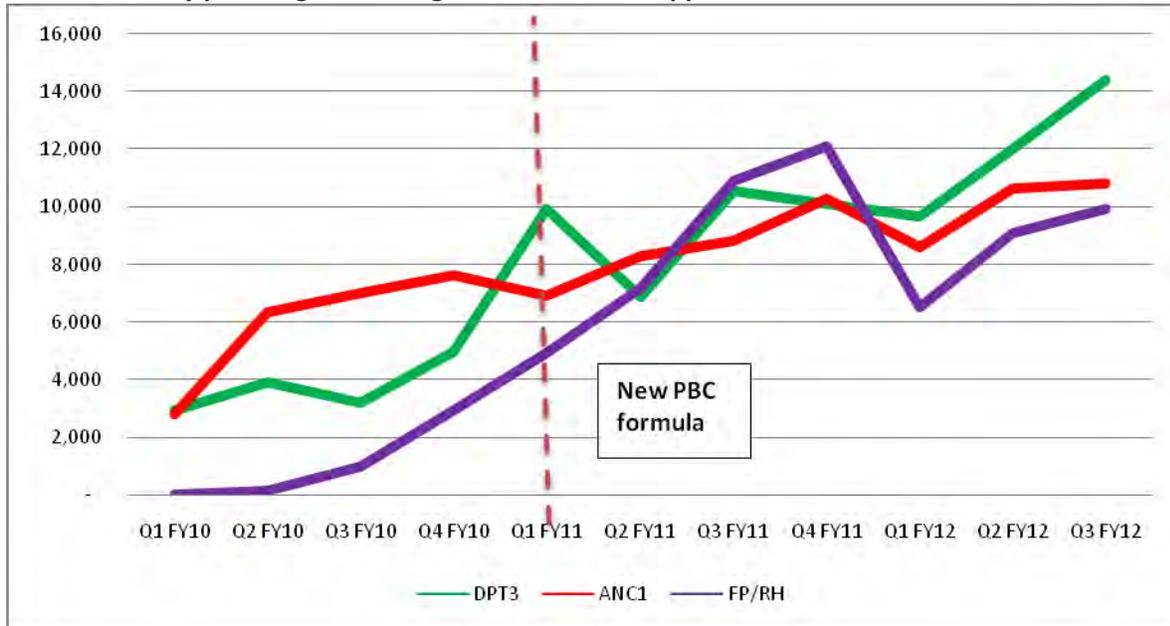
Initially, the PBCs required that the NGOs achieve all 18 indicators prior to earning a performance bonus. As a result, none of the project's SCPs partners achieved a performance bonus in FY 10. Therefore, beginning in the first quarter of FY 11, SHTP II implemented a new payment methodology that directly linked performance on more specific key indicators to payment. This new matrix, or "NGO Scorecard" used 11 indicators (eight performance indicators and three management indicators), that represented each of the seven high priority services and key management functions. Based on the targets set for each county, a "score" was calculated each quarter on the percent of targets achieved for each indicator, and the score for each indicator was totaled for the full NGO performance for the quarter. If an SCP scored above 100 percent on the scorecard in any given quarter, they received a 6 percent payment bonus. However if they achieved below 80 percent of the total score, the SCP only received 95 percent of their funding for the quarter (a negative incentive). Scoring between 80 and 100 percent earned the full payment scheduled for that quarter. During the first quarter of implementation, no SCPs received a bonus. By the second quarter, two subcontracting partners achieved a bonus, while two received penalizations for low scores. Starting in the third quarter of implementation, more SCPs received bonuses and none received a penalty. In the last quarter of FY 11, and the first quarter of FY 12, six SCPs received bonuses each quarter.

In FY 12, one of the SCPs refused to sign their sub-contracts with the penalty included in it. In the interests of finishing the project effectively, SHTP II discontinued the penalty portion of the formula during the second and third quarter of FY '12. However, after removing the penalty, four SCPs fell below the 80 percent achievement in the final quarter of the project. This was an unprecedented occurrence, as none of the SCP had received a penalty since the first quarter of PBC implementation. These results demonstrate the value of the negative incentive in maintaining high performance.

In order to further support the expansion of quality services, SHTP II amended the scorecard in the first quarter of FY 12 to include a new indicator on the percent of assigned facilities that received a documented supervisory visit. This was done after the project team discovered that some SCPs were not routinely visiting all facilities, instead focusing their supervision and mentoring efforts on a smaller number of high-performing facilities. By the last quarter of the SHTP ii, the percentage of facilities visited for supervision visits increased to almost 70% overall.

As the PBC process evolved, project data demonstrated a rapid increase in service delivery and improved efficiency in achieving results during FY '11 after implementation of the new payment formula described above. For example, within one year of the PBC revisions, the project improved DPT3 coverage from 30 percent to 70 percent, an achievement that experience has shown would normally take two to three years in other similar projects.

Figure 4: Number of children under age 1 receiving DPT3, pregnant women attending at least one ANC visit, and family planning counseling visits in SHTP II-supported facilities



Fully Functional Service Delivery Point (FFSDP)

The FFSDP is a standards-based toolkit that SHTP II used to improve the quality of health service provision in project-supported facilities while, at the same time, improving access to desperately needed high-impact services. The FFSDP was pioneered by MSH to improve the quality of facility health services (primarily PHCCs) by evaluating the availability and quality of 11 service elements that, together, make a facility fully functional.

In order to fully align the FFSDP tools with MOH guidelines, SHTP II incorporated the MOH guidelines for each of the BPHS high priority technical areas into the quality improvement process and adapted these guidelines to be the foundation of the initial quantitative, standards-based assessment tool. Subsequently, in 2011, SHTP II incorporated the newly developed MOH quantitative supervision guidelines into the quality assessment process.

This quality improvement approach has three steps:

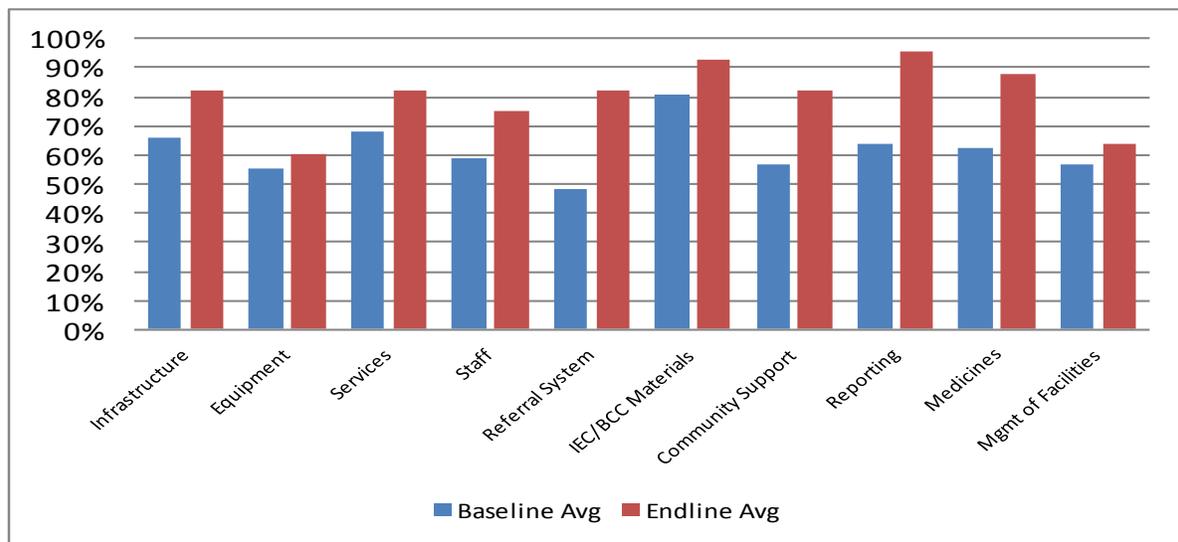
1. A quantitative assessment tool that the facility uses to measure performance on the 10 standards, compared to other facilities.
2. A plan of action to address any performance gaps identified in each standard.
3. An educational package used during supportive supervision visits for facility staff to strengthen individual and overall performance.

The FFSDP is designed to be used as both an external assessment approach during supervision and an internal quality improvement tool, with the action plan and reassessments conducted by the facility's quality improvement team. As the facility quality improvement teams, SCPs, and CHDs integrated this standards approach into regular supervision assessments, performance gaps were filled. Data demonstrates that the overall facility service quality improved for each of the 10 standards (see Figure

5). As community members perceive quality improving in a facility, they gain confidence and use the facilities more often, thus increasing access.

The FFSDP toolkit is designed to be continuously implemented over the course of three years, allowing for proper training and adjustments, as necessary. Due to the challenges of awarding 14 sub-contracts in the first year, the FFSDP was not initiated until FY 11. Thus, the project only had 18 months to implement a strategy that was meant to take three years. The toolkit is designed to be a rigorous and intensive evaluation of the primary health care centers (PHCCs) that provide the majority of the health care services in a county. Although the FFSDP toolkit can be adapted for the primary health care unit (PHCU) level as well, time did not permit this to happen during SHTP II.

Figure 5: Average baseline and end line scores for SHTP II-supported facilities evaluated with the FFSDP standards



Because the FFSDP is comprehensive and addresses multiple standards, initial implementation can be time consuming, although subsequent evaluations tend to be quicker. The FFSDP was introduced at a time when the MOH was not using a quality improvement tool. Subsequent to its introduction, the MOH developed a supervision tool intended to achieve the same objectives, but it was not as comprehensive as the FFSDP. SHTP II incorporated the MOH supervisory tool into the quality improvement process, and advised the SCPs and CHDs to use the MOH supervisory tool for their routine supervision, but MSH’s primary health care mentors continued to use the FFSDP at the PHCC level during the project’s supervision visits to measure improvements in quality. The shortened implementation time prevented full implementation of the tool, and not every facility evaluated each standard twice. Despite this, the improvements in all standards is a notable achievement, particularly when facing the challenges of working in a nascent and fragile state like South Sudan, and show an increase in service provision across all quality standards. Given more time, it is expected these gains would be even more dramatic. SHTP II believes that improved quality is perceived by the community and leads to improved utilization of services, thus facilitating achievement of Results 1 and 2: increasing access to and demand for the BPHS.

Leadership Development Program (LDP)

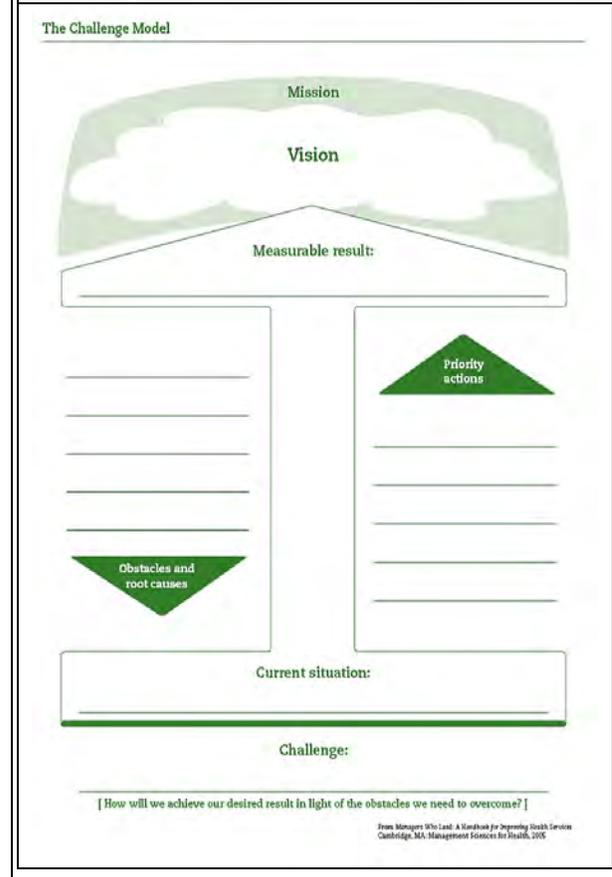
The LDP is a technical approach that strengthens leadership and management practices at all levels of a health system. This program begins with the development of effective work-based teams and then helps these teams identify challenges, as well as their root causes, and seek solutions to overcoming barriers to achieve measurable results using the Challenge Model (see Figure 6). The program empowers participants by fostering a sense of ownership for workplace problem solving and accomplishment of specific tasks. The LDP's Challenge Model allows participants to produce tangible results that help to boost staff morale, improve team dynamics, develop specific action plans with budgets and M&E activities, and encourage sustained enthusiasm for addressing additional challenges. The LDP helped improve various health micro-systems including financial management, human resources, quality assurance, operations, referrals, and M&E, and also supported improved performance on challenging indicators, such as skilled attendance during delivery. In one County, skilled birth attendance increase seven-fold over a six month period using the LDP to identify creative approaches to attract women to deliver in facilities.

Monitoring and Evaluation

SHTP II provided a significant amount of support aimed at strengthening the central M&E Unit at the national MOH, as well as M&E functions within the CHDs and SCPs. At the start of the project, the M&E system was still in the formative stages of development and was characterized by a high level of disorganization, coupled with poor staff capacity and weak data quality. At the facility level there was neither a consistent approach to the HMIS nor standardized registers for recording patient information or preparing monthly summary reports. Moreover, data verification was nearly impossible, as no formalized method for data quality assessment was available.

SHTP II facilitated the consolidation and testing of frontline data collection tools that formed the MOH HMIS and became part of the suite of tools used at the facility level. The project also supported the MOH in printing these tools, disseminating them to the various facilities, and training staff to use them. At a higher level, SHTP II trained CHD staff in M&E, data collection and management, data use, and data quality assurance. During the course of the project, each service delivery site demonstrated significant improvement in all pillars of data quality including reliability, timeliness, and validity.

Figure 6: Leadership Development Program Challenge Model Tool



Summary of Achievements by Major Result

As outlined above, the SHTP II Results Framework was designed to achieve three main expected results (ERs) over the course of the project:

1. Expand access to and availability of high impact services
2. Increase knowledge of and demand for services
3. Increase Southern Sudanese capability to manage and deliver services

Result 1: Expand Access to and Availability of High Impact Services

At the start of SHTP II, a public health emergency existed in South Sudan due to decades of civil war; the lack of a cohesive, functioning health infrastructure; and extremely low coverage for essential services, such as vaccinations, maternal child health, and infectious disease prevention and treatment. Thus, the initial stages of the SHTP II must be viewed as a rapid response to the emergent health needs of the population. During project start up, SHTP II maintained subcontracts through a bridging period with SHTP I. By the end of FY10 new subcontracts to NGOs were in place and health service providers were employed by the NGO. Thus began the transition from emergency relief to development as the project focused on developing systems to sustain the gains in access to services into the future.

Figure 7 shows SHTP II’s progress towards achieving Result 1 over the final three years of the project. In its first year, data collection and quality was inconsistent, so that year is considered the project’s baseline year and is not represented in Figure 3. As shown in Table 2, SHTP II made significant and rapid improvements in the number of services provided is shown over the three year period.

Figure 7: SHTP II key indicators, FY 2010 – FY 2012

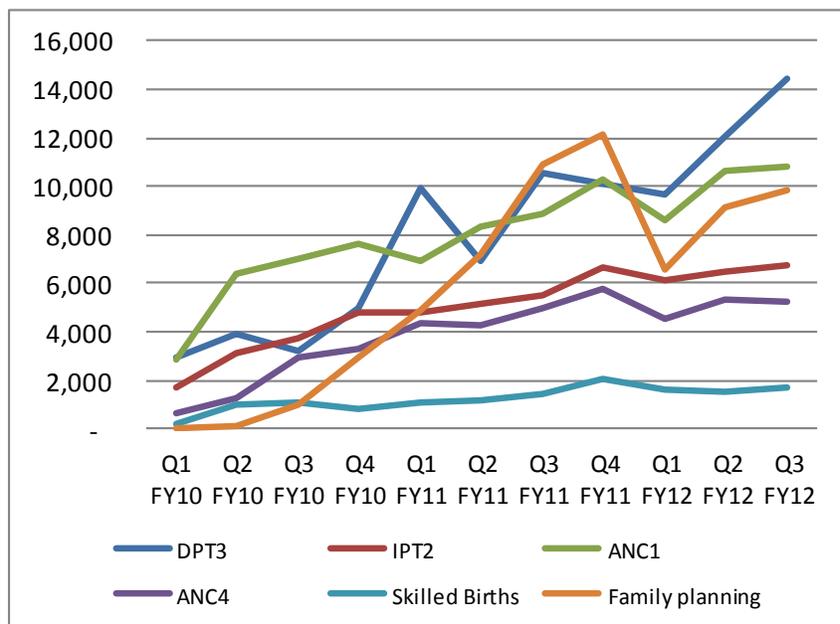
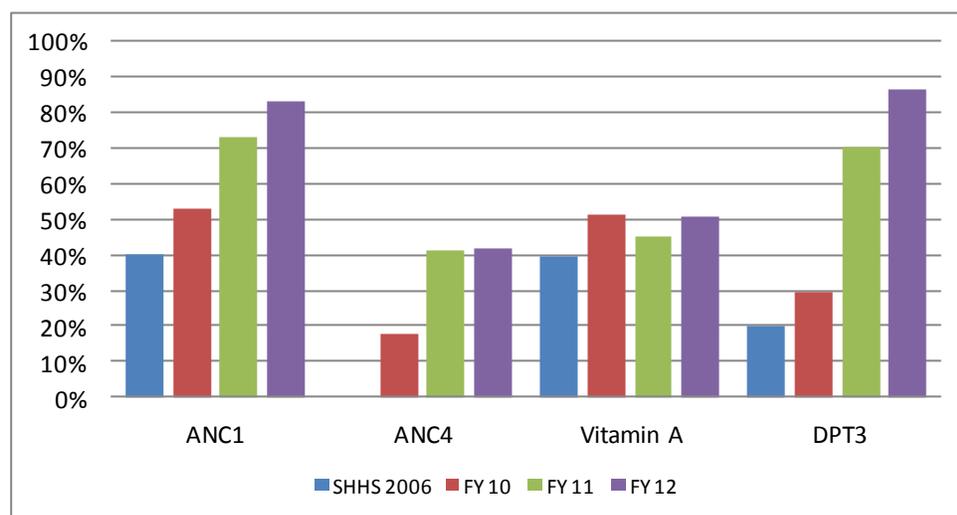


Table 2: Progress over the life of the SHTP II in achieving key indicators

Indicator	Number of Persons Seen in First Reporting Quarter	Number of Persons Seen in Final Reporting Quarter	Cumulative SHTP II Total	Percent increase from first to final reporting quarters ⁶	Coverage in FY12
Children under age 1 who received DPT3	2,941	14,399	92,233	390%	86%
Children under age 5 who received Vitamin A supplementation	3,452	33,072	303,543	858%	51%
Pregnant women who received IPT2	1,731	6,778	56,838	292%	53%
Pregnant women who attended a first ANC visit	2,802	10,837	91,409	287%	83%
Pregnant women who attended four or more ANC visits	646	5,273	44,249	716%	42%
Family planning counseling visits	2,937	9,958	66,539	239%	N/A
Women who delivered with a skilled birth attendant	978	1,706	14,088	74%	13%

Figure 8: Percent coverage of DPT3, Vitamin A, and first and fourth antenatal care visits within the target population, in SHTP II-supported counties



⁶ Due to variations in project start up, first reporting quarters vary among indicators. Final quarter for all indicators is April – June 2012.

Child Health

Over the course of the project, SHTP II focused heavily on scaling up integrated primary health care services to children in South Sudan. Children make up a large portion of the nation’s populace with an estimated 4 percent of the population under age 1 and 20% under age 5. Improving access and availability to preventive and curative services for children reduces early childhood mortality and

LDP Trainees Use New Skills to Improve DTP3 Vaccination Coverage

The health care staff at Gurei Primary Health Care Center (PHCC) completed the LDP in May of 2011. As part of the training, Raile Antanasia, Lagu Martin and Amoko Benjamin worked together to evaluate the quality of services within their facility. Their analysis revealed that PHCC’s childhood vaccination services were not performing well. In response, the team first set targets to improve the number of children receiving the DTP3 vaccine. They then solicited support from donors and managed to obtain a new solar fridge for vaccine storage from UNICEF. To support these efforts, SHTP II trained two staff members at PHCC to properly administer and record vaccinations. The LDP team then created a temporary vaccination room at the facility to handle the increased demand for services.

Six months after these interventions, the number of children being vaccinated at Gurei PHCC had more than doubled. From May to November of 2010, only 1,725 children had received DTP3 but from May to November of 2011 Gurei logged more than 4,300 DTP3 vaccinations. Data from 2012 showed a sustained increase in these services with 1,718 children vaccinated in three months – nearly the same quantity which had been vaccinated over six months in 2011!



Midwife administers DTP3 vaccine in South Sudan

morbidity and benefits the population as a whole by creating healthier communities and reducing disease prevalence.*

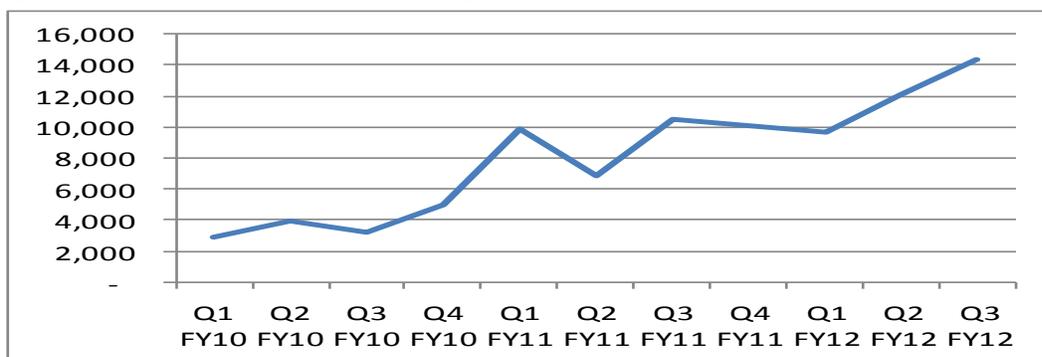
Expanded Program on Immunization (EPI)

In order to strengthen child health services provided at the nation’s service delivery points, SHTP II partnered with USAID, UNICEF, and SMOHs to improve cold chain storage systems, to supply service delivery points with improved refrigerators and sufficient cold boxes, and to train more providers and vaccinators in proper vaccination administration. A key scale up innovation implemented in several counties included providing PHCUs with a week’s supply of EPI vaccines in cold boxes from PHCCs, thus converting PHCUs into fixed facilities for EPI and other services. Prior to 2009, the majority of EPI services were provided through accelerated child survival campaigns. However, from the start, SHTP II focused on strengthening facilities to provide vaccinations as part of an integrated strategy. The availability of vaccines 5 days a week in facilities allows caretakers to bring their children in for immunizations on any day, thus increasing access to a full range of comprehensive services, such as nutrition counseling, vitamin A, family planning counseling, LLINs, and other preventive services. This is a key lesson learned from SHTP II.

These efforts allowed SHTP II to rapidly scale up the MOH’s EPI and related services throughout project-supported counties. Thus, over the course of the project, EPI efforts moved from a dependence on outreach efforts to fewer outreaches and a heavier focus on facilities for provision of comprehensive services. In the final quarter of the project, 75 percent of EPI services were provided through facilities and only 25 percent through outreach efforts. This is a much more sustainable approach based on the transition from relief to development and health systems strengthening.

SHTP II’s key child health indicator was the number of children under age 1 receiving the DPT3 vaccine. In 2006, South Sudan’s DPT3 vaccination rate for children under age 1 was only 20.2 percent.⁷ Over the course of the project, SHTP II fully vaccinated 92,233 children under age 1 with DPT3, and steadily increased coverage each year, achieving 86% coverage of children under one in just two years (see Figure 9 and Table 3).

Figure 9: Children under age 1 receiving DPT3 in SHTP II-supported counties



The overall trend of DPT3 coverage shows an incredibly positive and marked improvement in both access to and demand for vaccinations. Estimated percentages of children under age 1⁸ receiving

⁷ Ministry of Health (Southern Sudan), Federal Ministry of Health (Sudan), Southern Sudan Centre for Census, Statistics and Evaluation (SSCCSE), Central Bureau of Statistics (Sudan). Sudan Household Health Survey, 2006.

⁸ Accounting for an annual 3 percent overall population growth rate.

vaccinations in SHTP II-supported counties increased from 30 percent in FY 10, to 70 percent in FY 11⁹, to 86 percent in FY12. DPT3 vaccinations increased by 102 percent over the course of one year (Q4 of FY 10 to Q4 of FY 11), coinciding with the project’s introduction of the PBC scorecard linking DPT3 vaccination coverage with NGO payments. Focusing the project on key indicators such as DPT3 coverage helped partners to align their priorities and ensure that vaccinations and child health remained a high priority area for improvement and expansion and allowed integration of other high priority BPHA services at the same visit. Rapid and sustained improvements in the percentage of children under age 1 who are covered by DPT3 represent a significant project achievement.

Table 3: Children under age 5 receiving DPT3 in SHTP II-supported counties

Fiscal Year	Quarter	Children Under age 5 Receiving DPT3	Fiscal Year Total	Percent Coverage
FY 10	Q1: Oct - Dec 2009	2,941	15,053	29.2%
	Q2: Jan - Mar 2010	3,898		
	Q3: Apr-June 2010	3,228		
	Q4: July - Sept 2010	4,986		
FY 11	Q1: Oct–Dec 2011	9,934	37,450	70.1%
	Q2: Jan–March 2011	6,874		
	Q3: April - June 2011	10,546		
	Q4: July - Sept 2011	10,096		
FY 12	Q1: Oct–Dec 2012	9,649	39,730	86%
	Q2: Jan–March 2012	12,032		
	Q3: April – June 2012	14,399		
	Q4: July 2012	3,650		
Cumulative Total			92,233	

Malaria

Malaria is the leading cause of death in South Sudan, so SHTP II focused a great deal of attention on improving malaria services, both at facilities and in communities. The National Malaria Control Program provided a training of trainers (TOT) workshop on pediatric and adult malaria for CHD and SCP staff, and this training was replicated in all project-supported facilities. Distribution of LLINs, increasing the rate of IPT2, improving the supply of ACT and prevention of stockouts, responding to malaria outbreaks and improved reporting on malaria case finding and treatment all contributed to improved malaria prevention and treatment in children.

In addition to vaccination expansion, SHTP II developed and implemented a child health training that covered various topics including nutrition, immunization, hygiene, and treatment for the three major causes of childhood mortality: malaria, diarrhea, and pneumonia. SHTP II also developed a program for involving communities more effectively in health care, with training modules to support the development of new and strengthening of existing village health committees (VHCs). Once VHCs function well, they can better support a network of Home Health Promoters (HHPs) in both prevention

⁹ Between FY 10 and FY 11, MOH estimates of the population of children under age 5 doubled from 10 percent to 20 percent

and case management services. In the final year of the project, SHTP II implemented additional trainings and supervision in several counties to support the implementation of community case management (CCM). CCM uses HHPs to diagnose and treat malaria, diarrhea, and pneumonia. In July 2012, the MOH formally adopted the *SHTP II Home Health Promoters Guideline: Approaches to working with Village Health Committees and Community Mobilization Strategies* as the national guidelines and approaches for community based health interventions in South Sudan.

More than 60 percent of South Sudanese live further than five kilometers away from a health facility and, as a result, often delay seeking health services due to of travel, time and cost barriers. This lack of access to health services can cause dire consequences, as illustrated in Ajak’s story below. SHTP II’s work to enhance community treatment has improved conditions for thousands of South Sudanese children whose caretakers are now more likely to seek and receive treatment or referrals for their children in a timely manner.

Combating Malaria and Child Mortality in South Sudan

Five-year old Ajak was in a coma when she arrived at the Panthou Primary Health Care Center (PHCC), a facility supported by SHTP II. Ajak’s mother informed the PHCC clinical officer, Moses Ocakacon, that her daughter had been suffering from fever and convulsions. Moses immediately admitted Ajak to the pediatric ward for further management and testing. Recognizing that Ajak’s symptoms indicated a severe malaria infection urgently needing treatment, the Panthou medical team immediately started Ajak on quinine. Shortly thereafter, tests confirmed that Ajak had a severe malaria infection.

Although she had begun treatment, the following day Ajak remained in a coma and her mother’s hopes for her child’s recovery began to fade. Noticing her concern, Moses explained to Ajak’s mother that her daughter was suffering from severe malaria, which takes longer to respond to treatment than uncomplicated malaria. Finally, after three days of treatment and anxious waiting, Ajak woke up from her coma. Three days later she was discharged from PHCC. The medical team at Panthou PHCC gave her mother information about nutrition and the importance of finishing the anti-malarial medication, and advised her to bring Ajak back for a checkup after one week.

After exiting the health center, Ajak’s mother turned back towards the PHCC and said, “*Panakimapat!*” (“This health center is good!”) She then told Moses and Joseph, “At one point, I thought I would go home with a dead child. I came carrying my child on my back. She was lifeless and now my child is well and she is walking. *Panakimapat*, and thank you very much for saving the life of my child.”



Moses and his colleague discharging a recovered Ajak, accompanied by her mother

Nutrition

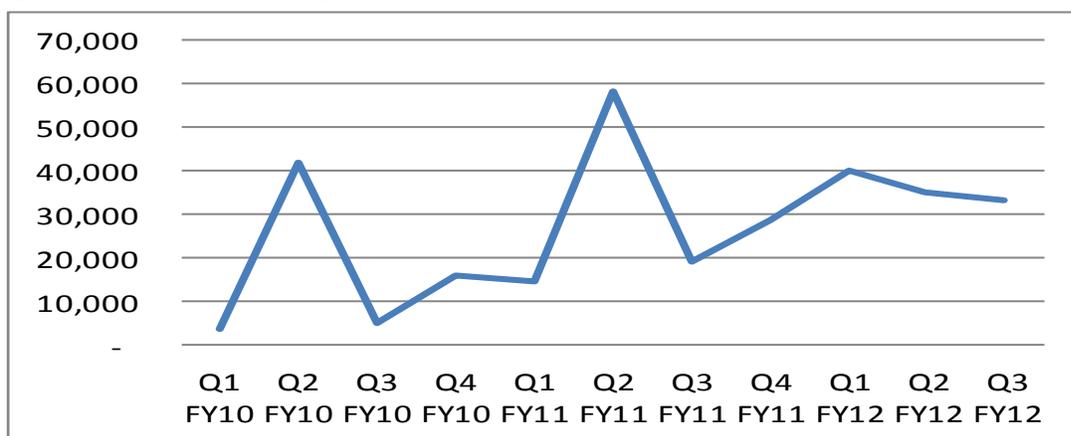
Food security in South Sudan is impaired by the nation’s inadequate transportation network and limited agricultural production after decades of war. As a result, millions of South Sudanese struggle daily with hunger and poverty. This food insecurity leads to chronic malnutrition among many residents as well as vitamin deficiencies due to malabsorption. Childhood rickets is common, and leads to a contracted pelvis in women, like the aforementioned Suzanne Ile who lost two children in childbirth, and leads to increased rate of stillborns and maternal mortality.

Children are especially vulnerable to the effects of malnutrition. Vitamin A deficiencies are associated with childhood blindness, retarded bone growth and cell division, and decreased immunity to most diseases. Providing a proper vitamin A dosage to children under age 5, twice a year, has been shown to reduce disease mortality by 23 percent.¹⁰

SHTP II focused on nutrition promotion by providing health education to families and patients and growth monitoring during child outpatient visits. SHTP II also produced vitamin A job aids and distributed these to each of the project’s facilities to help health workers properly diagnose and treat children during routine consultations. Additionally, the project distributed vitamin A during all mass polio campaigns, which SHTP II supported in conjunction with the MOH and WHO.

Over the course of the project, SHTP II distributed a total of 303,543 doses of vitamin A to children under age 5, achieving over 50 percent coverage of the population under age 5 by the final project year. While the mass polio campaigns, which integrate vitamin A distribution through mass distribution to all children who can be reached, caused several outlier quarters, overall trends in vitamin A distribution show a consistent and steady increase, demonstrating wider acceptance and integration of these nutrition services into South Sudan’s basic primary health care (see Figure 10 and Table 4). Vitamin A distribution from FY 10 nearly doubled by FY 11 and, throughout FY 12, remained on track to significantly outperform these first two years (see Table 4). In FY 11, the MOH doubled the estimates of

Figure 10: Children under age 5 receiving vitamin A supplements in SHTP II-supported counties



¹⁰ WHO (2009). Global prevalence of vitamin A deficiency in populations at risk 1999-2005. <http://www.who.int/vmnis/vitamina/prevalence/en/>.

the number of children under age 5, from 10 percent of the population to 20 percent of the population. This is why the number of vitamin A supplements distributed significantly expanded but the overall coverage of the population under age 5 remained stable.

Table 4: Children under age 5 receiving vitamin A supplements in SHTP II-supported counties

Fiscal Year	Quarter	Children under Age 5 Receiving Vitamin A Supplements	Fiscal Year Total	Percent Coverage
FY 2010	Q1: Oct - Dec 2009	3,452	66,523	51.4%
	Q2: Jan - Mar 2010	42,065		
	Q3: Apr-June 2010	4,915		
	Q4: July - Sept 2010	16,091		
FY 2011	Q1: Oct–Dec 2011	14,389	120,353	45.1%
	Q2: Jan - March 2011	58,257		
	Q3: April - June 2011	18,927		
	Q4: July - Sept 2011	28,780		
FY 2012	Q1: Oct - Dec 2012	39,865	116,667	50.9%
	Q2: Jan - March 2012	35,019		
	Q3: April - June 2012	33,072		
	Q4: July 2012	8,711		
Cumulative Total			303,543	

In addition to integrating vitamin A distribution into routine visits, SHTP II also promoted nutrition by counseling fecund, pregnant, and postnatal mothers to exclusively breastfeed for the first six months of their child’s life. Exclusive breastfeeding provides a child with vital nutrients and immunity, which does not need to be supplemented with additional food. Additionally, in places such as South Sudan, where access to sanitary water and food is often problematic, exclusive breastfeeding protects the child from contracting dangerous fecal and water-borne diseases, which can cause serious illness or death. SHTP II also encouraged providers to counsel caretakers on the importance of introducing appropriate supplementary foods that are high in protein and calcium into a child’s diet, another important aspect of the project’s nutritional education program.

Malaria

Malaria remains one of the leading causes of morbidity and mortality in South Sudan.¹¹ Women and children, who tend to have a poorer nutritional status, also tend to be more vulnerable to respiratory diseases, hypoglycemia, anemia, and other diseases, which all exacerbate the effects of malaria infection.¹²

¹¹Southern Sudan 2010 Household Survey Abridged Report / CMC-EY -AE April 2011

¹² WHO, Malaria in Pregnancy (http://www.rbm.who.int/cmcc_upload/0/000/015/369/RBMInfosheet_4.htm)

Pregnant women who contract malaria have a higher likelihood of being anemic, delivering a low weight or premature baby, or suffering a miscarriage, all of which pose additional health complications for both the mother and baby.¹³ In 2010, a household survey showed that only 51.6 percent of pregnant women in South Sudan received one dose of intermittent preventive treatment (IPT) to prevent malaria during pregnancy, and only 22.7 percent received the two doses (IPT2) recommended by WHO.¹⁴



Rapid test results to diagnose malaria, the most common cause of morbidity and mortality in South Sudan.

In addition to the devastating mortality rate of childhood malaria in South Sudan, recent studies show that children who suffer cerebral malaria¹⁵ have a 25 percent chance of suffering long-term cognitive effects.¹⁶ Sleeping under an LLIN may reduce child mortality from malaria by as much as 20 percent¹⁷, yet in 2006, only 11.6 percent of households in South Sudan reported anyone sleeping under an LLIN.

In order to address the malaria epidemic in South Sudan, SHTP II routinely distributed LLINs during both antenatal care (ANC) and EPI visits. During these visits, health workers also provided mothers and caretakers with basic malaria prevention education and taught them how to properly use the nets. As shown in Figure 11 and Table 5, quarter three of FY10 until quarter two of FY11, distribution of LLINs through ANC and EPI visits at project-supported facilities increased by 97 percent (i.e., from 9,100 to 18,000 per quarter). Subsequent quarters saw a drop off in distribution through both EPI and ANC visits, in part because the early distribution covered the majority of the women and children in need and in part due to later stock outs in various counties. In response, SHTP II mobilized inter-county transfers to alleviate the supply problems in several counties, and numbers moderately rebounded in subsequent quarters.

¹³ *ibid*

¹⁴ *Southern Sudan 2010 Household Survey Abridged Report / CMC-EY-AE April 2011*

¹⁵ Cerebral malaria is a condition caused by *P.falciparum*. *P.falciparum* is the causative agent of 98% of all malaria infections in South Sudan

¹⁶ John CC, Bangirana P, Byarugaba J, Opoka RO, Idro R, Jurek AM, Wu B, Boivin MJ., "Cerebral malaria in children is associated with long-term cognitive impairment." *Pediatrics*. 2008 Jul;122(1):e92-9. Epub 2008 Jun 9.

¹⁷ Friends of the Global Fight against AIDS, Tuberculosis and Malaria. From Prevention to Treatment: The Global Fund's Comprehensive Approach to Fighting Malaria. April 2009.

http://www.theglobalfight.org/view/resources/uploaded/Malaria_Interventions.pdf

Figure 11: LLINs distributed during ANC and EPI visits in SHTP II-supported counties

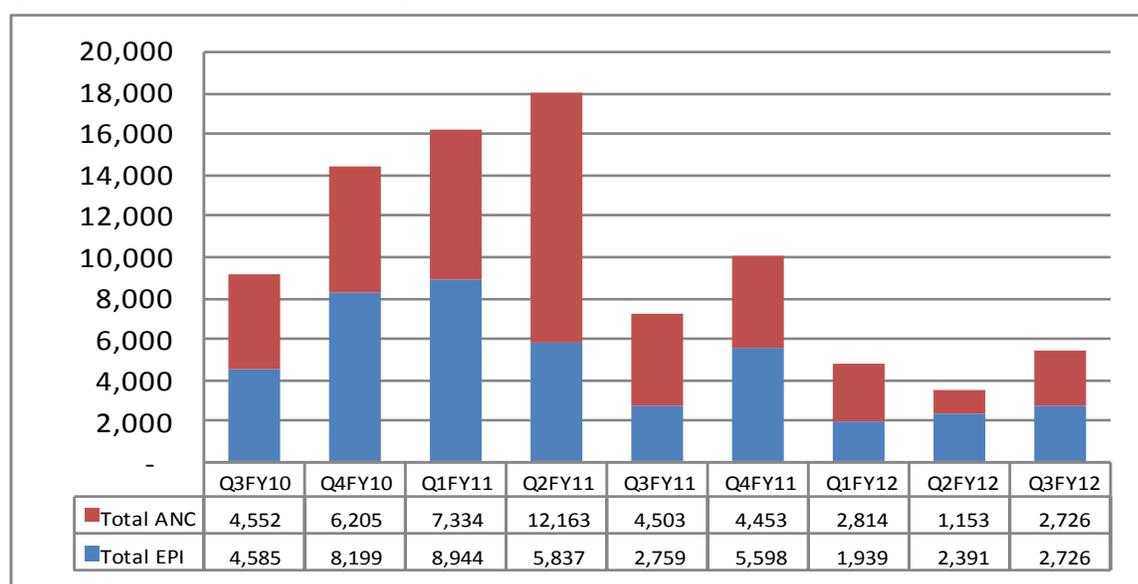


Table 5: LLINs distributed during ANC and EPI visits in SHTP II-supported counties

Fiscal Year	Quarter	Nets distributed during ANC ¹⁸	Nets distributed during EPI	Fiscal Year Total
FY 2010	Q1: Oct - Dec 2009	n/a	n/a	23,541
	Q2: Jan - Mar 2010	n/a	n/a	
	Q3: Apr-June 2010	4,552	4,585	
	Q4: July - Sept 2010	6,205	8,199	
FY 2011	Q1: Oct–Dec 2011	7,334	8,944	51,591
	Q2: Jan–March 2011	12,163	5,837	
	Q3: April - June 2011	4,503	2,759	
	Q4: July - Sept 2011	4,453	5,598	
FY 2012	Q1: Oct–Dec 2012	2,814	1,939	13,749
	Q2: Jan–March 2012	1,153	2,391	
	Q3: April – June 2012	2,726	2,726	
Cumulative Total of all nets distributed during SHTP II			88,881	

The project also encouraged all pregnant women to receive at least two doses of IPT during their pregnancy, as is recommended by WHO. Through the project’s community outreach and education activities, as well as its health worker capacity building initiatives, SHTP II-supported facilities increased IPT2 distribution from 53% from Q4 of FY 10 to 83% Q4 of FY 11 (see Figure 12 and Table 6).

¹⁸ Project data is not available for the first two quarters due to gaps in monitoring and recording data.

Figure 12: IPT2 distributed to pregnant women in SHTP II-supported counties

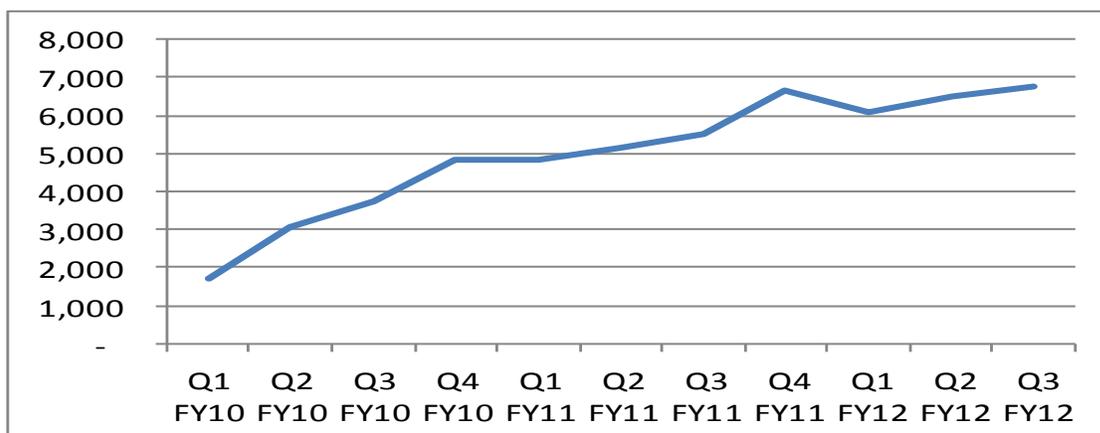


Table 6: IPT2 distributed to pregnant women in SHTP II-supported facilities

Fiscal Year	Quarter	IPT2 distributed to pregnant women	Fiscal Year Total	Percent Coverage
FY 2010	Q1: Oct - Dec 2009	1,731	13,397	52.7%
	Q2: Jan - Mar 2010	3,086		
	Q3: Apr-June 2010	3,765		
	Q4: July - Sept 2010	4,815		
FY 2011	Q1: Oct–Dec 2011	4,821	22,111	73%
	Q2: Jan–March 2011	5,129		
	Q3: April - June 2011	5,525		
	Q4: July - Sept 2011	6,636		
FY 2012	Q1: Oct–Dec 2012	6,077	21,330	82.9%
	Q2: Jan–March 2012	6,490		
	Q3: Apr – June 2012	6,778		
	Q4: July 2012	1,985		
Cumulative Total			56,838	

While malaria attacks vulnerable populations like women and children more readily, the entire population is at risk for contracting malaria. To address the needs of this broader populace, SHTP II focused on improving and expanding both preventive and curative services at the facility level. From April 2010 until June 2012, project-supported facilities treated a total of 572,219 patients for malaria.

In partnership with USAID and UNITAID, SHTP II provided 386,425 doses of ACT) to supplement drug kits that the MOH had distributed to health facilities throughout the project’s target counties. These doses alleviated stock outs at facilities and ensured a continuity of accessible care. Additionally, SHTP II worked closely with SIAPS to monitor drug supplies and ensure reporting and rapid management all ACT stock outs. Improved pharmaceutical management practices introduced by SHTP II stressed improved forecasting of ACT and other essential medication needs to address potential stock outs before they become a crisis.

Table 7: Patients treated for malaria at SHTP II-supported facilities

Fiscal Year	Quarter	Patients Treated for Malaria	Fiscal Year Total	Monthly Average
FY 2010	Q1: Oct - Dec 2009	n/a	110,754	18,549
	Q2: Jan - Mar 2010	n/a		
	Q3: Apr - June 2010	43,002		
	Q4: July - Sept 2010	67,752		
FY 2011	Q1: Oct - Dec 2011	62,097	266,647	22,221
	Q2: Jan - March 2011	48,593		
	Q3: April - June 2011	57,741		
	Q4: July - Sept 2011	98,216		
FY 2012	Q1: Oct - Dec 2012	70,473	194,818	21,647
	Q2: Jan - March 2012	52,798		
	Q3: Apr - Jun 2012	71,547		
Cumulative Total			572,219	

In addition to pharmaceutical supply interventions, SHTP II also implemented training programs on malaria diagnosis and case management for service providers through the National Malaria Control Program. SHTP II held a TOT workshop for facilitators from each of the 14 project-supported counties. After completing this workshop, the master trainers then rolled out the training to various health workers in their respective counties. SHTP II conducted follow up visits with individual facilities and health providers to ensure and reinforce proper disease management.

Maternal Health

One of the principal goals of the MOH is to reduce exceptionally high rates of maternal mortality, currently the highest in the world at 2,054 deaths per 100,000 live births. In addition to improving child health, another primary objective of SHTP II project was to improve maternal health services in the 14 counties in support of this MOH principal goal.¹⁹ Due to traditional gender and family hierarchal constraints, South Sudanese women often have little decision making control, even when it comes to decisions about their own health and, all too often, they and their families suffer due to lack of adequate and timely health care. This contributes to the overall lower levels of health status for many South Sudanese women, and was one of the primary focuses of SHTP II through concentrated efforts in expanding maternal and reproductive health care.

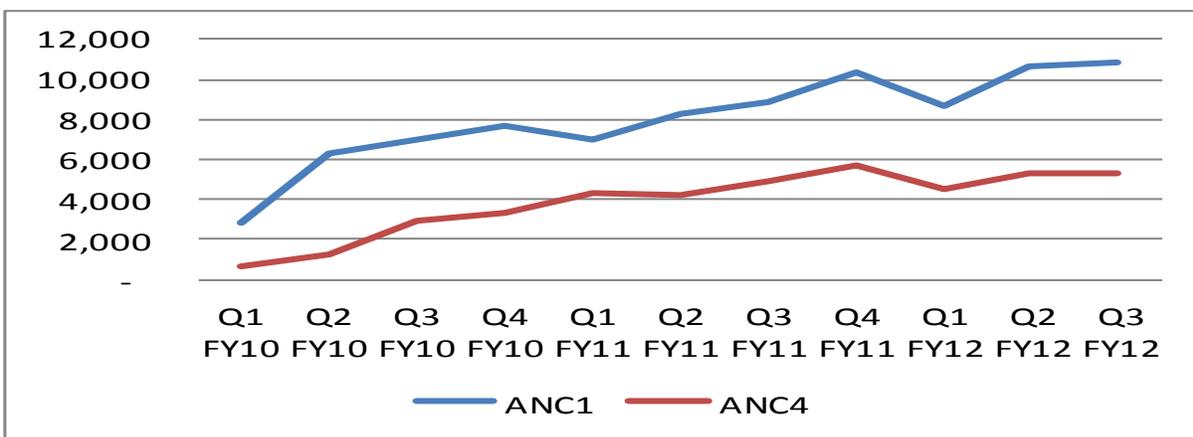
One of the project's primary aims was to increase the number ANC visits for pregnant women. ANC visits help health workers detect potential complications in pregnancy and delivery and the administration of beneficial medications such as tetanus toxoid vaccines, IPT2, deworming pills, and iron/ferrous sulfate. ANC visits also provide an opportunity for women to discuss their birth plans with a trained health worker and receive counseling on the healthy timing and spacing of pregnancy.

¹⁹Ministry of Health (Southern Sudan), Federal Ministry of Health (Sudan), Southern Sudan Centre for Census, Statistics and Evaluation (SSCCSE), Central Bureau of Statistics (Sudan). Sudan Household Health Survey, 2006.

Because of the very high maternal mortality rates, the SHTP II focused a great deal of attention on improving both antenatal care (ANC) and Skilled Birth Attendance (SBA). The number of midwives at SHTP II supported increased by 40 percent during the life of the project, and we developed and rolled out a Maternal and Neonatal Health training program to all facilities providing these services. After developing the curriculum, we trained 28 trainers, who then, in turn, trained all MNH providers at the facility level in each county. We used the LDP described above to focus on increasing SBAs as the main challenge, and used our community health mobilization and home health promoter training modules to emphasize the importance of ANC and SBA. Many TBAs were trained to bring pregnant women into facilities for ANC and SBA, and some communities provided incentives to TBA to support this transformation from home maternal care to facility-based care.

Over the project’s three years, maternal health indicators for SHTP II demonstrated steady and sustained improvements. ANC visits increased by 35 percent from the end of FY 10 to the end of FY 11 (7,638 to 10,301) and fourth ANC visits demonstrated an even larger upswing, increasing from 3,284 visits at the end of FY 10 to 5,743 at the end of FY 11, a 75 percent increase. Both first and fourth ANC visits dropped in the first quarter of FY 12 due to staff shortages during the December holidays, but again rebounded and continued the general upswing visible throughout the entirety of the project. In total, the project-assisted facilities provided more than 77,000 first ANC visits, and 37,000 fourth ANC visits. The overall coverage in the last project year was 83 percent of pregnant women for ANC 1 and 42 percent for ANC 4, indicating SHTP II’s success in stimulating women to access ANC earlier so they can receive four ANC visits before delivery. These increases, along with the previously noted IPT2 increases, demonstrate an overall increase in knowledge of and access to maternal health services through fixed primary health care facilities in SHTP II-supported counties.

Figure 13: ANC 1 and ANC 4 visits in SHTP II-supported counties



Increasing SBA in South Sudan is an extremely difficult challenge due to the nation’s long-running civil war which caused a dearth of human resources, largely due to a lack of educational institutions and consistently displaced skilled providers. As the country stabilized over the past decade, and particularly in the past few years, more South Sudanese have returned home to rebuild their country. Thankfully, this means there is a gradually increasing pool of skilled practitioners; however the quantity needed still vastly outweighs the number available. Additionally, many returned providers prefer to stay in urban areas, as opposed to settling in more rural locales, culminating in the ever-present rural-urban imbalance which exists in most public health systems. The limited supply of available trained and certified skilled birth attendants ensured that any progress in improving maternal health indicators will

be slow, and the available training programs for midwives are severely limited. Increased emphasis needs to be placed on improving the supply of skilled birth attendants in the future.

Table 8: ANC 1 and ANC 4 visits in SHTP II-supported counties

Fiscal Year	Quarter	ANC 1 visits	ANC 4 visits	Percent Coverage ANC1/ANC4
FY 2010	Q1: Oct - Dec 2009	2,802	646	52.7% / 18%
	Q2: Jan - Mar 2010	6,339	1,280	
	Q3: Apr-June 2010	7,020	2,951	
	Q4: July - Sept 2010	7,638	3,284	
FY 2011	Q1: Oct–Dec 2011	6,941	4,340	73% / 41%
	Q2: Jan–March 2011	8,299	4,220	
	Q3: April - June 2011	8,828	4,941	
	Q4: July - Sept 2011	10,301	8,631	
FY 2012	Q1: Oct–Dec 2012	8,631	4,544	82.9% / 42%
	Q2: Jan–March 2012	10,650	5,292	
	Q3: Apr – June 2012	10,837	5,273	
	Q4: July 2012	3,123	1,735	
Total		91,409	44,249	

In order to better understand the barriers to increasing SBA, the project facilitated 27 focus group discussions across all 14 counties during FY 11. Participants discussed a variety of factors that impact women’s decision about where to deliver, including logistical struggles, provider attitudes, and cultural and traditional practices. SHTP II’s partners then took these lessons learned and, where possible, addressed them through tailored interventions. Some facilities began offering 24 hour services, while others spoke with health providers about the influence of their behavior and attitudes on pregnant women’s decision to deliver at home or in a health facility. The project also encouraged facilities to allow non-harmful cultural practices, such as permitting a woman to squat during delivery, or bringing herbs to smear on the infant after birth. Many counties actively recruited more midwives and nurses for facilities in need of additional staff.

Over the project’s three years, these interventions gradually but steadily improved SBA in SHTP II-supported counties (see Figure 14). From the end of FY 10 to FY 11, SBA more than doubled in the project’s facilities. A drop-off occurred in FY 12 as the project neared its completion. Despite this drop-off, SBA trends continued to increase in FY 12. Over the project’s three years, more than 11,000 women delivered with assistance from a skilled attendant.

Recognizing the difficulties inherent in rapidly scaling up SBA in a post-conflict country like South Sudan, in the final year of the project, SHTP II initiated a two-phased postpartum hemorrhage intervention in partnership with the MOH, the Maternal and Child Health Integrated Program, SIAPS, and Venture Strategies Innovations. This intervention aimed to decrease maternal deaths and disabilities caused by excessive bleeding after birth by providing misoprostol at the community level. PPH is responsible for 34 percent of all maternal deaths in sub-Saharan Africa and proper delivery of a cheap and effective uterotonic, like misoprostol, which does not require a cold chain, could prevent a majority of these deaths.

Figure 14: SBA in SHTP II-supported counties

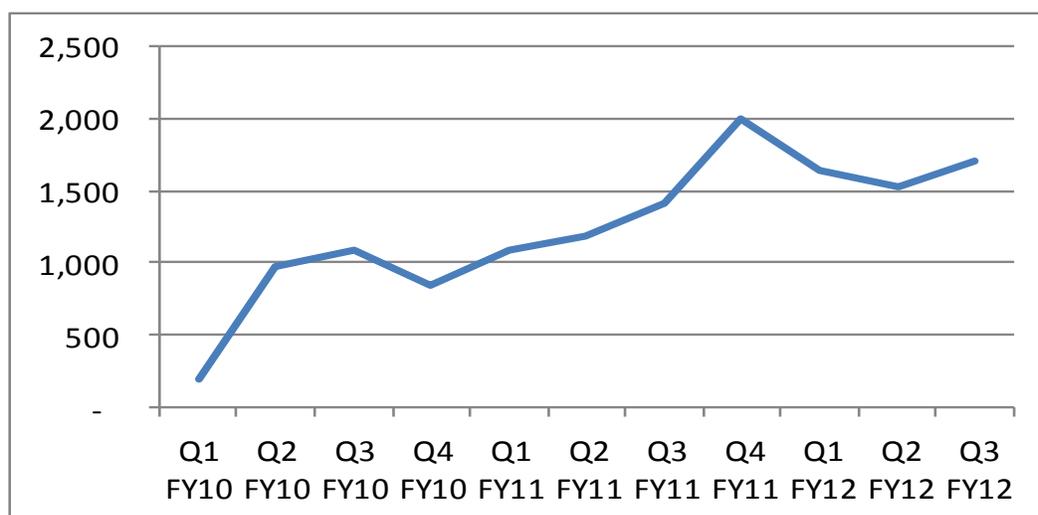


Table 9: SBA in SHTP II-supported counties

Fiscal Year	Quarter	SBA	Fiscal Year Total	Percent coverage
FY 2010	Q1: Oct - Dec 2009	196	3,112	7%
	Q2: Jan - Mar 2010	978		
	Q3: Apr-June 2010	1,092		
	Q4: July - Sept 2010	846		
FY 2011	Q1: Oct–Dec 2011	1,090	5,700	12%
	Q2: Jan–March 2011	1,193		
	Q3: April - June 2011	1,409		
	Q4: July - Sept 2011	2,008		
FY 2012	Q1: Oct–Dec 2012	1,636	5,276	13%
	Q2: Jan–March 2012	1,522		
	Q3: Apr – June 2012	1,706		
	Q4: July 2012	412		
Cumulative Total		11,970		

The intervention began its learning phase in two counties, was implemented at both facility and community levels. As a first step, SHTP II trained health workers to strengthen active management of the third stage of labor provision, and stressed the importance of using a uterotonic immediately after birth (oxytocin in facilities with refrigeration and misoprostol at other levels). SHTP II also trained health workers to distribute misoprostol during ANC visits occurring at 32 weeks of gestation or later. Women will be given the drug for self-administration in case they are unable to deliver at the health facility or with a skilled attendant. HHPs will also be trained to provide birth preparedness counseling to all pregnant women in their catchment area and to help administer misoprostol, if they are present at the time of delivery.

SHTP II and MCHIP began planning for this intervention in the fall of 2011, and initial trainings of facilitators and health workers for the initial phase began in June 2012. Due to the multilateral

partnerships in place with MCHIP and the MOH, this project will extend beyond the lifetime of SHTP II, and will continue on in both its learning and scale up phases.

Family Planning

Global estimates show that if women who wished to delay pregnancy had access to adequate family planning methods, approximately 30 percent of all maternal deaths could be averted.²⁰ In a country with the world's highest maternal mortality ratio, scaling up access to and acceptance of family planning is a vital step in ensuring women's health and was, therefore, one of SHTP II's priority services.

Cultural barriers play a huge role in acceptance of family planning, not only in South Sudan, but also globally. After 50 years of civil war, the South Sudanese share a pro-natalist view, encouraging women to deliver as many children as possible in order to repopulate the nation. Unfortunately, for women, delivering children in quick succession and without adequate time for the body to recover can be dangerous and cause a multitude of health problems. For this reason, SHTP II focused on increasing acceptance of healthy timing and spacing of pregnancy, acceptance of modern methods of family planning through both individual counseling, and community education and outreach.

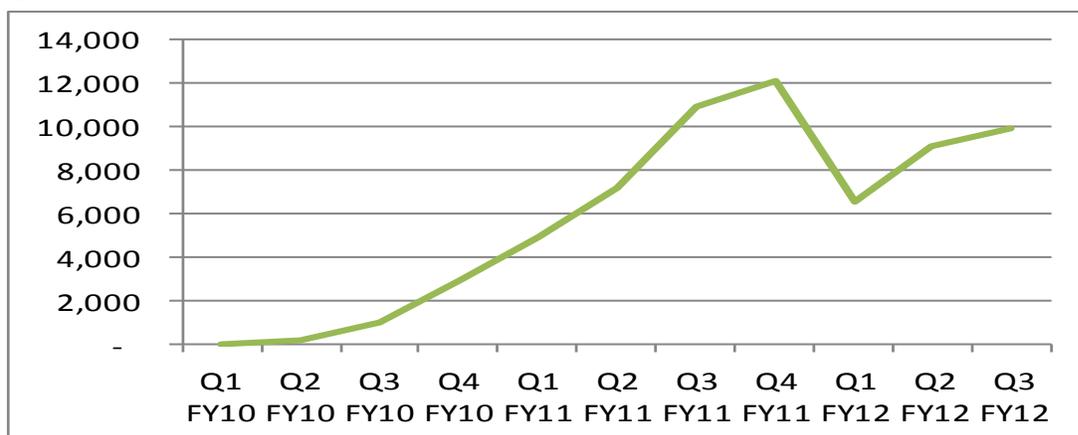
Over the course of the three years, the project saw a dramatic upswing in number of family planning counseling visits. During the first three quarters of FY 10, only three of the project's 14 target counties reported any family planning activities, but by the beginning of FY11 all 14 counties were reporting family planning activities. This positive change was due to a combination of improved family planning counseling, the provision of an adequate supply of contraceptives provided by USAID through SHTP II, increased community outreach and education of the values of healthy spacing of pregnancies, and increased emphasis in supportive supervision and mentoring.

SHTP II also designed a family planning training program curriculum, job aids, and IEC materials. The project implemented this program by facilitating two TOT workshops in several phases between October and December 2010. SHTP II then worked with these master trainers to roll out the family planning program to all reproductive health service providers in the 14 project-supported counties.

Beginning in the first quarter of FY 11, SHTP II added family planning counseling visits to the new PBC scorecard. This change, combined with the newly-approved commodities, led to an increase in the number of family planning visits. By the end of FY 11, more than 35,000 women had received family planning counseling, a 770 percent increase over the previous year. The beginning of FY 12 saw a drop in the number of women counseled, primarily due to staff shortages during the December holidays and the project's efforts to ensure that providers only reported one-on-one visits. Despite this drop, the number of family planning visits rebounded and continued to increase in later quarters of FY12. As a result, FY 12 continued the upward trend that was seen in FY 11 (see Figure 15). In total, SHTP II conducted 66,539 counseling visits for family planning.

²⁰ Dr Saifuddin Ahmed PhD, Qingfeng Li MA, Li Liu PhD, Prof Amy O Tsui PhD. The Lancet. 14 July 2012 (Vol. 380, Issue 9837, Pages 111-125)

Figure 15: Family planning visits in SHTP II-supported counties



Although more women are attending family planning counseling visits in South Sudan, uptake of modern methods remains low, as reflected in facilities' commodity supply needs. In some cases, this lack of contraception use is due to a cultural preference for natural methods such as the lactation amenorrhea method and abstinence from sex for two years after child birth (a common Dinka practice). In response, SHTP II trained HHPs and health workers to conduct community education and outreach activities. Some of these activities included focus group discussions which helped providers to identify and address the root barriers to modern contraception usage. The project also trained women who use contraception to work as peer educators, teaching others in their communities about the benefits of family planning. Additionally, because provider attitudes are often identified as barriers to women seeking or receiving contraception, the project encouraged the CHDs and SCPs to provide in-service training to family planning service providers help overcome stigma associated with family planning among health workers. Greater involvement of men in family planning counseling is needed to improve overall contraceptive prevalence.

Recently I visited Thiet Primary Health Care Center in Warrap State, a swampy state in the northern part of the country, which is often inaccessible for months at a time, due to the rainy season. In the maternity ward, I met Christine, a midwife trained in Uganda who hoped to improve maternal health services in South Sudan. When I asked about family planning, Christine's eyes grew bright as she explained that, while overall numbers of women using contraception remain low, she has seen a significant upward trend in women inquiring about both natural and hormonal contraceptive methods. She then added, "Culture, it is slow to change. But slowly, slowly we are getting there."

- Erin Polich, MPH
 Senior Communications Specialist/MSH

HIV & AIDS

In South Sudan, HIV prevalence hovers near 3 percent²¹, lower than neighboring countries like Kenya (6.3 percent), Uganda (6.5 percent), and Central African Republic (4.7 percent).^{22,23} Despite this lower relative rate, basic knowledge about methods of transmission or even general awareness of the disease

²¹Southern Sudan ANC Sentinel Surveillance Report, 2009; Draft; MOH HIV/AIDS/STI Directorate.

²² UNAIDS, 2009 estimates

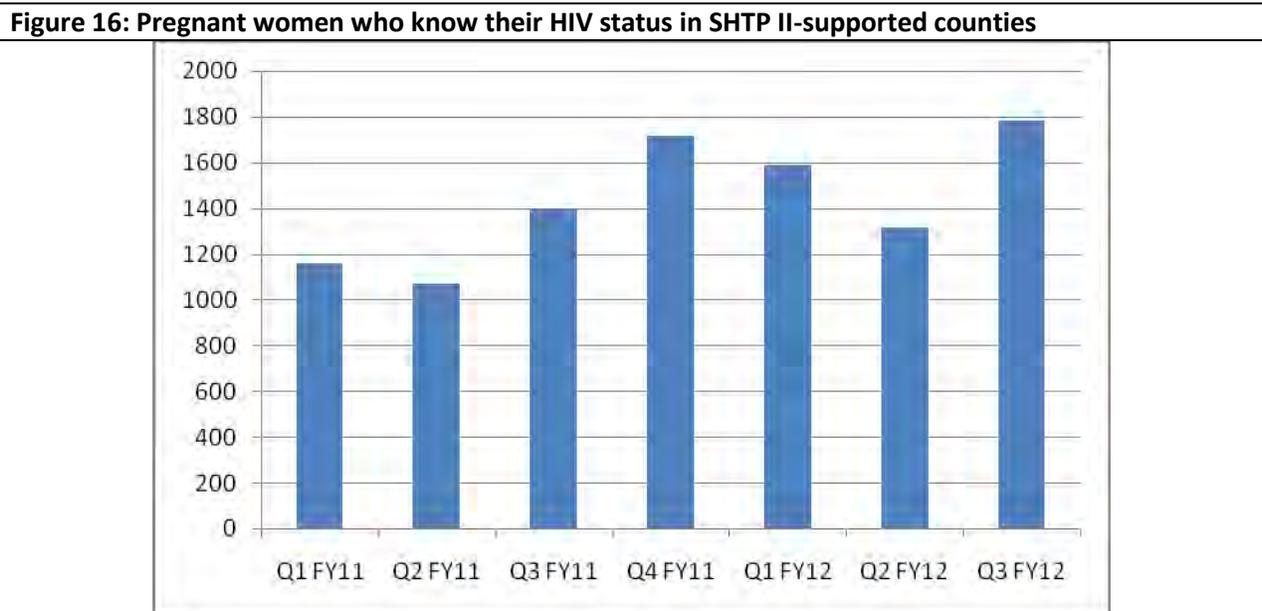
²³ Note: South Sudan estimate calculated from testing during ANC visits; UNAIDS estimates are calculated from overall population surveillance. Due to these variations in data collection and population trends, prevalence rates may not be entirely comparable.

is incredibly low, with 55 percent of women reporting that they have never heard of HIV, and 70 percent of women unable to identify any method to prevent transmission.²⁴

Polygamy is common, and in a predominantly patriarchal society, women who suspect their partners may be infected with HIV often do not have the ability to ask them to be tested or use a condom. Higher HIV prevalence rates exist in the nation’s urban and southern border areas due to proximity to higher prevalence countries like the Central African Republic and Uganda and the presence of high risk populations like sex workers and truckers.

All of these factors make South Sudan vulnerable to an increase in HIV transmission. In response, SHTP II integrated HIV & AIDS education and referral into primary health care across the project-supported counties. The project also trained hundreds of home health promoters to conduct outreach activities. This education provided knowledge on HIV basics, available prevention techniques, and testing referrals.

SHTP II originally started providing PMTCT services in 16 facilities, but most of these facilities did not have access to ART services. Thus, in consultation with USAID, in FY 11 SHTP II focused its PMTCT efforts on only four facilities to ensure that patients who tested positive for HIV could easily be referred to existing ART services. These four sites were located in the major urban areas of Juba, Wau, and Malakal, as these locations could realistically refer women to nearby treatment centers to access long term antiretroviral (ARV) treatment at external sites. Over the course of the project, SHTP II supported these four facilities in testing more than 10,500 women for HIV during ANC visits (see Figure 16).



Originally, SHTP II referred the majority of HIV positive women to nearby treatment centers in order to enroll the mothers on ARV prophylaxis during pregnancy and delivery to prevent HIV transmission to the child. In June 2012, however, through a partnership with the President’s Emergency Fund for AIDS Relief, SHTP II equipped the four sites to begin offering ARV prophylaxis directly to HIV positive pregnant women, instead of requiring that they refer these women ART centers for PMTCT treatment. Through

²⁴Ministry of Health (Southern Sudan), Southern Sudan Centre for Census, Statistics and Evaluation (SSCCSE), Sudan Household Health Survey, 2006.

this partnership, SHTP II trained HIV counselors on proper treatment regimens, reinforced counseling skills, and provided PMTCT prophylaxis drugs to the facilities.

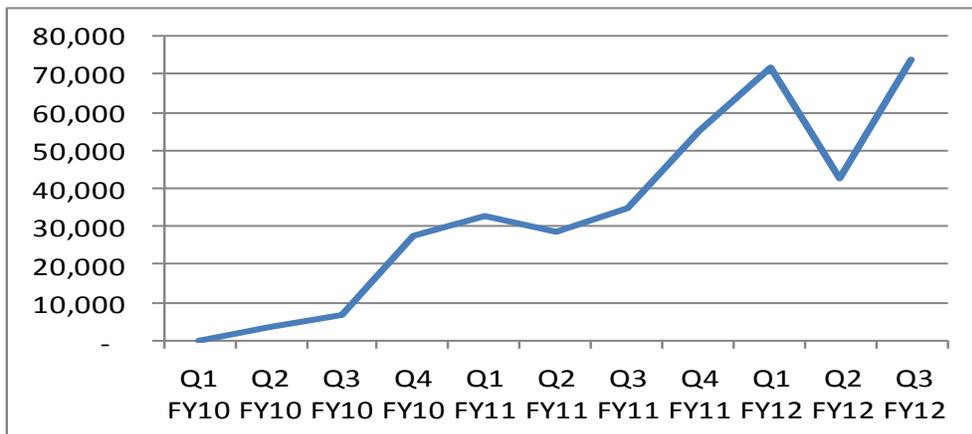
This small-scale expansion of HIV services in South Sudan’s primary health care system strengthened the nation’s capacity to fight against the spread of HIV & AIDS. SHTP II’s efforts to increase knowledge about HIV and availability to testing and onsite provision of ARV prophylaxis for PMTCT allowed more South Sudanese children to be born free from a disease which could have impaired their lives before they even begin.

In addition to testing and counseling, SHTP II also worked to improve general knowledge and awareness of HIV & AIDS. As demonstrated by the 2006 Sudan Household Health Survey, most of the nation’s residents had an incredibly low level of even basic HIV & AIDS knowledge, with only 30% of women able to identify any method of transmission prevention. To improve the nation’s health knowledge, SHTP II conducted mass outreach events at markets, schools, churches, and informal gatherings. In order to gain acceptance at a grassroots level, the project engaged a number of key decision makers and community influencers in these events including village chiefs, religious leaders, and women’s groups. As shown in Figure 17, SHTP II reached over 300,000 South Sudanese residents with HIV awareness events over the course of the project. During the annual World AIDS Day, SHTP II held large-scale HIV awareness events which accounted for spiked increases in persons reached during the first quarter of each year. Overall project trends show significant and sustained improvement in persons reached by these awareness events from the start of project through close out.



SHTP II used dance troops to spread HIV awareness and prevention messages in Tambura County on World AIDS Day 2011.

Figure 17: People reached through HIV awareness events in SHTP II-supported counties



Water, Sanitation, and Hygiene (WASH)

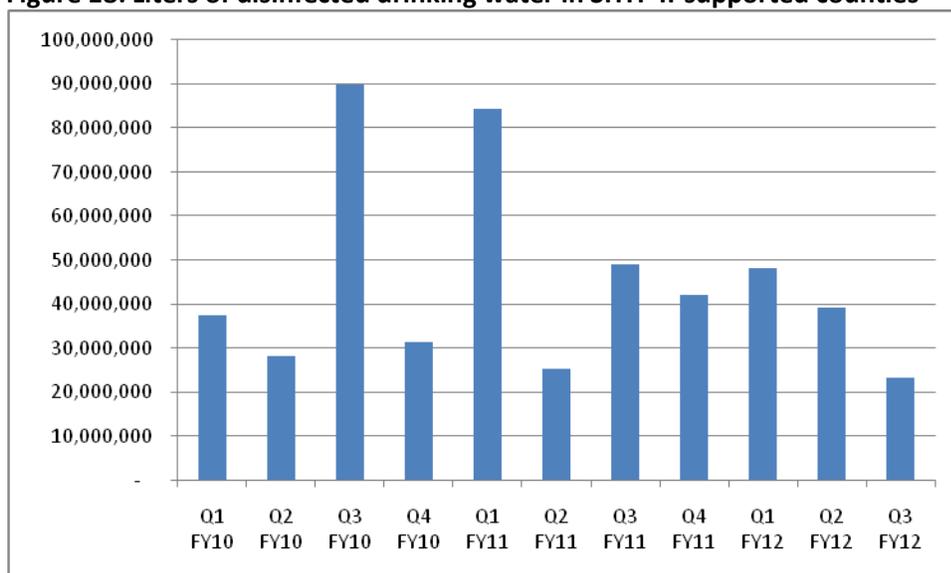
Improper hygiene and sanitation is linked to a variety of diseases and is a leading contributor to morbidity and mortality in South Sudan. Many illnesses in South Sudan, such as typhoid fever, cholera, and intestinal parasites are transmitted through oral-fecal contamination. Without proper disposal and storage of feces, the transmission pathway from feces to humans is all too easy – flies and unclean hands become unwitting accomplices transmitting pathogens to water, food, and finally, to humans. These germs can lead to diarrhea, dehydration, serious illness, and death. Providing hygiene and sanitation education and constructing areas for proper waste disposal can contribute to improved hygiene, and a corresponding decrease in morbidity and mortality in South Sudan.

In SHTP II, WASH activities consisted of promoting point-of-use water purification products, providing education and outreach efforts at the community and facility level, ensuring proper WASH practices implemented at each supported facility, and piloting and scaling up a community-led total sanitation (CLTS) project.

SHTP II conducted WASH in partnership with Population Services International. The project piloted a social marketing campaign to promote Point of Use water purification products such as PUR and WaterGuard. In order to create demand for the products, SHTP II trained community-based outreach officers, mobilized school hygiene clubs, and held meetings with school and community leaders.

Over the course of three years, SHTP II treated more than 499 million liters of water using point of use products. Quarterly achievement often depended upon supply of water purification products as well as seasonal fluctuations caused by the rainy season. During the beginning of FY 12, demand outpaced anticipated need, and stocks depleted. SHTP II worked to supplement these stores, but ran into contractual procurement delays that contributed to a decline in achievement numbers.

Figure 18: Liters of disinfected drinking water in SHTP II-supported counties



In addition to promoting proper hygiene activities at the community-level, the project also emphasized WASH promotion at the health facility level. SHTP II encouraged each facility to maintain a high level of sanitation to prevent disease spread and waste contamination and serve as a model for the community. This included maintaining properly cleaned and separated latrines, rubbish pits, and incinerators (or

barrels for burning waste). Facility sanitation guidelines also included separating waste, establishing hand-washing stations, and properly fencing the facilities. Project staff assessed each facility during supervisory visits and advised facilities on improvements, where necessary. In several cases, SHTP II provided facilities with items such as jerry cans for hand-washing stations and burning barrels. SHTP II also supported facilities with on-the-job training; cleaning staff, for example, were trained on proper waste separation and disposal. Many SHTP II-supported facilities worked to involve VHCs and community action groups in the promotion of WASH activities such as constructing rubbish pits and incinerators, digging pits for latrines, and building fences with local materials.

Beginning in FY10, SHTP II piloted a three-month CLTS project to determine the most effective strategies to increase sanitary defecation methods in South Sudan. The CLTS project motivated communities' desire for change and influenced them to create "open defecation-free" sites through the construction and utilization of latrines. SHTP II's CLTS leaders engaged the community members using education and active participation exercises which inspired residents to take action in their own communities. Once the demand was created, SHTP II then trained the communities on proper latrine construction. The project encouraged residents to use locally available materials and tailor the latrine designs to their

A Waterfall of Education in South Sudan

Deborah Nyantiok is 56 years old and lives with her grandchildren in Kaya, near the Ugandan border. She lost her husband during Sudan's 20-year civil war and now takes care of her grandchildren.

Lacking a source of clean water, residents of Kaya gather drinking water from the nearby Kaya River. While the river provides vital irrigation which makes the surrounding land lush and green, unfortunately, it also carries dangerous viruses and bacteria. These pathogens cause many waterborne ailments like typhoid, diarrhea, and parasitic diseases. Deborah and her grandchildren often suffer from these diseases and, while they seek medical treatment, it always seems like only a matter of time until their suffering returns.

One day, Sarah, one of the SHTP II community outreach officers, provided sanitation outreach where Deborah fetches water. Sarah explained to Deborah and other Kaya residents that treating their drinking water could prevent them from contracting many waterborne diseases. Sarah demonstrated proper techniques to treat water using both purification packets, which disinfect 10 liters of water in one treatment, and are available in pharmacies in Kaya for 1 SSP (about \$0.30).

Deborah listened to Sarah speak and, afterwards, she immediately rushed to buy the water treatments. Since they began drinking treated water, neither she nor her grandchildren have suffered from ailments like diarrhea or typhoid, which until that time had plagued the family frequently.

Deborah noted that she now spends only 1 SSP to treat their water, which is much less expensive than the regular visits to the health center. Deborah thanked SHTP II for teaching her how to treat water at home. She now always treats water that comes from any source and has also started speaking to her neighbors about water safety. Additionally, as an active leader in her church, Deborah now ensures that water is treated for the congregation during Sunday services.

needs. SHTP II also persuaded project participants to keep costs down by using local materials in order to increase their community's uptake of latrine construction and usage.

After a successful pilot project, SHTP II capitalized on lessons learned during the implementation stage and scaled up CLTS across other SHTP II-supported counties. During FY 11 SHTP II supported communities to construct 1,460 latrines and, in FY 12, communities constructed an additional 818 latrines. These latrines benefit more than 20,700 individuals. The CLTS approach proved to be very effective in S. Sudan and deserves to be expanded in the future.

Result 2: Increase Knowledge of and Demand for Health Practices

As the SHTP II Results Framework shows, Result 2 aimed to increase knowledge of and demand for health services and beneficial health practices to support rapid scale up of high quality health services in the 14 counties.

In order to rapidly increase both knowledge and demand, SHTP II trained and mentored health facility staff to provide health education and to promote healthy behavior to their communities. Each technical training program included IEC materials with key messages approved by the MOH to be used in any interpersonal communication whether in the facility or in the community. The IEC materials were developed both to be posted in the facilities and key community buildings and for handouts to clients.

In addition, SHTP II focused on strengthening and increasing community mobilization through VHCs and HHPs to support development of an overarching home health promotion and support to community case management of high priority diseases (i.e., malaria, diarrheal disease, and acute respiratory infection).

Community Mobilization

As one of the foundations of SHTP II, community mobilization played a key role in increasing knowledge and demand for health services. The project's community mobilization strategy focused primarily on forming and training VHCs to work in conjunction with health facility staff to encourage healthy behaviors and increase demand for services. These partners also worked closely with other peer educators and SCPs to disseminate health messages through a variety of media including mass events, marketplace discussions, radio programming, and school and religious events.

The project encouraged VHCs to consider particular criteria when selecting new VHC members and to focus on including women, religious leaders, educators, and tribal leaders, in order to ensure adequate representation of major community decision makers. SHTP II also trained VHCs to take an active role in management and supervision of community health facilities. VHCs often monitored drug distribution

Community Mobilization in Mvolo and Wulu

Mvolo and Yeri PHCCs, both located in Mvolo County, are active health facilities where, until recently, no proper rubbish pit existed. After SHTP II conducted community mobilization trainings at these facilities, VHCs began holding monthly health meetings with the PHCC management team. At these meetings, participants discussed challenges facing the facilities and recognized that there was a gap in waste management, due to the lack of rubbish pits.

The VHCs at each facility worked in conjunction with SHTP II to dig a rubbish pit more than 1.5 meters wide and 3 meters deep. SHTP II provided the equipment and materials, as well as food and water for the workers, while the VHCs provided the labor. After two days of digging and construction, the facilities each had a new rubbish pit.

The construction of these rubbish pits was a small but vital step, not only in improving the waste management for each facility, but also in encouraging community engagement in health activities by creating direct linkages between the health facilities and local community members.

Communities that feel invested in their local health facilities are more likely to attend facilities for both preventive and curative services. Mobilizing people through community improvement projects and education outreach are important strategies that SHTP II used throughout its project to engage communities and increase service demand.

from the SMOH to the facilities to ensure a proper handover of pharmaceuticals. Additionally, VHCs worked closely with facility staff to regular monitor staff work attendance. Many NGOs had trained VHCs in a variety of activities, but SHTP II standardized the approach so that all VHCs are now trained to support these activities, and also expanded coverage to ensure that every SHTP II-supported PHCC and many PHCUs had an actively functioning VHC.

In many communities, SHTP II utilized VHCs to inspire overall community involvement in health facility activities. The more a community takes ownership of a facility, the more likely they are to use the services and respect and protect the facility. During FY 11 and FY 12, VHCs often participated in construction of minor renovations and refurbishments at health facilities, as the project design and budget offered extremely limited resources in this area. For some of these construction projects, SHTP II provided support in the form of transport or materials, and local VHCs and communities provided labor and monetary provisions. In one community, the tribal chief and village members worked together to sell a bull in order to finance the building of a fence to protect the facility (SHTP II provided transport in this instance). In a separate occasion, community members gradually collected funds from village households until the VHC had secured enough funding to construct a new building. This building was made from local materials and allowed the health facility to operate in a secure and stable structure, as opposed to the two crumbling *tukuls* (traditional mud homes) they had been using previously.



Women's group members await discussions at local facility in South Sudan.

Home Health Promoter (HHP) Strategies and Training

In order to streamline the country's community mobilization policies and efforts, SHTP II helped to write the MOH's HHP training curriculum and guidelines. These guidelines outlined the role of HHPs, including all community educator cadres such as community-based distributors, community case managers, peer health educators, community-based outreach officers, and others. According to the approved guidelines, all HHPs should be trained as generalist in health promotion activities, and subsequently trained on specific topics including HIV knowledge, sexual and reproductive health promotion, and community case management. These guidelines were approved in July 2012 by the MOH to be the national program for both VHC and HHP training and mobilization.

Using these guidelines as an outline, the project trained more than 1,100 HHPs over the project lifetime. These HHPs participated in a plethora of health promotion and outreach activities targeting populations at risk, and providing communities with health education during religious events and at marketplaces and schools.

In 2012, the project began training HHPs in community case management of malaria, diarrhea and pneumonia. This training equipped HHPs to work as educators and gave them the knowledge and capacity to diagnose and treat uncomplicated cases of these three diseases. In cases of severe infection, the training also taught HHPs to refer patients to the nearest facility for treatment. These enhanced clinical practices created an even closer link between the health facilities and the communities they serve.

Result 3: Increase South Sudanese Capability to Deliver and Manage Services

Result 3 in the Results Framework is designed to move the health system from relief to development. The project aimed to improve sustainability by increasing the capability of South Sudanese to deliver and manage health services. This involved targeting specific capacity building efforts at all levels, from the community and facility level, up through the national MOH. In order to engage staff at all of these levels, SHTP II employed a series of approaches, including the LDP, in-service trainings and mentoring, active support for the MOH, and improvements to health facility and organization infrastructure.

MOH Leadership Development Program (LDP)

SHTP II rolled out the LDP in all 14 supported counties, training 30 master facilitators, and forming 42 participant teams. Teams involved facility staff and, in some counties, CHDs and SMOH staff. Focusing the challenge model on improved skilled attended births, one county reported a seven-fold increase in SBAs over a six month period. Focusing on increasing immunization coverage, one facility improved DPT3 coverage for children under age 1 by 300 percent and Tetanus Toxoid 2 for pregnant women increased 11 percent in six months. In another facility, focusing on solid waste disposal led to 27 households constructing latrines in 5 months.

During the final year of the project, SHTP II supported the MOH senior leadership staff to form five LDP teams in various directorates. These teams used the LDP tools to analyze and resolve a number of key operational challenges including improving communication, more efficient and effective use of resources, and improving transparency and accountability within the MOH. After applying the challenge model to address these issues, the five central MOH teams reported improved on-time payment of salaries of staff, reduced unexcused absenteeism, improved on-time report collection from counties, increased supportive supervision to the SMOH level. As the senior leadership LDP began in the last year of the project, due to scheduling issues within the MOH the teams did not complete the final presentation of results workshop. However, despite this, teams did have individual meetings with high-level SHTP II staff to discuss results and ways forward and specific management improvements have been achieved at the central MOH leadership level.

Supervision and In-service Training

In FY 10, USAID delivered a mandate to SHTP II: develop standardized training programs in the key high priority health program and management areas that will be approved and, hopefully adopted, by the MOH. At the time, the project's SCPs used a wide variety of training materials and each SCP selected materials based on their familiarity with the high impact services, rather than a single, central directive. There was no standardized training approach, and the skills development was very uneven. SHTP II responded by conducted a training needs analysis. Working with the CHDs and SCPs in the 14 counties, SHTP II developed and distributed a staff training needs survey. The survey results identified priority training area needs, as well as the specific technical skills and competencies that needed to be developed.

Based on the results of this needs assessment, SHTP II developed a training plan and identified the priority technical areas as reproductive health/family planning, maternal newborn health, child health, and malaria. The project also identified the three priority management areas as HMIS, pharmaceutical

management, and management and leadership. SHTP II's process for curriculum development included the following steps for each priority area:

1. Compilation of existing training programs in the identified priority area, both in South Sudan and in other countries;
2. Collation of existing MOH policies, technical guidelines, and implementation protocols related to the priority area;
3. Comparison of the identified MOH policies, technical guidelines, and implementation protocols with international standards to identify gaps;
4. Use of highly-skilled, short-term technical assistance in each area to develop the learning objectives, desired competencies, and overall program design;
5. Selection of best practices, training curricula, job aids, and IEC materials to be included in a package of suggested training materials;
6. Collaboration with MOH counterparts to select the training package and ensure adaptation to local norms and realities;
7. Production of training modules;
8. Training of trainers, usually in Juba, using multi-media approaches, and both didactic and clinical practicums;
9. Support to the trainers for rolling out this training process in each county; and
10. Follow up mentorship in each county to ensure that the training and skills development occurs as planned, as well as joint supportive supervision to fill any gaps, and continued in-service training.

Supportive supervision was an important part of SHTP II's overall training and skills development processes.

Facility supervision allowed SHTP II staff to continuously provide feedback and mentoring to field-based staff. In its role as implementing partner, the project aimed to visit each county at least once per quarter; however staffing shortages made this goal nearly impossible until the beginning of FY 11. Before this time, most supervision of facilities was conducted by SCP and CHD staff, who often needed mentoring themselves. After alleviating severe staff shortages by hiring additional employees to fill gaps, the project scaled up facility supervision by M&E teams and technical program advisors.

Supportive Supervision Appreciated by Staff

SHTP II conducted a number of trainings on a variety of topics including data management, pharmaceutical management, HIV, malaria, FFSDP, LDP, family planning and reproductive health, data quality assurance, and immunization. In order to follow-up on these trainings, SHTP II's technical health team conducted routine supportive supervision, which provided both on-the-job training as well as consistent monitoring.

In Tambura County, SHTP II visited at least five health facilities in each week. This support boosted the performance of facility staff.

Mercelo Amin, who works at Nagero PHCC, said, "I really feel happy for the tireless effort of the health coordinator to impart such knowledge to us. Since I started working in Nagero I have never been mentored on the job like this."

- IMC Tambura

SHTP II's supervision activities provided opportunities for project staff to mentor CHDs, facility staff, and SCP staff. Mentoring by the SHTP II technical advisors occurred during their routine visits to facilities to reinforce the training content, identify gaps, and provide additional training to both county and SCP supervisors. In addition, SHTP II staff integrated the FFSDP toolkit into their supervision process as part of the continuous quality improvement process. The FFSDP section presents the improvement demonstrated in quality standards as a result of this process.

A standards assessment was also conducted by SHTP II supervisors in order to evaluate individual facilities and provide an opportunity for staff to suggest corrective actions. One of these suggestions included providing pallets to keep drugs off the floor and protect them in the event of flooding. Advisors also used supervision activities to ensure that health workers were using proper dosing and diagnostic procedures, particularly after they had attended SHTP II trainings. While data verification was the primary goal of M&E team visits, these field visits also provided opportunities to instruct facility, SCP, and CHD staff on proper data collection and ways to use data for future planning. SHTP II integrated data quality assessment into all supervision visits and incorporated data quality assessment checklists into the supervision process.

In addition to quarterly supervision visits by SHTP II staff, each CHD also provided regular supervision and support for their facilities. To ensure that partners were providing these quality supervision visits, SHTP II revised the PBF scorecard to include an indicator to report the percentage of health facilities visited in the county per quarter. The objective was for the CHDs and SCPs to provide at least one documented supervision visit per quarter to every project-supported facility. Over the time period this indicator was used, the percent of facilities in each county visited each quarter for supervision steadily increased.



Johnson Mwamba discusses activities with village health committee members.

Active Support to the Ministry of Health (MOH)

SHTP II worked closely with the MOH at national, state, and county levels to ensure a continuity of care in line with the government's goals to improve basic health services. The project actively participated in development of national policies, synchronization of overarching visions and goals through working groups and meetings, and coordination of donor and partner relations. Additionally, the project assisted the MOH in creating and disseminating MOH-approved IEC/BCC materials to all supported facilities. SHTP II also made sure to actively involve ministry partners in all project quarterly meetings, trainings, and supervisory visits.

All of the SHTP II-supported health facilities fall under the jurisdiction of the government, directly under the CHDs. Due to this, SHTP II prioritized strengthening the CHDs by enrolling CHD staff in the LDP and facilitating other capacity building efforts, such as quality assurance, data management and data quality, program planning and budgeting, and management and leadership skills. However, in several counties, the CHDs remained vastly understaffed, consisting of only a few staff, or in some cases, no staff at all. In these instances, SHTP II staff often acted in an interim role, covering the human resource needs of the CHDs.

In addition to close working relations between the project and government staff, SHTP II also stepped in to fill an unforeseen gap in salary provision. A mid-project assessment of the situation revealed that SHTP II paid nearly 68 percent of all of the government's service-delivery staff salaries, an unsustainable but necessary step to ensuring service delivery. The MOH recognizes this situation is a major problem and hopes to assume payment of all needed staff directly over time.

Delivery of Equipment

In order to increase the capacity of health facilities, CHDs, and partners, SHTP II distributed more than \$2 million worth of equipment to the project-supported counties. This equipment included items such as blood pressure cuffs, thermometers, sterilization machines, examination and delivery beds, laptops, refrigerators, solar panels, and generators. Procurement of this equipment was lengthy and delayed, since it involved many different partners. The CHDs and SCPs developed lists of equipment needs for each county and then SHTP II and USAID reviewed the equipment lists for appropriateness and cost. Once the equipment lists had been finalized and approved, SHTP II solicited three bids and then selected a vendor in Kampala. After this step, USAID approved the equipment purchases and SHTP II placed the purchase order. The equipment arrived in South Sudan in FY 11 and SHTP II arranged efficient delivery to the health facilities, which immediately helped to improve their quantity and quality of service delivery.

Challenges

- Prior to the beginning of the SHTP II project, donors and the MOH agreed that future infrastructure activities should be handled by the MOH. As a result, SHTP II did not include a facility infrastructure development component and budget. This made it difficult for SHTP II to provide quality services at many facilities due to a lack of space and capacity, particularly in maternal health and skilled birth attendance.
- Project design did not address urgent pre-service training needs. For example, improved SBA was one of the key project indicators but the project design did not include interventions to increase the pool of certified community midwives. This continues to inhibit progress towards improving this key indicator.
- Cultural barriers exist in South Sudan which made implementation of several programmatic aspects challenging. For example, there is great resistance to family planning because a huge movement exists to repopulate the nation after 35 years of civil war. Additionally, traditional practices (both rights and cultural habits) prevent women from seeking maternity services. Other cultural practices, such as refusing specific foods to particular populations (i.e., eggs to young children, chicken to pregnant women) inhibited some of the project's health promotion activities.
- There is a limited pool of available and skilled human resources, particularly South Sudanese health service providers and/or those willing to work in rural areas. Often, even in cases where practitioners could be recruited, communities will not accept a health worker if they do not come from that community. This often caused gaps in certain areas of health service delivery.
- The project ultimately canceled the planned micro-grant program²⁵ due to USAID's directive to do so in FY 11. SHTP II had spent a great deal of time developing the policies, procedures, and manual for micro-grant implementation, although it is not clear if the project could ever have implemented the program successfully in its limited time frame. SHTP II channeled the unused funds into the SCP's second year sub-contracts and used them to hire additional staff for project supervision and management.
- SHTP II paid 68% of the salaries for health workers and support staff at all project-supported facilities. This expense was never included in the initial project design, nor was there any budget allocated for this activity. However, the expense was necessary to support the staff whose salaries the MOH was not able to pay. In turn, the project was able to ensure continuation and expansion of health services at many facilities. Nonetheless, this ultimately became a \$2.8M expense that neither USAID nor the MOH had budgeted for or expected that was compensated for in the approved extension budget.
- Time needed to initiate the project operations and sub-contracts was underestimated in the project design. These commencement activities were not completed until the end of the project's first year.

²⁵ The micro-grant program was planned in the original project design to provide small grants to community organizations in order to finance small scale health education and outreach efforts and encourage behavior change. The midterm evaluation suggested that due to delays, and with limited time remaining, SHTP II should discontinue the effort. The program effort was officially canceled by USAID in mid-2011.

- Delays in drug distribution often hindered service delivery. Periodic stock outs occurred, which SHTP II dealt with by redistributing drugs from other counties/facilities. However, this solution did not work in cases where all facilities didn't have a particular commodity and stock outs of essential medications became more frequent over time as the project neared closure.
- MOH delays at the central level in policy decisions (i.e., IEC material messages, register printing, drug procurement, HHP strategy) often posed challenges to project implementation. These challenges could not always be handled within the scope of the project's reach and caused delays in some program efforts.
- Beginning in January 2012, the Government of South Sudan shut off oil production in South Sudan due to unsuccessful negotiations with Sudan over export fees. Oil accounts for 98% of all government revenues and, as a result, both the government and the overall health system are suffering due to uncertainty over austerity measures. This situation posed great challenges for the project and is now impacting future health and development planning efforts in the nation as future budgetary needs cannot be adequately forecasted. As a result of the oil shut-off, overall austerity measures impacted planning efforts for current and future health efforts both with other donors and the MOH. For example, most CHDs and SMOH staff travel budgets were cut and that prevented them from effectively supervising facilities directly or holding regularly scheduled coordination meetings.
- Delayed project extension created uncertainty with some of the project's SCPs and also led to staff retention problems. Similar delays with negotiations of subcontracts led to delays in workplan approvals and program activities at specific county levels.
- In FY10, the project struggled to meet many of its objectives. Most of the team's efforts in this first year focused on establishing bridge funding to existing NGOs in the 14 counties to avoid breaks in service provision. Thus, awarding and signing approved sub-contracts took precedence in FY '09, but by FY '10 technical activities began, such as developing a training plan, designing quality assurance interventions, and strengthening M&E, data quality analysis, and supervisory systems. In a project that relies on service contracts, more resources need to be dedicated to this process so that technical development can proceed in parallel.

Lessons Learned

- **In a project with so many SCPs and spread so widely across the country more funding is needed for overhead and project management costs.** Managing 15 service sub-contracts through 10 different SCPs is a major effort that was not adequately funded in the initial stages of the project. The contract requirement that 75 percent of all funds are spent on SCPs left only 25 percent for project management. By FY 11, USAID recognized that this was a major impediment to project implementation and improving the quality of services. As a result, this requirement was removed from the MSH contract. Subsequently, SHTP II was able to hire additional staff for primary health care supervision, quality assurance, and data quality analysis. By the end of the project, the breakdown of finances showed that 66% of project funds have been used to support service-delivery NGOs, another 12% supported technical assistance NGOs or provided equipment for service delivery, leaving 22% of project funds for MSH's technical assistance and project management activities. Additional invoices are expected from the service-delivery subcontractors, reflecting approvals received from USAID in late 2012, further increasing the portion of project funds used for direct service delivery.
- **A focused mentoring plan can be used to develop host country national capabilities to become senior project managers.** In South Sudan, as in most post-conflict countries, the professional human resource pool is very limited. SHTP II hired a highly capable South Sudanese professional as the project's original Deputy Chief of Party. At the request of the MOH, and after approval by USAID, SHTP II develop a mentoring plan to build the capacity of South Sudanese staff so that they could more frequently be promoted into senior management positions. This mentoring plan was developed in FY 10 and implemented in FY 11, resulting in a full technical team – with the sole exception of the Technical Director – of South Sudanese professionals.
- **Standardizing training allows for a more cohesive and easily scaled up approach to capacity building.** In the initial stages of the project there was no central training strategy, or training guidelines to support the project. In this void, each SCP implemented the training programs that they were most familiar with and, thus, training capabilities varied markedly from county to county. In response, both the MOH and USAID asked SHTP II to standardize the training process for the high priority technical programs and for key management areas. SHTP II completed a training needs analysis in FY 10 by working with the SCPs and CHDs to identify priority needs, desired skills, and expected outcomes. The project then used this training needs assessment to develop complete curricula for a number of technical areas including reproductive health, maternal and newborn health, child health, community mobilization, pharmaceutical management, and HMIS. SHTP II also used existing training materials from the National Malaria Program for malaria. SHTP II has left South Sudan with a training approach and program that the MOH can revise and/or build upon for future programming efforts.
- **A midterm evaluation can help to refocus project efforts.** By addressing issues where the project struggled in the first half, SHTP II managed to dramatically improve in most areas of service delivery and capacity building. For SHTP II, the evaluation identified the following areas which SHTP II then addressed:

- **Reorganize of staff to improve project’s performance where struggling.** SHTP II changed its leadership team, which helped to refocus and reprioritize staff and project goals. Additionally, SHTP II hired more staff in order to fill roles needed for technical supervision and monitoring.
- **Increase prioritization of Monitoring and Evaluation activities.** SHTP II significantly increased M&E capacity and data quality monitoring at SCPs and health facilities after the midterm evaluation.
- **Increase focus on maternal health issues in South Sudan.** The project reprioritized maternal health intervention to focus on improving family planning, ANC, and SBA. SHTP II also hired two MNCH advisors, both trained and certified mid-wives, to improve the project MNCH and reproductive health activities.
- **Improve WASH services and activities.** The CTLS approach proved to be very effective in South Sudan and deserves to be expanded in the future.
- **Supervision of health workers at a local level was vital to project success, as it provided regular mentoring and coaching opportunities.** In counties where supervision visits occurred sporadically or less frequently, SHTP II often noted a deficiency in both quality and clarity of project goals. Joint supportive supervision among SHTP II, CHDs and SCPs was initially very difficult to implement due to staff shortages in the CHDs and SCPs. Joint supervision visits provided an excellent opportunity for SHTP II, CHDs, and SCPs to improve the capacity of facility supervisors and field staff.
- **Working with HHPs is one of the most important ways to increase knowledge of and use of health services.** These outreach sessions should be conducted regularly and repeatedly through various mechanisms to assure consistent community engagement. Mechanisms for community mobilization may include education sessions, focus group discussions, market outreach events, and meetings with VHCs, community leaders, and elders. Focus group discussions in the counties on the barriers to ANC and SBA resulted in reprioritization and strengthening of activities to improve these health areas.
- **Integration of men, generally the primary decision makers, into reproductive health is crucial for continued improvement of maternal health.** Simultaneously, women should continue to be empowered to take control of their own health decisions. Some of the NGOs used male champions of family planning to promote it within the community, but much more needs to be done to address this issue.
- **The leadership and management training helps staff to prioritize measurable and tangible solutions to workplace challenges.** This program should be scaled up at all levels within the MOH and the primary health care system. The LDP has already helped to increase SBA and family planning counseling activities in South Sudan. Additionally, the LDP has been well-received by all partners involved in project implementation and has been replicated in each of the 14 target counties with skilled leadership and management facilitators available in each county to continue the process in the future.
- **Integration of primary health care services (i.e., ANC, EPI, malaria) is important for streamlining health care and moving a system from a relief model to a development model.** Providing all services in one locality, as opposed to splintered services between several facilities, allows

community members to build relationships and trust with local health workers. The success at expanding access to each high priority program reinforced the success of all programs in the integrated package.

- **Improved cold chains allowed facilities to serve as fixed vaccination points** (through either cold boxes or fridges). Where cold chains broke down, or saw extended stock outs or long term maintenance problems, EPI numbers fell, despite efforts by the project to maintain services through outreach. Using cold boxes that keep vaccinations potent for five days considerably facilitated the EPI outreach through fixed facilities, allowing integration of other services into EPI, family planning and ANC counseling, thus contributing to increase access of all BPHS services. By the EOP, 75 percent of EPI services were provided through fixed facilities, thus supporting this integrated approach in most communities.
- **A structured approach to quality improvement is possible and necessary, even when faced with the overwhelming, emergent health needs of a population.** Continuous quality improvement did not exist in South Sudan at the start of the SHTP II. In order to fill this gap, the project integrated existing MOH service standards into MSH's FFSDP tool. When the MOH developed new supervisory standards, these were integrated into the FFSDP as well. The integrated FFSDP helped to significantly improve PHCC performance on a range of quality standards. Improved quality lead to increased utilization of the services by the community, thus supporting increasing access to the BPHA. It is possible to improve both access to and the quality of the BPHS simultaneously in an emergency situation such as that in South Sudan.
- **A combination of PBCs, FFSDP, and LDPs produced a rapid increase in access to and quality of health services within two years.** These three technical approaches provided a solid foundation for expanding access to high-priority health services and, at the same time, improving the quality of these health services.
- **PBC can work in a post conflict country like South Sudan.** Project data show an increased achievement of key indicator targets after initiation of a new PBC formula in FY 11 by focusing SCP attention on these indicators. Based on experience in multiple post-conflict countries and existing studies on the use of PBCs, we believe that the use of PBCs in S. Sudan considerably compressed the time required to achieve some key results (e.g., DPT 3, ANC, and family planning counseling).^{26, 27, 28}
- **The revised PBC scorecard helped the project to prioritize certain interventions and better integrate quality improvement indicators into project activities.** The scorecard also added a useful supervision indicator which helped to ensure regular mentoring and coaching of field-based staff.

²⁶ Wu, Z. Cros, M. Wright, D. Shepard, D.S. Impact of Performance-based financing on primary health care services in Haiti. *Health Policy and Planning*. Oct. 28, '12; 1-10.

²⁷ Basigna, P. Gertler, P.J. Bingawaho, A. Sturdy, J. Ver, eerscj. CMJ. Effect on maternal and child health services of payment to primary health care providers for performance: an impact evaluation. *Lancet* 2011; 377:1421-28.

²⁸ Bautista-Arrendondo, S. et al. Impact Evaluation of Performance Based Financing (PBF) on Access and Process Quality of Voluntary Counseling and Testing for HIV in Rwanda. *AIDS* 2010, Vienna, Austria.

Conclusion

In the end, what is so important about SHTP II's work in South Sudan are the legacies left behind. The project's service delivery component prevented and treated diseases. Community education and demand creation emphasized the importance of utilizing these services. And capacity building assured that after SHTP II came to a close, the progress achieved over the past three years and eight months will continue under the leadership of the South Sudanese themselves.

The SHTP II legacy products that the MOH can use to continue to scale up primary health care across South Sudan include:

- Standardized training programs in key high priority programs for use at a national level in Reproductive Health, Maternal and Newborn Health, Child Health, Community Mobilization including VHCs and HHP training modules, pharmaceutical management and HMIS.
- National consensus on the role and terms of reference of Village Health Committees and Home Health Promoters.
- Field tested quality assurance protocols based on the MOH supervisory guidelines.
- Experience in a performance-based financing model which can be used by the MOH for contracting in of MOH services to states and counties.
- A Leadership Development Program at central, state and county levels with trained and experienced facilitators that can continue, if desired, after project cessation.
- Protocols and procedures for data quality assurance to strengthen HMIS and roll-out the DHIS
- Coordination mechanisms for county and state level planning, budgeting, and supervision.
- Most importantly, the knowledge and experience that comes with successful implementation of the seven high priority health programs, with a significant increase in access and use of the services by the population in need, and a significant improvement in quality. The Basic Package of



Health Services model on which the SHTP II is based is a viable and strong model that will serve the country well for years to come.

After 50 years of civil war, modern South Sudan has a rapidly evolving and changing landscape, and the health system is no exception. Sustainable development goes far beyond a three and a half year project, but the gains made through SHTP II will act as a foundation to move the country from relief to development.

Integration between all health facility levels has been vital to overall system strengthening. For example, the project's success in increasing DPT3 vaccination coverage for children under age 1 from 20 percent to more than 83 percent, in less than three years, was due to a focus on integrated strengthening efforts. This rapid scale-up came as a result of not only increased vaccine supplies, but also cold chain improvements, pharmaceutical management training, vaccinator capacity building, proper data management, and widespread community education.

As the country begins to tackle the challenges of nation building, the gains made by SHTP II in improving the health system in South Sudan, particularly by building the capacity of the government and local health care stakeholders, will better the lives of South Sudanese for decades.

There is still much work to be done in South Sudan, but SHTP II's results demonstrate that, with proper investment and stakeholder buy-in, the health system can expand and strengthen both access to and quality of a basic package of health services that benefits all South Sudanese.