Background

Despite the rapid scale-up of HIV prevention, care, and treatment interventions in Uganda, laboratory services in the public sector were severely limited at the start of the USAID Strengthening Uganda’s Systems for Treating AIDS Nationally (SUSTAIN) project in 2010. Public Regional Referral Hospitals (RRHs) and General Hospitals (GHs), which provide services to a large population of HIV-positive clients, had poor laboratory infrastructure, inadequately maintained or lacking equipment, and insufficiently trained laboratory staff. Routine monitoring tests, including CD4 counts, hematology, and chemistry for HIV positive clients, required referral to other laboratories supported by other projects. This negatively impacted the evidence-based clinical care service delivery.

SUSTAIN Approach to Laboratory Strengthening

To ensure provision of sustainable HIV services, SUSTAIN works with the Ministry of Health (MOH) to improve access to quality laboratory services in Uganda. The project supports 12 RRHs, 7 GHs and 2 health centre (HC) IVs.

In December 2010, SUSTAIN conducted a joint needs assessment with the MOH, Central Public Health Laboratories (CPHL), and the USAID Targeted HIV/AIDS Laboratory Support (THALAS) project, which resulted in formulation of a Laboratory Services Strengthening and Improvement Plan. The plan was approved by the MOH and aimed to address three key areas of need: infrastructure, equipment, and human resources. Based on level of need and workload requirements, SUSTAIN is using a phased approach to strengthen the 21 supported laboratories.
Key Interventions

Infrastructure Improvement:
Together with MOH engineers, CPHL, and hospital teams, SUSTAIN participated in the development of specifications for remodeling and expanding the existing laboratory structures, selection of contractors, and supervision of the renovation work. Following the lab specifications, the project supports improvement of laboratories.

Provision of Equipment:
This involves procurement and installation of new equipment, including automated CD4, chemistry, and hematology machines, as well as general use equipment (centrifuges, refrigerators, roller mixers, automated pipettes, and microscopes). In addition, SUSTAIN supports repair and routine servicing of existing equipment and supply of power back-up systems.

Quality Improvement:
SUSTAIN, in collaboration with the MOH and HealthQual International, promotes the use of quality improvement (QI) approaches for laboratory services through trainings, on-site mentorships, and shared learning sessions.

Laboratory Accreditation:
SUSTAIN supports laboratories to participate in the World Health Organization Region Office for Africa’s (WHO/AFRO) Stepwise Laboratory Improvement Process Towards Accreditation (SLIPTA) program. The support involves training, supervision, and mentorship of laboratory staff in good laboratory practices with the target of achieving Star 3 (on scale of Star 1-5) by 2014, and eventually applying for accreditation.

Human Resource Strengthening:
SUSTAIN supports health facilities to recruit critically-needed laboratory staff, while also training the existing MOH staff in good clinical laboratory practices, inventory management, laboratory organization and management, leadership skills, specific technical skills (including equipment use), laboratory accreditation, logistics management, and QI.

Progress and Achievements To-Date

• Improved laboratory space and physical infrastructure. Renovation and laboratory space improvement activities have been completed at eight supported RRHs and three GHs (Jinja, Moroto, Gulu, Mbale, Fort Portal, Mubende, Kabale, Hoima, Entebbe, Kawolo, and Nebbi). Renovations included roof replacement, new terrazzo floors, work tops, air conditioning, water supply, and space extension.

Select Laboratory Renovations

Laboratory at Fort Portal RRH

Before

After

Laboratory at Kabale RRH

Laboratory at Lira RRH
Key Interventions continued

External Quality Assurance:
SUSTAIN has supported laboratories to participate in the national and international External Quality Assessment (EQA) schemes to ensure results produced are accurate, reliable, and comparable with national and international standards.

MOH Regional Medical Equipment Maintenance Workshops (RWs):
Recently, the project started initiatives to upgrade the capacity of seven regional medical equipment workshops to maintain and repair bio medical equipment. This is expected to reduce equipment downtime and improve efficiency. The RWs are located in the cities of Lira, Arua, Hoima, Gulu, Mbale, Fort Portal, and Kabale.

Laboratory Sample Transportation Hubs:
In mid-2013, SUSTAIN started supporting MOH interventions to implement reliable referral systems to enable lower-level health care facilities to effectively refer specimens to RRH and GH laboratories and receive timely results. The support is aimed at promoting timely initiation of clients on treatment, monitoring of treatment outcomes, diagnosis, and management of opportunistic infections.

Before the Mbale RRH laboratory improvements, the maximum number of tests we could do per day was 10. With the new automated equipment, we are now able to run up to 50 tests per day and the turn-around time for receiving results is down from 2 days to only 10-30 minutes.

Dr. Benon Wanume, Mbale RRH Director

Equipment installation and repair: Repair and servicing have been done for old equipment (CD4 partec analyzers at seven laboratories and Hematology at five laboratories). SUSTAIN also procured and installed new automated and analyzers supportive equipment at renovated laboratories.
• External Quality Assurance (EQA). With support from the USAID SUSTAIN project, 17 laboratories are now enrolled in the United Kingdom EQA Scheme (UKNEQAS) for CD4, and 12 are participating in the Hematology scheme. Additionally, all 21 supported laboratories are participating in TB smear proficiency panel testing.

Score on the TB Smear EQA Scheme (January–March 2013)

- Laboratory In-charges from 18 hospitals completed a leadership development course together with other members of the hospital management team. Up to 59 laboratory technologists and technicians have been seconded to all supported hospitals.

- Support for national laboratory sample transportation system hubs. SUSTAIN has taken over the support of 12 old laboratory sample transportation hubs from the MOH. An additional nine new hubs have been launched and are ready to start operating in October 2013. These 21 hubs will offer support to 608 peripheral health units, with critically needed laboratory tests for disease diagnosis, surveillance, and patient monitoring. This support will not be limited to HIV/AIDS-related tests, but will gradually include other diseases like tuberculosis, malaria and other outbreak diseases.

- Laboratory Logistics Management. SUSTAIN supported the national laboratory reagent/commodities’ quantification exercise, including reagents for both old and new equipment. Through continuous mentorships, support supervision, and training, the hospital-level capacity for logistics has improved.

- Strengthened systems for sustainable laboratory services. For the first time, a national standardized list and guidelines are available for recommended laboratory tests at each level of the health care system, including testing methods and the type of equipment. The list, which was developed with SUSTAIN’s support, is expected to ease the burden on the national procurement system, which will no longer be strained to maintain a large number of different types of equipment or to provide a very wide range of reagents for laboratories performing the same tests.

- Laboratory human resources strengthening. Twenty-two laboratory staff identified by SUSTAIN were trained as support to trainers in Laboratory Logistics Management by THALAS and CPHL. SUSTAIN also participated in the development of the training curriculum, job aids, and standard operating procedures.

The number of laboratory tests at SUSTAIN supported laboratories increased by 225% for CD4, 47% for complete blood count, and 78% for renal function tests between April-June 2012 and April-June 2013.