

# Abstract

## **Building laboratory capacity at a rural ugandan district hospital laboratory to monitor HIV patients**

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**Issues:** Makerere University/Walter Reed Project (MUWRP) has supported comprehensive HIV care and treatment programs in Kayunga District, Uganda since 2005. Under this program, more than 24,000 District residents have been screened for HIV and 2,680 have presented for care at District HIV clinics. So all District HIV samples could be tested on-site by District Hospital Laboratory (DHL) staff, a plan was developed to build capacity at the District Hospital Laboratory.

**Description:** A quality control (QC) laboratory technologist was hired to organize a 4-month training for the DHL staff and to work along-side them in a supportive supervision role. The training program focused on the use, maintenance, and validation of the BD FACSCount for CD4 enumeration, a Beckman-Coulter Ac-t 5 diff automated hematology analyzer, and the Roche Reflotron dry chemistry analyzer. Training in syphilis testing was also performed. MUWRP supported the installation of air conditioners at the DHL and an inverter system as a power back-up. Daily support and supervision continued on-site and equipment maintenance contracts were procured. Relevant standard operating procedures (SOPs) were developed and applied. The lab participated in multiple external quality assurance (QA) reviews.

**Lessons learned:** From October 2007 through January 2008, DHL staff autonomously tested and reported 1053 CBC, CD4, chemistry, and syphilis tests. Results from the parallel testing between the DHL and MUWRP back-up lab has shown 100% concordance. The working hours increased sharply for staff, mainly due to the limitations of the chemistry analyzer. This model was chosen for its durability, but because of its linear throughput, it only measures one analysis at a time for each sample.

**Next steps:** Support the enhancement of laboratory capabilities in other rural, resource-limited areas by assisting with the renovation of laboratory infrastructure; provision of technical expertise and training; state-of-the-art laboratory equipment; institution of QA/QC program; and provision of daily support and supervision.