

Diagnostic Team Proposal
Executive Summary
October 19, 2005

As part of our assessment of HIV diagnostics in Lusaka, Zambia, we have reviewed the current availability and use of HIV diagnostics, and after consideration, have decided to focus on the access to CD4 count tests. As widespread scale-up of ARV treatment is occurring throughout Zambia with money from the Global Fund and PEPFAR, these tests will be increasingly necessary to determine when a patient should begin treatment. In the absence of obvious clinical signs of Stage IV AIDS, the WHO treatment guidelines require that an HIV-positive person receive a CD4 count before treatment is initiated. These tests then are at the nexus of the government's planned scale-up and 100% treatment initiative. They are therefore a crucial component to improving the quality of health for the estimated one million people living with HIV/AIDS in Zambia.

Based on what we have learned from health experts in Lusaka, there are four facilities in the city that have CD4 count machines. Of these, one is a military hospital and is not accessible to civilians. Of the other three, two charge for the service (approximately \$21, well beyond the means of the average Zambian) and require an appointment outside of the government health system (the distribution centers for most of the free ARVs). The last, at the Kalingalinga Hospital is the only facility that provides CD4 count testing free of charge, to all patients enrolled in the Center for Disease Research in Zambia (CIDRZ) sponsored, government-run free ARV program.

CIDRZ, a Zambian-based NGO, has been charged with the monumental task of coordinating and implementing the Zambian ARV scale-up program and has made tremendous progress in this area. They are currently operating seamlessly within the government health clinics, providing HIV testing, counseling, prenatal care, and ARVs to all patients that present for care. They also coordinate the transport and return of blood samples for CD4 counts between the government clinics and the Kalingalinga testing facility. Currently, the turn-around time for CD4 counts from clinic to test site and back to clinic is between one and two weeks.

Ideally, CD4 counts would be available as part of a continuous care system at the point of service, with immediate turn-around time for results. While this best-case scenario is obviously untenable in Zambia (and most of the world) right now, we should keep in mind what we are working towards. In pursuit of these ideal standards and in light of what we have learned of the current situation in Lusaka, we feel that there are several opportunities to move closer to this ideal. With the introduction of a new information management system purchased in September of this year¹, and the obvious commitment of the CIDRZ employees, we feel that the first step should focus on reducing the one to two week CD4 test turnaround time to the government clinics. We are concerned about the implications of the current delays, how delayed tests and results negatively affect the

¹ <http://www.medisolution.com/news/documents/msh0908e.pdf>

integrity of the blood samples and the likelihood that the patient will return within an appropriate timeframe to obtain his or her results.

Our proposal is to solicit additional, external funding to assist the CIDRZ team enhance their current capacity to perform, read, and transfer samples and information for the CD4 tests. This assistance will come in the form of both human and technological resources, based on a systems assessment and cross-team knowledge sharing. From a human-resources perspective, we will help CIDRZ improve the collection of blood samples, how and when they are transported to Kalingalinga, and reduce any backlog within the current testing system by operating 24-hours a day until the samples coming in that day can be run that night or the following morning. From a technological perspective, we will help CIDRZ implement enhanced tracking tools for blood samples and use new and existing technology to improve the data transfer after the tests have been completed. Ultimately, we hope to reduce the turn-around time to at least one-day. To measure our effectiveness, after a full on-site assessment, we will map out the existing process and current process times. From there, we will identify the opportunities to reduce as many of the delays as possible and implement proposed changes. We will monitor the changes and how they affect the timeline and tweak the processes as necessary to optimize results.

MIT OpenCourseWare
<http://ocw.mit.edu>

EC.S11 Engineering Capacity in Community-Based Healthcare
Fall 2005

For information about citing these materials or our Terms of Use, visit: <http://ocw.mit.edu/terms>.