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HST.939 Designing and Sustaining Technology Innovation for Global Health Practice
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Lecture 4: 2/26/08

David Steinmiller from Claros Diagnostics

- will describe aspects of Claros

Claros produces a palm-sized lab-quality testing module

Can currently test for proteins; will expand to do:

- blood glucose
- immunoassay
- near patient testing
- coagulation
- molecular
- hematology
- microbiology
- general chemistry

In the U.S. Claros focuses on urology, particularly prostate cancer.

Prostate cancer in the U.S.:

- 200,000 new cases per year
- 28,000 deaths per year
- >1 million prostate biopsies per year
- \$1 billion market for prostate diagnostics

Doctors can't do lab tests in their office; this is a time-consuming and complex process. Claros wants to eliminate the need for outside lab testing; is developing a testing kit and analyzer that can be done in the office and will provide results in ~10 minutes.

It's important to carry out tests of products like this in community-based medical centers and not just at world-class medical centers.

Diagnostics in Global Health

Claros was founded to meet the need for global diagnostics.

- many differences between diagnostics needs in U.S. and in low-resource areas

Most global health research is done at academic centers; they don't always think about practical or economic concerns.

Microfluidics: the science of moving tiny amounts of liquids around, usually in microscale sized containers.

Claros' solutions for diagnostics:

- low-cost manufacturing (injection-molded plastic)
- storage (all reagents stored in packaged cassette, as immiscible liquids)
- sample handling/treatment (whole blood from fingerstick; no pre-treatment)

- fluid actuation (simple pneumatic control – no valves)
- fluid control (passive flow control – reagents pre-programmed)
- sensitive detection (proprietary chemistry and optics; channel darkens with the presence of antibody to disease of interest)
- disposal (sample and reagents captured on cassette)

Claros system for infectious disease

Multiplex tester for:

- HIV
- HepB
- HepC
- Syphilis
- Herpes
- Malaria

Battery operated; durable.

Claros chose to initially focus on urology in the developed world as a method for getting the company off the ground and generating capital to put into their other goals: less-profitable diagnostic initiatives in the developing world.