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**Molecular diagnostics for low resource settings**

BERNHARD H WEIGL, PATH

As traditional high quality diagnostic laboratories are not widely available or affordable in developing country health care settings, microfluidics-based point-of-care diagnostics may be able to address the need to perform complex assays in under-resourced areas. Many instrument-based as well as non-instrumented microfluidic prototype diagnostics are currently being developed. In addition to various engineering challenges, the greatest remaining issue is the search for truly low-cost disposable manufacturing methods. Diagnostics for global health, and specifically microfluidics and molecular-based low resource diagnostics, have become a very active research area over the last five years, thanks in part to new funding that became available from the Bill and Melinda Gates Foundation, the National Institutes of Health, and other sources. This has led to a number of interesting prototype devices that are now in advanced development or clinical validation. These devices include disposables and instruments that perform multiplexed PCR-based lab-on-a-chips for enteric, febrile, and vaginal diseases, as well as immunoassays for diseases such as malaria, HIV, and various sexually transmitted diseases. More recently, instrument-free diagnostic disposables based on isothermal nucleic acid amplification have been developed as well. Regardless of platform, however, the search for truly low-cost manufacturing methods that would result in cost of goods per disposable of around US\$1/unit at volume remains a big challenge. This talk will give an overview over existing platform development efforts as well as present some original research in this area at PATH.