

# A Quick Reference Guide to NTD Diagnostics and Diagnostic Methods

A critical component of NTD control and elimination is determining what populations need treatment and other public health interventions to reduce transmission. Once program efforts are underway, disease levels must be monitored until control and elimination are achieved. Here are the common diagnostic tools and methods used to “map” disease and conduct ongoing disease surveillance. The ENVISION project provides technical assistance and funding to support many of these critical activities led by ministries of health.

## BLOOD TESTS



**Blood Films:** uses blood sample taken from individuals at night when microfilarial parasites are present in the blood and prepared on microscopy slide for detection of **lymphatic filariasis**.<sup>1</sup>



**ICT Card<sup>2</sup>:** uses a small blood sample to test for the presence of blood antigen for **lymphatic filariasis** caused by *Wuchereria bancrofti*. Samples can be collected during day or night. Test produces results in 10 minutes.<sup>3</sup>



**Brugia Rapid Test:** detects specific IgG4 antibodies to *Brugia malayi* and *Brugia timori* in human serum, plasma or whole blood for the diagnosis of **lymphatic filariasis** caused by brugia parasites.

## OTHER FIELD TESTS



**Skin Snip Biopsy<sup>5</sup>:** requires tissue sample to be incubated for 24 hours, which allows the microfilariae (larvae) to emerge, before examining with a microscope for **onchocerciasis**.<sup>6</sup>



**Clinical Eye Exam:** using magnifiers and a flashlight, the eye and eyelid are examined for diagnosis of **trachoma**.

## URINE AND STOOL TESTS



**Urine Reagent Strips:** uses urine sample to test for proteinuria and/or hematuria, indications of **schistosomiasis**.



**Urine Filtration Method:** uses urine sample to quantify the number of eggs per 10 ml of urine for **schistosomiasis**.



**Kato-Katz Kits (and method):** uses human stool samples to detect **schistosomiasis** and intestinal parasite eggs with microscopy.



**Mini-FLOTAC<sup>4</sup>:** relies on fecal egg count techniques to diagnose the presence of helminths in a stool sample. Used for diagnosis of **soil transmitted helminths** and *Schistosomiasis mansoni*.

<sup>1</sup> Microfilaria of *Wuchereria bancrofti* in a peripheral blood smear. Photo by John Walker. <http://emedicine.medscape.com/article/217776-workup#a0756>.

<sup>2</sup> The ICT will soon be replaced by an improved, less-expensive 2nd generation ICT strip.

<sup>3</sup> <http://www.ntdsupport.org/resources/immunochromatographic-card-test-ict-bench-aid>

<sup>4</sup> Barda et al. Mini-FLOTAC, an Innovative Direct Diagnostic Technique for Intestinal Parasitic Infections: Experience from the Field. PLOS-NTD. August 01, 2013. DOI: 10.1371/journal.pntd.0002344

<sup>5</sup> Image courtesy of Thomas B. Nutman, MD, Laboratory of Parasitic Diseases, NIAID, NIH

<sup>6</sup> [http://www.cdc.gov/parasites/onchocerciasis/health\\_professionals/index.html](http://www.cdc.gov/parasites/onchocerciasis/health_professionals/index.html)