



## NEGLECTED TROPICAL DISEASES (NTDs)

Every year on 30 January, the global health community observes World Neglected Tropical Diseases Day, a moment to unite and take decisive action against some of the most devastating diseases affecting vulnerable populations worldwide. The World Health Organization (WHO) calls on everyone to join forces in addressing the disparities that fuel neglected tropical diseases (NTDs).

NTDs are so named because they have historically been overlooked in global health efforts. WHO identifies 21 major conditions as NTDs, led in prevalence or incidence by parasitic helminth infection such as onchocerciasis, schistosomiasis, and lymphatic filariasis (LF). These are

followed by other NTDs of bacterial or fungal origin, including leprosy and mycetoma, the latter of which can be caused by bacterial or fungal pathogens. Together, NTDs affect more than one billion people, disproportionately impacting poor communities and causing chronic and debilitating illnesses.

Currently, the control of many NTDs heavily relies on drug donations that are distributed through mass drug administration (MDA). However, it is crucial to consider the most effective approach to reliably identify and reduce or eliminate the transmission of these diseases.

### WHY DIAGNOSTICS MATTER IN NTDs

Reliable and effective diagnostics are essential for accelerating progress towards disease elimination, reducing morbidity and lowering programme costs, as highlighted in the [2021-2030 WHO roadmap for NTDs](#). To meet the needs of affected populations, diagnostic tests not only need to be developed rapidly by qualified industry

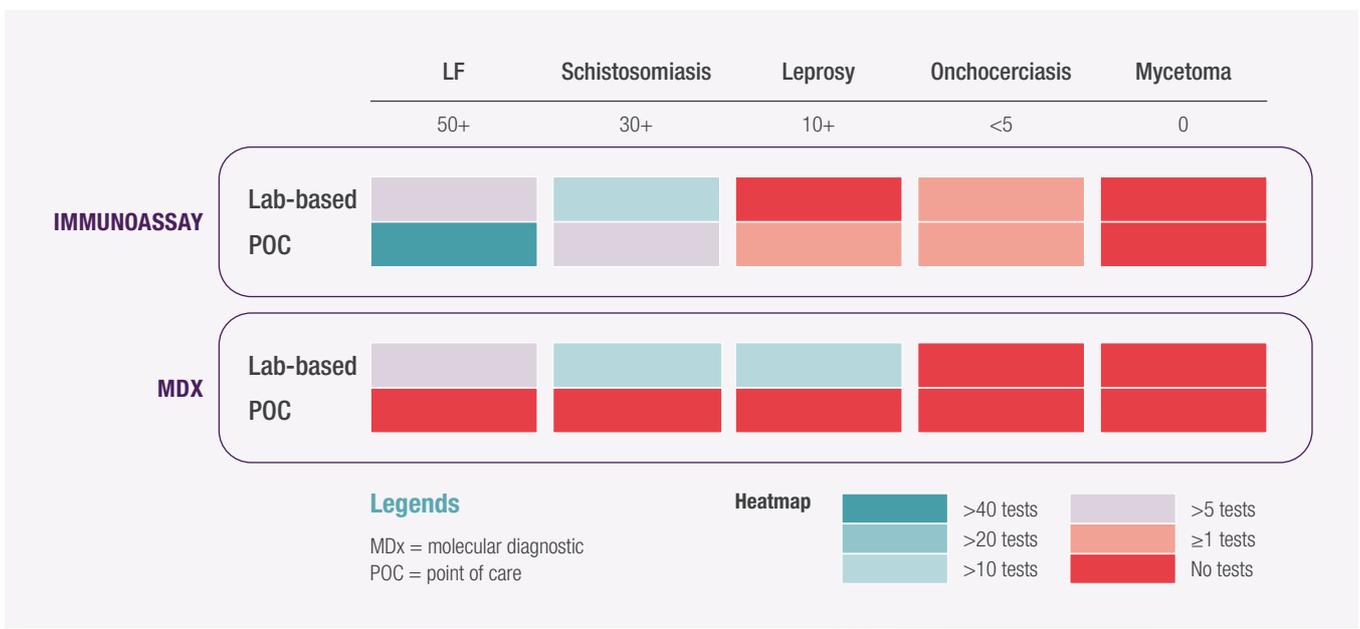
players, tailored to specific use cases, user requirements, environmental conditions, but also thoroughly evaluated and made widely accessible and affordable. Yet, the lack of comprehensive data on existing NTD diagnostics limits visibility, making it challenging to identify and address the diagnostic gaps.

### DIAGNOSTIC LANDSCAPE FOR NTDs (source: FIND DxConnect test directory)

In 2024, FIND compiled information on commercially available diagnostic tests for five NTDs – onchocerciasis, schistosomiasis, LF, leprosy, and mycetoma – covering both laboratory and point-of-care (POC) assays (Fig. 1).

This information was updated at the end of 2025. The results were published in the Neglected Tropical Diseases Directory, a global database of available diagnostic tests and suppliers hosted on FIND's website.

Figure 1. Numbers and types of diagnostics available for LF, schistosomiasis, leprosy, onchocerciasis, and mycetoma



## KEY DIAGNOSTIC GAPS

Current diagnostic strategies for NTDs rely on pathogen detection through clinical examination, microscopy, serology, or molecular methods. While microscopy remains the gold standard for many parasitic NTDs, our analysis focuses on molecular and immunoassay-based diagnostics because of their greater potential for decentralized testing, improved reproducibility, and reduced dependence on parasite presence or the timing of sample collection. Because low-resource settings bear a disproportionate

burden of NTDs, there is a need for accessible POC diagnostic tests that minimize reliance on patient travel to health facilities or the transport of biological samples to centralized laboratories. Accordingly, our analysis of the five diagnostic landscapes places particular emphasis on the availability of POC tests. Despite the growing availability of commercial [POC molecular diagnostic platforms](#), no market-available assays on such platforms were identified for the NTDs assessed (Fig. 1).

### Multiple diagnostic options exist for LF

LF, commonly known as elephantiasis, is caused by infection with filarial parasites (*Wuchereria bancrofti*, *Brugia malayi*, or *B. timori*). In 2023, approximately 657 million people in 39 countries across Africa, the Americas, and Asia lived in areas requiring preventive chemotherapy to stop the spread of the infection [1].

A total of 59 commercially available diagnostic tests for LF were identified. These include 11 tests targeting *W. bancrofti* alone; 23 targeting *W. bancrofti* and *B. malayi*; 2 targeting *B. malayi* and *B. timori*; 3 targeting *W. bancrofti*, *B. malayi* and *B. timori*; and 20 tests with unspecified LF target pathogens. Of these, 7 are laboratory-based nucleic acid assays, 2 of which have regulatory approval for clinical use. The remaining 52 are immunoassays, including 44 rapid diagnostic tests (RDTs), 25 of which have received regulatory approval.

### Absence of POC diagnostics for urogenital schistosomiasis

Schistosomiasis is a parasitic disease, caused by trematode worms and occurs in two main forms: intestinal and urogenital. Intestinal schistosomiasis is caused by *Schistosoma mansoni* (*S. mansoni*), *S. japonicum*, *S. mekongi*, *S. intercalatum*, and *S. guineensis*; among these, *S. mansoni* accounts for the greatest burden. The urogenital form of schistosomiasis is caused by *S. haematobium*. In 2021, an estimated 251 million people required preventive treatment, with approximately 90% of those in need living in sub-Saharan Africa [2].

The landscape analysis identified 32 commercially available diagnostic tests for schistosomiasis, including 12 targeting *S. mansoni* and 8 targeting *S. haematobium*. Of these, 14 are molecular assays, 4 of which have regulatory approval for clinical use, and 18 are immunoassays, including 4 RDTs, 3 of which have regulatory approval. Notably, no commercially available RDT specifically detects *S. haematobium*.

### Gaps in POC diagnostics for leprosy

Leprosy (Hansen's disease) is a bacterial infection caused primarily by *Mycobacterium leprae*. A related species, *M. lepromatosis*, causes a more aggressive form known as diffuse lepromatous leprosy; together, these species comprise the *M. leprae* complex [3]. In 2023, approximately 182,815 new leprosy cases were reported worldwide, with the majority concentrated in India, Brazil, and Indonesia [4].

Of the 13 tests available identified in the leprosy diagnostic landscape, 11 are molecular assays unsuited in their current format for field deployment, 4 of which have regulatory approval for clinical use. 2 are antibody-based RDTs, and 1 has achieved regulatory certification.

### Limited POC options for onchocerciasis

The filarial parasite *Onchocerca volvulus* causes onchocerciasis, also known as river blindness. In 2024, at least 252.3 million people required preventive treatment against onchocerciasis, which is currently treated via MDA. More than 99% of infected people live in Africa and Yemen; the remaining 1% live on the border between Brazil and Venezuela [5].

The landscape identified no commercially available nucleic acid test and 5 commercially available immunoassays including two antibody-based RDTs, of which none has received regulatory approval. Of the 2 RDTs, one is a bplex test (SD Bioline Oncho/LF bplex IgG4 RDT) that detects antibodies to both onchocerciasis and LF, supporting integrated surveillance programs in co-endemic areas.

### Lack of mycetoma-specific diagnostic tools

Mycetoma is caused by at least 70 fungal or bacterial microorganisms. Fungal mycetoma (eumycetoma) is most often caused by *Madurella mycetomatis*, whereas bacterial mycetoma (actinomycetoma) is most often caused by *Actinomadura madurae*, *Streptomyces somaliensis*, *Nocardia brasiliensis*, and *Nocardia asteroides* [6]. Epidemiological data are limited and the global burden remains unknown; although only a few countries collect and report cases, mycetoma is endemic across Africa, Asia, Europe, and Latin America [7].

Current diagnostic options are limited. While serological assays detecting the fungal cell wall polysaccharide (1–3)- $\beta$ -D-glucan ( $\beta$ -glucan) can be used to monitor disease activity in some mycetoma patients, there are no pathogen-specific diagnostic tests for mycetoma caused by *Madurella*, *Nocardia*, *Actinomadura*, or *Streptomyces* species.

## References

1. [Lymphatic filariasis](#)
2. [Schistosomiasis](#)
3. Hansen's Disease: A Practical Update on a Neglected Globally Significant Infection. *Cureus*. 2024 Apr 1;16(4):e57374.
4. [Facts & Figures - NLR - until No Leprosy Remains](#)
5. [Onchocerciasis](#)
6. Van de Sande WWJ. Global burden of human mycetoma: a systematic review and meta-analysis. *PLoS Negl Trop Dis*, 2013; 7(11):e2550.
7. [Mycetoma](#)

## SUMMARY

Significant gaps persist in diagnostic accessibility, suitability for low-resource settings, and regulatory approval across all five NTDs assessed. Except for LF, for which several immunological POC tests are commercially available, POC diagnostic options for schistosomiasis, onchocerciasis, and leprosy remain limited. Marked disparities were also observed across the five NTDs assessed: mycetoma appears to be the most neglected, as no disease-specific diagnostic test was identified, whereas a range of diagnostic options exists for the other four NTDs.