



# HUMAN AFRICAN TRYPANOSOMIASIS

## *Sleeping Sickness*

- Caused by two subspecies of *Trypanosoma brucei* (*T. b.*) *gambiense* (g-HAT; 98% of reported sleeping sickness cases) and *T. b. rhodesiense* (r-HAT)
- Transmitted by the tsetse fly
- Occurs in two stages:
  - the early stage (stage 1) with non-specific symptoms, often un- or misdiagnosed
  - the late stage (stage 2) where the parasite crosses the blood-brain barrier, causing serious neurological disorders including sleep cycle disruptions, neurological manifestations, and progressive mental deterioration
- Without effective treatment, the disease usually leads to death
- The WHO Roadmap objective: to eliminate HAT as a public health problem by 2020



The combination therapy Nifurtimox-Eflornithine (NECT), developed in 2009 (see p. 8), replaced the toxic treatments for HAT. NECT is now used to treat 100% of stage 2 HAT identified patients infected with *T.b. gambiense*, and has contributed to the fall in the case load. But treatment remains cumbersome, difficult to ship, store, and administer; patients must be hospitalized and undergo a complex and painful lumbar puncture to first determine the stage of the disease.

New oral treatments in combination with rapid diagnostic tests would shift the treatment paradigm, and are needed to reach the final mile of WHO's elimination target<sup>(1)</sup> and ensure its sustainability, particularly as HAT has a history of resurging in epidemics.

13

million people estimated to live in areas at moderate to very high risk

65

million people at risk



*T. b. gambiense* is endemic in

24

countries of West and Central Africa  
2,733 new cases reported (2015)

*T. b. rhodesiense* is endemic in

13

countries of Eastern and Southern Africa  
71 new cases reported (2015)



“I began to feel tired and weak. I was cold all the time even when it was hot. My bones ached terribly. I could sleep during the day but not at night. I didn't know what was wrong until I was diagnosed with sleeping sickness.”

**Jean de Dieu Liyande Walo**

52, a survivor of sleeping sickness, a cassava and rice farmer, and a part-time preacher. Yalikombo, a village located on the Congo river, DRC

### DNDi aims to deliver:

- A safe, effective, and orally administered drug to replace current first-line HAT treatments, and to improve and simplify current case management
- The ideal goal is to develop two drugs that are effective against both stage 1 and 2 HAT and both subspecies of the parasite

If successful, this would represent a fundamental shift in disease management, as it would remove the need both for a risky and painful lumbar puncture test to confirm the disease stage, and for hospitalization, as treatment would no longer rely on administering a drug intravenously.

(1) Less than one case per 10,000 inhabitants in at least 90% of endemic foci is expected