

Neglected Tropical Diseases: Are We Aware Enough?

Nandini Chatterjee

Bengal Physician Journal (2024): 10.5005/jp-journals-10070-8053

Neglected tropical diseases (NTDs) are a conglomeration of various diseases caused by multifarious causative agents like viruses, bacteria, parasites, fungi, and toxins. Though apparently very different in their clinical presentations, they are strung together by some common characteristics, because of which they were designated by an umbrella nomenclature “NTDs” coined by Peter Hotez and colleagues in 2003. They signify a “chronic pandemic” that has immense implications on society, economy, health and wellbeing. It is estimated that NTDs affect more than 1 billion people, while the number of people at risk is 1.6 billion.

Common Thread

The majority of NTDs occur in the tropics and sub-tropics though temperate zones are no longer free from them.

International travel, population displacement due to conflict or natural disasters, climate changes, and deforestation are all responsible for the worldwide spread of these diseases.

They afflict people with low economic status and poor access to basic amenities like safe water, sanitation, and health services. Mainly a problem of resource-limited low and middle-income group countries, early diagnosis and prompt treatment are all the more difficult.

Many are chronic, insidious conditions that lead to life-long disabilities.

These long-term medical consequences are often coupled with social stigma that affect mental health and wellbeing of the subject and the family members too.

Fact Sheet

Twenty NTDs have been identified by the World Health Organization (WHO) out of the expanded list and are the target for the Roadmap for NTD initiative for control and elimination. It is a strategic plan aimed at addressing NTDs globally within the timeframe of 2021–2030. This plan enumerates specific objectives to improve the prevention, diagnosis, treatment, and control of NTDs, particularly in low-resource settings.

However, this is easier said than done.

The epidemiology of NTDs is related to environmental factors and many are vector-borne and have animal reservoirs. All these factors make their public-health control a Herculean task.

Let us have a look at the diseases listed by WHO.

Protozoan Infections

- Chagas disease.
- Giardiasis.
- Human African trypanosomiasis.
- Leishmaniasis.

Helminth Infections

- *Taenia solium* (neuro)cysticercosis/taeniasis.

Department of Medicine, Institute of Post Graduate Medical Education & Research, Kolkata, West Bengal, India

Corresponding Author: Nandini Chatterjee, Department of Medicine, Institute of Post Graduate Medical Education & Research, Kolkata, West Bengal, India, Phone: +91 8145005804, e-mail: rivuc23092006@gmail.com

How to cite this article: Chatterjee N. Neglected Tropical Diseases: Are We Aware Enough? *Bengal Physician Journal* 2024;11(2):45–46.

Source of support: Nil

Conflict of interest: None

- Dracunculiasis.
- Echinococcosis.
- Foodborne trematodiasis.
- Loiasis.
- Lymphatic filariasis.
- Onchocerciasis.
- Schistosomiasis.
- Soil-transmitted helminthiasis (ascariasis, hookworm diseases, trichuriasis, strongyloidiasis).

Bacterial Infections

- Buruli ulcer.
- Leprosy.
- Trachoma.
- Yaws.

Viral Infections

- Dengue and chikungunya fevers.
- Rabies.

Fungal Infections

- Mycetoma, other deep mycosis.
- Ectoparasitic infections.
- Scabies, myiasis.
- Snakebite envenomation.

Parasites cause more than 50% of all NTD and include both protozoan and helminthic infections and of late also ectoparasites (scabies), followed in order of frequency by bacterial, viral, and fungal infections.

The list encompasses diverse diseases with equally diverse transmission dynamics that needs individualized control and preventive measures, e.g.,

- Flies, fomites and fingers (trachoma).
- Mosquitoes (dengue fever, chikungunya and filariasis).
- Tsetse flies (sleeping sickness).
- Sandflies (leishmaniasis).

- Blackflies (onchocerciasis).
- Snails, which release infective larvae into water to penetrate human skin (e.g., schistosomiasis).
- The faeco-oral route (e.g., soil-transmitted helminths) or via food products.

In the last decade, NTDs have received increased recognition as these diseases had many common characteristics and poverty seemed to play a pivotal role among them. Furthermore, NTDs can cause blindness, deformity, disfigurement, cancers, and neurological problems in the long run. Not to mention other far-reaching consequences like the poor mental health of the patient and the caregiver, and the loss of ability to play an economic and social role within the family and community which enhances the cycle of poor health and poverty.

It has been argued that addressing NTDs is cost effective leading to equitable distribution of healthcare and will also contribute to the Sustainable Development Goals which is another target of the United Nations by 2030.

Several NTDs can be controlled by drug treatment (preventive chemotherapy), on a community scale, via mass drug administration programs. Other NTDs require different approaches and strategies for control or elimination, including specialized drugs and intensified case management, vector control, veterinary public health as well as safe water, sanitation, and hygiene.

The WHO Roadmap Strategy has the Following Plan:

Control

Dengue fever, Buruli ulcer, cutaneous leishmaniasis, foodborne trematode infections, *Taenia solium* (neuro) cysticercosis/taeniosis, echinococcosis, soil-transmitted helminthiasis.

Regional Elimination

Lymphatic filariasis, onchocerciasis, leprosy, human African trypanosomiasis, trachoma, schistosomiasis, rabies, Chagas disease, visceral leishmaniasis.

Eradication

Guinea worm, endemic treponematoses (yaws).

However, it is true that efforts are still mainly focused on the diseases for which medication and large-scale treatment options are available, including lymphatic filariasis, onchocerciasis, schistosomiasis, soil-transmitted helminthiasis, and trachoma.

Despite vaccines and medication for animals being readily available, zoonotic NTD have received less attention and are sometimes referred to as the most neglected among the NTD. Advocacy and investment in these quarters are the need of the hour.

The NTD Non-Governmental Organizations Network, a group of more than 60 non-governmental organizations, has developed a comprehensive "Behavior, Environment, Social Inclusion and Equity, as well as Treatment and Care" framework (the BEST framework) to facilitate the uptake of a holistic and multidisciplinary approach for tackling this issue.

It must be borne in mind, a higher level of commitment is needed from the endemic countries, non-governmental organizations, and charities to achieve these goals by 2030 and to attain this, 'one-health approach' combining human, animal and environmental health should be given highest priority.

This issue of BPJ contains a duplex of cases of NTD with interesting presentations and learning points:

- a. A case of schistosomiasis which is endemic in African countries is now being diagnosed in India and needs more awareness among physicians.
- b. A case of Hookworm infestation, which is endemic here and is an easily detectable and treatable condition but often missed.

FURTHER READINGS

1. Molyneux DH, Savioli L, Engels D. Neglected tropical diseases: Progress towards addressing the chronic pandemic. *Lancet* 2017;389(10066):312–325. DOI: 10.1016/S0140-6736(16)30171-4.
2. Hotez PJ. NTDs V.2.0: "Blue marble health" – Neglected tropical disease control and elimination in a shifting health policy landscape. *PLoS Negl Trop Dis* 2013;7(11):e2570. DOI: 10.1371/journal.pntd.0002570.
3. Smith J, Taylor EM. What is next for NTDs in the era of the sustainable development goals? *PLoS Negl Trop Dis* 2016;10(7):e0004719. DOI: 10.1371/journal.pntd.0004719.
4. World Health Organization. Fourth Report on NTDs – Integrating neglected tropical diseases in global health and development. Geneva: WHO. 2017. Available from: <http://apps.who.int/iris/bitstream/10665/255011/1/9789241565448-eng.pdf?ua=1>.
5. Neglected Tropical Disease NGO Network. The BEST Framework: A comprehensive approach towards Neglected Tropical Diseases. 2017. Available from: <http://www.ntd-ngonetwork.org/resources/best-framework-comprehensive-approach-towards-neglected-tropical-diseases>.