Neglected tropical diseases

What are the neglected tropical diseases?

Seventeen neglected tropical diseases (NTDs) have been identified by the World Health Organization (WHO). It is estimated that over 1 billion people are infected with NTDs, with a further 1 billion at risk. The majority of NTDs occur in the tropics and sub-tropics and have particular characteristics in common:

• They afflict the poorest people – those without access to the safe water, sanitation, and basic health services required in order to protect themselves against infection by bacteria, viruses and other pathogens. High-income groups are rarely affected.
• Many are chronic, slowly developing conditions that become progressively worse if undetected and untreated. The damage they cause can be irreversible.
• They can cause severe pain and life-long disabilities, with long-term consequences for the person and also for family members who have to care for the person.
• People with NTDs are often stigmatised and excluded from society, and this can affect their mental health.

The individual diseases are very different, and one person can be affected by more than one disease at the same time.

The infectious agents responsible include:

• viruses (rabies and dengue)
• bacteria (leprosy, yaws, trachoma and Buruli ulcer)
• protozoa (leishmaniasis and trypanosomiasis)
• helminth parasites (schistosomiasis, lymphatic filariasis, onchocerciasis, intestinal worms and Guinea worm).

Transmission is equally diverse and can take place via:

• flies, fomites (e.g. skin cells, hair, clothing or bedding) and fingers (trachoma)
• mosquitoes (dengue fever 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 – see page 29) or via food products.

NTDs can cause blindness (onchocerciasis and trachoma), deformity and disablement, disfigurement, cancers, and neurological problems.

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Neglected tropical diseases are a result of poverty; they also contribute to further poverty in those people affected. Indeed, the prevalence of some NTDs has been suggested as an indicator of poverty.2,3 They also have a wide social and economic impact:

- the loss of ability to undertake traditional farming practices, critical for survival in rural environments
- the loss of ability to play an economic and social role within the family and community
- the cost of inappropriate treatment (for example, traditional healers), which enhances the cycle of poor health and poverty
- the loss of educational opportunities, as children must act as caregivers for their parents, creating a generation of people with little or no education
- poor mental health of the patient and the caregiver, particularly chronic depression.

The impact of NTDs on the unpaid work provided by women in the community is more difficult to measure. When women are ill, they are less able to do work such as growing vegetables, fetching water and fuel, providing care for older people and children, and ensuring that family members wash their hands or wear shoes – which reduces the transmission of NTDs. Women tend to have poorer access to health care than men and are also disproportionately affected by some NTDs, such as trachoma.3

Why are NTDs receiving increased international recognition?
Over the last decade, NTDs have received increased recognition. This was made possible thanks to the establishment of NTDs as a “brand” in global health. It was difficult to focus the world’s attention on 17 very different diseases requiring a range of different interventions. By recognising what these diseases had in common, and grouping them together under the NTD “brand”, however, it became possible to construct compelling arguments for action at the international level. These arguments were supported by good evidence: that addressing NTDs is cost effective in terms of economic

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rates of return on investment of health dollars, leading to ‘more health, for more people, for fewer dollars.’ Further, the relationship between NTDs and social, equity/equality and development issues means they fall within the mandate of development agencies, therefore meriting both technical and financial support.

What is being done to control NTDs?
The drugs needed to treat NTDs are now included on the WHO ‘Essential Medicines’ list, and pharmaceutical companies are making them freely available to the populations in need through donation programmes. These programmes, together with increased country commitment to the control of NTDs and novel approaches to drug distribution (e.g. through community-directed interventions or school health programmes) have made it possible to address some NTDs (trachoma, onchocerciasis, lymphatic filariasis, soil-transmitted helminths, and schistosomiasis) on a massive scale, in what have become known as mass drug administration (MDA) programmes. Community-directed treatment has been developed and promoted as a recommended way of providing mass drug administration. Communities take responsibility for the collection, delivery, and reporting of drug use. This is an effective approach: annual treatment records for onchocerciasis suggest that some 70% of the ivermectin approved for use is administered to those who need it within a 12-month period.

Mass drug administration programmes bring multiple benefits, including:
- direct impact on individual health, even beyond the target infection
- improved community engagement in health programmes
- better access to health care for populations that had little or no access
- an improved drug supply chain
- enhanced data management, monitoring, evaluation, surveillance and reporting systems.

What more needs to be done?
The majority of countries in Africa have completed their NTD master plans. Resources must be allocated to these plans and countries need to commit to the World Health Assembly (WHA) Resolution and the WHO Road Map. The second WHO Report on NTDs, ‘Sustaining the Momentum’, was published recently and identified progress since the first report. It also identifies the challenges in the way of achieving the disease-specific goals. There is a need for rapid up-scaling in some of the most populous countries to reach the WHO targets and timelines for control/elimination. To address this, NTD partners need to:
- engage in advocacy in their country
- complete mapping
- enhance human resource capacity in order to deliver integrated treatments within the health system
- address the backlog of surgery for some diseases (in particular, trachoma and lymphatic filariasis)

Action on neglected tropical diseases at the global level
- On 27th May 2013, the WHA passed a resolution on all 17 neglected tropical diseases (Resolution WHA 66.20).
- NTDs have been included in the post-2015 Development Agenda. Goal 4e states: ‘Reduce the burden of disease from HIV/AIDS, tuberculosis, malaria, neglected tropical diseases, and priority-non communicable diseases.’
- In early 2012, the London Declaration was endorsed by 77 companies and organisations. The declaration included an increased commitment to drug donations and product development research to support the World Health Organization (WHO) Road Map towards the specific 2012–2020 NTD targets.
- USAID and the UK Department for International Development have increased their support for the elimination of NTDs, and the Bill & Melinda Gates Foundation has committed significant research funds to address operational and product-oriented research for NTDs.

Table 1. The 17 neglected tropical diseases, as defined by the World Health Organization

<table>
<thead>
<tr>
<th>Disease</th>
<th>Description</th>
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<tbody>
<tr>
<td>Buruli ulcer</td>
<td>(Mycobacterium ulcerans infection)</td>
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<tr>
<td>Chagas disease</td>
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<tr>
<td>Dengue/severe dengue</td>
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<tr>
<td>Dracunculiasis</td>
<td>(Guinea-worm disease)</td>
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<tr>
<td>Food-borne trematodiases and fascioliasis</td>
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<tr>
<td>Human African trypanosomiasis</td>
<td>(sleeping sickness)</td>
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<tr>
<td>Human echinococcosis</td>
<td>(hydatid disease)</td>
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<tr>
<td>Leishmaniasis</td>
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<tr>
<td>Leprosy</td>
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<td>Lymphatic filariasis</td>
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<tr>
<td>Onchocerciasis</td>
<td>(river blindness)</td>
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<td>Rabies</td>
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<tr>
<td>Schistosomiasis</td>
<td>(bilharzia)</td>
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<tr>
<td>Soil-transmitted helminthias</td>
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<tr>
<td>Taeniasis/cysticercosis</td>
<td>(tapeworms)</td>
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<tr>
<td>Trachoma</td>
<td></td>
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<tr>
<td>Yaws (endemic treponematoses)</td>
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drug treatments are effective and broadly safe when correct policies are followed (see page 26).

Mass drug administration programmes that reduce morbidity, mortality and transmission — leading to elimination of some of the world’s most distressing diseases — should be regarded as akin to global immunisation when viewed from a strategic perspective. They have proved that it is possible to deliver free drugs to the poorest in need at unit costs that even some of the poorest countries can afford, and have already afforded. We must call for this successful intervention to be made available to everyone who needs treatment. If this relatively easy type of intervention — free drugs, no need for a cold chain — cannot be replicated and scaled up to reach everyone who needs treatment, worldwide, there is little hope that we can make a significant impact in other priority areas, such as maternal and child health, or vaccinations.

The NTD community has been successful in achieving a paradigm shift in the global health community’s thinking about these diseases, as exemplified in a WHA Resolution and their inclusion in the a post-2015 Health Goal (see panel, page 23). What were hitherto unpronounceable conditions of poor people, and which did not concern high-income countries, are now high on the global health agenda. Consciousness has been raised but there remain many challenges, both technical and operational.

A higher level of commitment is needed from the endemic countries, additional donors, non-governmental organisations, and charities. NTD partnerships recognise that they must face the following challenges: communicating the need for country commitment to enhance geographic and therapeutic coverage and improve compliance, and achieving this by prioritising capacity strengthening from the centre to the communities.

### References

9. www.unitingcocombatntds.org/endorsements

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### Neglected communities

**The Gambia.** People conducting a population-based survey randomly selected the hamlet of Tunku. The survey team waded across flooded paddy fields, constantly asking for directions. Tunku turned out to be a cluster of five mud huts perched on a hill on the bank of the River Gambia. The team found two families and one blind old woman there. The villagers could only reach their homes from the river using dugout canoes, and they grew their crops in fields that flooded. Why would anyone choose to live here, in this ‘end of the road’ place?

**Nigeria.** Ibadan is an ancient city that grew around its traditional palace. Out of the city’s overcrowded and labyrinthine streets, weeping mothers streamed daily to the tertiary teaching hospital less than half an hour away with children dying or dead from diseases such as malaria, diarrhoea, or marasmus. In the hospital, they saw clean wards with crisp white bed sheets — an unimaginable and unattainable luxury for them in their homes. Meanwhile, medical students ventured in the opposite direction, through the same labyrinthine depths and into homes in which gutters with filthy waste water ran through the middle of rooms and the latrine was just outside the window. Their purpose? A paediatric posting, but the challenges they found in these urban slums demanded a public health approach. Their traditional doctor’s training was powerless in the face of such challenges.

**Sri Lanka:** Into every home

Midwives, who function as family health workers, form the backbone of health service delivery in Sri Lanka. In 2000, there were over 5,000 midwives in the country, each responsible for between 3,000 and 4,000 people. This network should – in theory – reach the entire population of Sri Lanka. In rural Sri Lanka, it was noted at a Sightsavers review of primary eye care in 2010, that the midwives are welcomed into people’s homes and know every household and family member intimately: the child whose Road to Health chart is kept by his literate mother (Sri Lanka has a 98% literacy rate), the grandfather with hypertension, and the grandmother reluctant to wear her glasses. One even helped a father who was determined to

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**What kinds of neglected communities are out there?**

- Those at the ‘end of the road’ in inaccessible areas
- Migrant communities
- Those in slums: pockets of poverty in urban areas
- Post-disaster communities
- Communities in areas of conflict or in refugee camps
- Communities affected by environmental degradation from mining, climate change or bad development projects.

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