Ending the neglect: lessons from a decade of success in responding to Neglected tropical diseases in Africa
Ending the neglect: lessons from a decade of success in responding to Neglected tropical diseases in Africa

UHC/UCN Cluster
World Health Organization
Regional Office for Africa
Brazzaville • 2023
Contents

Foreword ........................................................................................................................................ iv
Acknowledgements .......................................................................................................................... v
Lessons from a decade of success ................................................................................................. 1
The heavy burden of neglected tropical diseases ......................................................................... 4
Africa’s triumph: conquering neglected tropical diseases ............................................................ 6
The foundations for success .......................................................................................................... 11
Landmark events ........................................................................................................................... 15
Building on success: priority areas going forward .................................................................... 19
References ..................................................................................................................................... 21

Figures

Figure 1. Progress towards Guinea worm disease eradication, African and Eastern Mediterranean Regions, 2010 ........................................................................................................... 7
Figure 2. Progress towards Guinea worm disease eradication, African and Eastern Mediterranean Regions, 2022 ........................................................................................................... 7
Figure 3. Annual number of new human African trypanosomiasis cases, WHO African Region, 2000-2022........................................................................................................................................... 8
Figure 4. Status of elimination of trachoma as a public health problem, 2023.............................. 10
Progress in eliminating and eradicating neglected tropical diseases (NTDs) is one of Africa’s greatest achievements. Nineteen countries in Africa have eliminated at least one NTD and there are currently 18 million fewer people requiring interventions against NTDs. Togo achieved a world first by eliminating four NTDs. Guinea worm disease (dracunculiasis) is on the verge of eradication; sleeping sickness (T. b. gambiense human African trypanosomiasis) has been eliminated as a public health problem in seven countries; and the number of reported Buruli ulcer cases decreased by 71% between 2010 and 2021. These substantial gains, many of which have been realized over the past decade, are built on over 70 years of shared experiences in NTD prevention, control, elimination, and eradication efforts.

This great progress is to be celebrated. But now we need to go the final mile. We need to end the neglect and finally eliminate and eradicate these terrible diseases that still cause an unacceptably high level of hardship among the most vulnerable people in our region. Ending these diseases is one of the best returns on investment available – a ‘best buy’ for funding. Funding, which unfortunately, is still largely reliant on donors, in a landscape that is becoming increasingly difficult to navigate against the backdrop of global economic and political instability. Countries affected by NTDs need to employ innovative financing solutions to maintain the momentum of the past decades, to protect the progress made to date, and crucially, to expand elimination success to other NTDs.

The Kigali Declaration, launched in 2022, called for high-level commitment from governments, communities, and other stakeholders to pull together resources and action. This declaration put individuals, communities and countries at the centre of the NTD response. While in Kigali, I launched the Mwele Malacela Mentorship Programme for Women in Neglected tropical diseases, bringing the equity lens into play for a group of diseases that disproportionally affect women in the region. We must also not forget the countless individuals, families, and communities living longer and healthier lives thanks to focused interventions and sustained commitments to the health and wellbeing of all.

The real-world impact of these efforts in the African Region has been significant and rapid, reshaping communities in less than a generation. Children growing up today are far less likely to suffer from these diseases, which were common among their parents and grandparents. Initiatives targeting NTDs have been responsible for health system strengthening efforts among some of our most neglected communities, paving the way for improved healthcare, better sanitation and enhanced disease control.

This report brings together the lessons we have learnt from a decade of success, the foundations for which can be traced to several key factors, starting with an initial paradigm shift in viewing NTDs as a group. This led to opportunities for integrated approaches, simplification, cost-effectiveness, and streamlined efficiency. Integration is a fundamental enabler of NTD response efforts, one that continues to evolve and build on its successes. The Expanded Special Project for the Elimination of Neglected Tropical Diseases (ESPEN), launched in 2016, is WHO’s flagship project for tackling the five most prevalent NTDs in the African Region amenable to preventive chemotherapy through mass drug elimination.1 ESPEN has been pivotal in mobilizing political, technical and financial resources to reduce the burden of NTDs in the region. Ending NTDs will indeed end the neglect. This remains a major focus of the work of the WHO Regional Office for Africa.

Dr Matshidiso Moeti
Regional Director for Africa
World Health Organization

1 Lymphatic filariasis, onchocerciasis, soil-transmitted helminths, schistosomiasis, trachoma.
This report was prepared as a companion document to Control, elimination and eradication efforts for neglected tropical diseases in the World Health Organization African region since 1990 – a scoping review. The concept of a shorter report aimed at a wider audience came from Benido Impouma and Bridget Farham. Report design was provided by Alden Moussongo.

**Technical and scientific writers**
The writing team was made up of Nicola Richards (lead report writer), and Caitlin Wolfe, Adriana Campos and Abbie Barry, who developed the concept and framework, performed the scoping review, and drafted the full scoping review.

**Reviewers**
The final draft was reviewed by the following experts (listed alphabetically):
Dorothy Achu (TVD Team Lead)
Elizabeth Juma (ESPEN) and the ESPEN team
Akpaka Kalu (Strategic Policy and Planning Team Lead)
Lessons from a decade of success

Neglected tropical diseases (NTDs) are a diverse group of diseases with distinct characteristics found mainly among the poorest populations of the world. These diseases share a common stranglehold on those populations left furthest behind by development: they perpetuate poverty.

The World Health Organization (WHO) African Region has made significant progress in reducing the heavy health burden caused by NTDs over the past decade – reducing levels of morbidity and mortality, while substantially improving the quality of life for millions of people living with these conditions. As of 2023, 19 Member States have eliminated at least one NTD in the region, up from only six countries in 2010. There are currently 88 million less people requiring interventions against NTDs in the region as compared to 2013. To date, four countries have been officially validated for elimination of at least one of the five priority preventive chemotherapy NTDs: with Malawi and Togo eliminating lymphatic filariasis; and the Gambia, Ghana, Malawi, and Togo eliminating trachoma. Togo stands out globally as one country that has successfully eliminated four neglected tropical diseases.
Guinea worm disease (dracunculiasis) is on the verge of eradication, with only 13 human cases reported in 2022, the lowest annual figure since 1986 when global eradication efforts began. As of 2023, sleeping sickness (T. b. gambiense) human African trypanosomiasis, or HAT) has been eliminated as a public health problem in seven countries, and five more countries are eligible for validation. The number of leprosy cases steadily decreased between 2012 and 2021, with eight Member States reporting no new local cases among children for at least five consecutive years. The number of reported Buruli ulcer cases decreased by 71% between 2010 and 2021. Behind these numbers are countless individuals, families, and communities living longer and healthier lives thanks to focused interventions and sustained commitments to the health and wellbeing of all.

These substantial gains, many of which have been realized over the past decade, are built on over 70 years of shared experiences in NTD prevention, control, elimination, and eradication efforts. These experiences have altered response efforts from disease-specific, siloed, and often duplicative interventions – to the integrated, aligned, and coordinated efforts of today. The foundations for success can be traced to several key factors, starting with the initial paradigm shift in viewing NTDs as a group. This was a critical foundation – providing opportunities for integrated approaches, simplification, cost-effectiveness, and streamlined efficiency. Integration has been, and continues to be, a fundamental enabler of NTD response efforts – one that continues to evolve and build on its successes. While no one factor is more important than the other, with many closely interlinked, as these factors have converged and built on the successes of each other, exponential gains have been realized.

The real-world impact of these efforts in the African Region has been both immense and rapid, reshaping communities in less than a generation. Countries have witnessed the gradual disappearance of several debilitating diseases that once plagued the continent. Children growing up today are increasingly being spared the diseases commonplace among their parents and grandparents, as initiatives targeting NTDs have paved the way for improved healthcare, better sanitation, and enhanced disease control.

Despite substantial progress in reducing the overall burden, many of the targets set for 2020 were not achieved. Over the next decade, responses will continue to move from disease-specific to integrated approaches, cutting across all NTDs and disease groups, to ensure country ownership and leadership, to work even more closely with countries and partners, and to promote the development of new tools for prevention, diagnosis, and treatment.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>Reduction of disease incidence, prevalence, morbidity and/or mortality to a locally acceptable level as a result of deliberate efforts; continued interventions are required to maintain the reduction.</td>
</tr>
<tr>
<td>Elimination (interruption of transmission)</td>
<td>Reduction to zero of the incidence of infection caused by a specific pathogen in a defined geographical area, with minimal risk of reintroduction, as a result of deliberate efforts; continued action to prevent re-establishment of transmission may be required. The documentation of elimination of transmission is called verification.</td>
</tr>
<tr>
<td>Elimination as a public health problem</td>
<td>A term related to both infection and disease, defined by achievement of measurable targets set by WHO in relation to a specific disease. When reached, continued action is required to maintain the targets and/or to advance interruption of transmission. The documentation of elimination as a public health problem is called validation.</td>
</tr>
<tr>
<td>Eradication</td>
<td>Permanent reduction to zero of the worldwide incidence of infection caused by a specific pathogen, as a result of deliberate efforts, with no risk of reintroduction. Documentation of eradication is termed certification.</td>
</tr>
</tbody>
</table>
As of 2023, 19 countries have eliminated at least one NTD - up from only six countries in 2010. There are currently 88 million less people requiring interventions against NTDs in the region as compared to 2013.

A decade of success

- **2013**: One NTD eliminated in four countries
- **2015**: One NTD eliminated in one country
- **2017**: One NTD eliminated in one country
- **2018**: Two NTDs eliminated in two countries
- **2020**: Two NTDs eliminated in two countries
- **2021**: Two NTDs eliminated in three countries
- **2022**: Three NTDs eliminated in six countries

Togo becomes the first country to eliminate four NTDs
The heavy burden of neglected tropical diseases

Neglected tropical diseases (NTDs) are a group of diseases that place a constant and heavy burden primarily on the poorest, most marginalized, and isolated communities in the world. The African Region carries 39% of the global burden of NTDs – equating to over 580 million people. They are an increasing concern in the region, where they destroy lives, prevent children from attending school, and keep communities in generational cycles of poverty. These diseases can be devastating, causing severe pain, disabilities and deformities, malnutrition, stunted growth, and cognitive impairment. Anaemia caused by some of these diseases has a direct impact on maternal mortality. Several NTDs are associated with both an increased risk of acquiring other diseases – including malaria, HIV, and cancer – and an increased likelihood of more severe parasitic infections.

Onchocerciasis and trachoma cause blindness. Leprosy and lymphatic filariasis deform in ways that hinder economic productivity and cancel out chances for a normal social life. Buruli ulcer maims, especially when limbs must be amputated to save a life. Sleeping sickness (HAT) severely debilitates before it kills, and case fatality rates are close to 100% in untreated cases. Without post-exposure prophylaxis, rabies causes acute encephalitis and is always fatal. Leishmaniasis, in its various forms, leaves deep and permanent scars or entirely destroys the mucous membranes of the nose, mouth and throat. In its most severe form, it attacks the internal organs and is rapidly fatal if untreated. Severe schistosomiasis disrupts school attendance, contributes to malnutrition, and impairs the cognitive development of children. Guinea worm disease causes excruciating, debilitating
pain, sometimes for extended periods and often coinciding with the peak agricultural season.

These diseases place a heavy burden on health systems. For many infectious diseases, management is an intermittent emergency. This is not the case for NTDs, where suffering is prolonged. The only truly effective treatment for severe consequences of Chagas disease, for instance, is a heart transplant. Surgical treatment of advanced Buruli ulcer requires weeks – if not months – of hospital care. The drain on productivity is enormous. The costs of care can bankrupt households. Stigma and social isolation, especially for women, can compound suffering and further embed people in poverty. The burden of these diseases can increase dramatically when other epidemic prone diseases and outbreaks occur – as evidenced during the COVID-19 pandemic.

Data on the economic burden of NTDs are confined to small studies and limited geographic areas. Where data exist, the economic impact is significant. The household income lost from out-of-pocket health expenditures and the wages lost due to NTDs is estimated to be at least 33 billion International dollars per year. Overall, the benefit of ending NTDs for affected individuals in terms of averted out-of-pocket health expenditure and lost productivity exceeds US$ 342 billion during 2015–2030. Some of the most prevalent NTDs, including lymphatic filariasis, onchocerciasis, schistosomiasis, and soil-transmitted helminthiases, are responsible for an average annualized loss to productivity of about 29% in people with these diseases compared to uninfected persons.
Africa’s triumph: conquering neglected tropical diseases

In recent years, the African Region has witnessed a remarkable success story in the elimination and eradication of neglected tropical diseases. Through concerted efforts by governments, global health organizations, and local communities, significant progress has been made in tackling various NTDs, leading to improved health and well-being for millions of people. New cases of Buruli ulcer decreased by 71% between 2010 and 2021. Guinea worm disease is on the verge of global eradication, with the number of new cases decreasing by 99% between 2010 and 2021. The number of new human African trypanosomiasis (HAT) cases decreased by 98% between 2000 and 2022.
Guinea worm disease

Despite there being no vaccines or drugs for the disease, Guinea worm disease is on the verge of full global eradication. As of 2022, 42 of the 47 Member States in the African Region have been certified as free of Guinea worm, with the disease remaining endemic in five countries, including Angola and Mali, which are reporting only animal cases (see Figures 1 & 2). The number of cases has dramatically reduced, with only 13 human cases reported in 2022. This represents an almost 100% reduction in the annual number of cases, compared to the 1 million cases reported in 1989.^{3}

One of the most notable success stories – Ghana – was categorized as an endemic country until 2012, when due to sustained efforts, it gained precertification status in 2012, and final certification in 2015. Key enablers of success include effective community-based programmes that have focused on simple, actionable behavior change messages; treating water sources with larvicide; improved surveillance and case detection; and sustained political will and commitment. The establishment of national and global databases, including the Dracunculiasis Eradication Portal, have been critical in strengthening country and regional capacity to monitor changes in the epidemiological situation.

---

**Figure 1. Progress towards Guinea worm disease eradication, African and Eastern Mediterranean Regions, 2010**

Source: The International Commission for the Certification of Dracunculiasis Elimination. Available at: [https://ourworldindata.org/guinea-worm-path-eradication](https://ourworldindata.org/guinea-worm-path-eradication)

**Figure 2. Progress towards Guinea worm disease eradication, African and Eastern Mediterranean Regions, 2022**

Source: The International Commission for the Certification of Dracunculiasis Elimination. Available at: [https://ourworldindata.org/guinea-worm-path-eradication](https://ourworldindata.org/guinea-worm-path-eradication)
**Human African trypanosomiasis**

The number of HAT cases reported annually in the region declined by 98% between 2000 and 2022, and the annual reported number of cases has remained less than 1000 over the past five years (see Figure 3). As of 2023, *T. b. gambiense* HAT has been eliminated as a public health problem in seven countries (Benin, Chad, Côte d’Ivoire, Equatorial Guinea, Ghana, Togo, and Uganda). Five other countries (Burkina Faso, Cameroon, Guinea, Mali, and Senegal) are eligible for validation and are preparing their applications, while several others have eliminated the disease but have weak surveillance systems that delay validation. Elimination of *T. b. rhodesiense* HAT as a public health problem has been validated in two countries (Kenya and Rwanda).

Togo was the first country to achieve elimination in the region in 2020. In the span of 2.5 years, another seven countries have received certification of HAT elimination – demonstrating how consistent efforts can lead to significant successes in a short period of time. Along with sustained political will, extensive laboratory testing for the disease, supported by effective partnerships for innovation and the donation of critical drugs, have contributed to the remarkable achievements in HAT elimination.

**Figure 3. Annual number of new human African trypanosomiasis cases, WHO African Region, 2000–2022**

![Graph showing the annual number of new human African trypanosomiasis cases from 2000 to 2022. The number of cases has significantly decreased over the years.](https://ourworldindata.org/guinea-worm-path-eradication)
**Leprosy**

Early detection of cases and timely administration of multidrug therapy are the basic tenets of leprosy elimination. Since the introduction of multidrug therapy, the global number of cases of leprosy have decreased substantially, from more than 5 million cases in the 1980s to just over 140,500 cases in 2021. The leprosy case detection rate (number of new cases reported) decreased from 24.7 cases per million inhabitants in 2012, to 18.2 per million inhabitants in 2021. Leprosy prevalence also decreased from 21.6 to 18.0 cases per million inhabitants during the same period. Eight out of 47 Member States reported no new local cases of leprosy among children for at least five years, which means they are close to achieving interruption of transmission of *Mycobacterium leprae* (the bacterium causing leprosy). Leprosy control activities have been integrated across several programmes, including NTDs and tuberculosis, along with primary health care interventions.

![Leprosy village at the Hôpital de la Rive, Kinshasa: children play football. © WHO AFRO](image1)

**Trachoma**

Trachoma has been eliminated as a public health problem in six African countries—Benin, Gambia, Ghana, Malawi, Mali, and Togo (see Figure 4). With comprehensive efforts focused on preventive chemotherapy, promoting facial cleanliness, environmental improvements, and access to surgery when needed, these nations have successfully curbed the spread of trachoma. Implementation of the WHO SAFE strategy resulted in a decrease in the number of people requiring antibiotic treatment for trachoma in the region from 189 million in 2014, to 105 million as of June 2022. In 2021, 124.7 million people in the region (86% of the global population in need), qualified for implementation of the A, F and E components of the SAFE strategy. Of these, 63.6 million were treated with antibiotics – a 51% coverage rate.
Figure 4. Status of elimination of trachoma as a public health problem, 2023

Source: World Health Organization Global Health Observatory. Available at: https://www.who.int/data/gho/map-gallery-search-results?&maptopics=910b5dfc-ce2e-4440-8b43-8d83f4a85485
The foundations for success

Successes of the past decade are built on over 70 years of shared experiences and learnings in controlling, eliminating, and eradicating neglected tropical diseases in the African Region. These experiences, both good and bad, have highlighted several factors contributing to the remarkable achievements being witnessed in the region. While no one factor is more important than the other, with many closely interlinked, as these factors have converged and built on the successes of each other, exponential gains have been realized.

The initial paradigm shift, in viewing NTDs as a group, was a critical foundation for success – providing opportunities for integrated approaches, simplification, cost-effectiveness, and streamlined efficiency. Viewing these diseases as a group then enabled discussions and finally consensus on effective control strategies – providing further opportunities to develop action-based strategies based on shared operational and programmatic needs. Following the first meeting of global partners in 2007, considered a turning point in NTD response efforts, partners agreed to work together in innovative, flexible, and cost-effective ways. This foundation, one that moved away from the siloed approaches of the past, resulted in streamlined and integrated approaches that have yielded significant gains for public health.

Integration has been, and continues to be, a fundamental enabler of NTD response efforts. From initial efforts to integrate activities as they related to specific diseases, to integrating activities under the broad umbrella of NTDs, to current activities on integrating NTD responses with other diseases – this concept of integration is continually evolving and building on its successes. A final foundation relates...
to research, and the critical role it has played in highlighting the significance of NTDs, their impact on health and development, and increasingly, the positive benefits of NTD-based interventions on health and wellbeing more broadly.

**Paradigm shift**

One of the first major steps in strengthening responses to NTDs was to view these diseases as a group. This makes practical sense in operational and strategic terms. Although medically diverse, these diseases thrive under conditions of poverty. They tend to cluster together in places where housing is substandard, drinking water is unsafe, sanitation is poor, access to health care is limited or non-existent, and insect vectors are constant household and agricultural companions. This clustering means that people are often affected by more than one disease. It also means that strategies developed to deliver interventions for one disease can rationally be used to deliver interventions for others.

Following its second meeting in Berlin in 2005, WHO proposed that the vaguely defined term “other communicable diseases” be changed to the more sharply focused “neglected tropical diseases”. This change neatly encapsulated the paradigm shift responsible for the new approach to dealing with NTDs. The change recognized that NTD control can be achieved if three requirements are met:

1. attention and action are given to the needs of populations affected by NTDs rather than to their diseases,
2. interventions to deliver treatments are integrated with control measures, and
3. evidence-based advocacy is deployed to generate resources for control from the international community.

In 2013, the World Health Assembly adopted the first resolution ever (WHA66.12) to consider NTDs as a group rather than as individual diseases, which reinforced focus on fighting them through coordinated and integrated approaches. This critical paradigm shift allowed for NTDs to participate in shared momentum, where success for one disease spills over to benefit others. The dose-pole, for example, was pioneered by the onchocerciasis control programme to determine drug dosage, by height, for ivermectin. This innovation is now used for schistosomiasis control, where praziquantel is administered in remote settings by nonspecialized staff.

Grouping several diseases together under this new conceptual framework presented an opportunity to recalculate the collective burden associated with this set of diverse conditions as well as their cumulative public-health relevance. The framework also enabled WHO to raise the profile of NTDs and to mobilize resources for scaling up implementation of activities for their global control and elimination. This paradigm shift is reflected in the Sustainable Development Goals (SDGs), which explicitly refers to NTDs in SDG3, “Ensure healthy lives and ensure well-being for all at all ages”, specifically in target 3.3 calling to “end the epidemics… of neglected tropic diseases” by 2030. This reflected a major improvement from the previous Millenium Development Goals (MDGs), which only referred to NTDs as part of the non-specific “other diseases” under the goal of “Combat HIV/AIDS, malaria, and other diseases”. The inclusion of target 3.3 requires the success of control, elimination, and eradication targets to contribute to the overall success of SDGs.

**Consensus on strategies**

In 2003, WHO began to focus control measures away from specific diseases to the health needs of communities. This led to the introduction of two major strategic interventions:

1. preventive chemotherapy, an intervention that allows the regular and coordinated administration of quality-assured, safe, single dose medicines on a large scale for the treatment of foodborne trematode infections, lymphatic filariasis, onchocerciasis, schistosomiasis, soil-transmitted helminthiases, and trachoma,

2. intensified case management, directed at NTDs for which simple tools and treatments are not yet available, such as Buruli ulcer, yaws, leprosy, Chagas disease, human African trypanosomiasis (sleeping sickness), leishmaniasis, cysticercosis, and echinococcosis.

In 2013, the World Health Assembly adopted the first resolution ever (WHA66.12) to consider NTDs as a group rather than as individual diseases, which reinforced focus on fighting them through coordinated and integrated approaches. This critical paradigm shift allowed for NTDs to participate in shared momentum, where success for one disease spills over to benefit others. The dose-pole, for example, was pioneered by the onchocerciasis control programme to determine drug dosage, by height, for ivermectin. This innovation is now used for schistosomiasis control, where praziquantel is administered in remote settings by nonspecialized staff.
approaches. This is a population-wide approach: no one is excluded for unfair reasons. Many of these control strategies require only once-yearly contact with health services.

**Partner collaboration and coordination**

Initial responses to NTDs saw as many as 15 different agencies implementing programmes in the same communities, often without coordination, and sometimes using different drugs and treatment regimens. Along with limiting the effectiveness of global response efforts, this siloed approach placed a heavy burden on local health systems. Global efforts reached a turning point in 2007, when WHO convened the first meeting of global partners. That meeting produced a shared commitment to support WHO strategies and goals by working together in an innovative, flexible, and cost-effective way. The result has been streamlined and integrated approaches that have yielded significant gains for public health.

During the 2010s, several multi-partner, multi-disease initiatives were established to ensure collaboration and coordination, including Uniting to Combat and the Expanded Special Project for Elimination of Neglected Tropical Diseases (ESPEN). Since its inception in 2016, ESPEN has been central to the success story of neglected tropical diseases, achieving significant progress in their control and elimination. Advocacy by ESPEN and partners for treatment saw more than 2.7 billion tablets donated and distributed to countries within the African Region between 2016 and 2020, with 38 countries reaching 100% geographical coverage over one year for at least one NTD. The number of people requiring preventive chemotherapy decreased from 592 million in 2016, to 578 million in 2020. ESPEN is continuing to support implementation of the 2021–2030 road map by:

1. **Facilitating country ownership at national and subnational levels, by supporting community-level data, devolved mapping, devolved implementation unit levels for interventions, and increased data use.**

In January 2023, WHO and partners launched the Global Onchocerciasis Network for Elimination (GONE) to accelerate progress towards onchocerciasis targets set in the global neglected tropical diseases road map. This network is a country-driven initiative, and the emphasis is on pragmatic and flexible solutions to ensure the needs of individual country programmes are met. The network will intensify an integrated, cross-cutting approach and serve as an advocacy body, at both the national and international levels. Specific sub-groups will identify key challenges and propose strategies to address issues to fast-track elimination targets.

**Integration**

The paradigm shift introduced by WHO in 2003 also involved an important strategic change, from a traditional approach centered on diseases, to one responding to the health needs of marginalized communities. The new approach uses integrated interventions based on tools for controlling NTDs. From a public health perspective, this change translated into the provision of care and the delivery of treatment to underserved populations. The shift ensures a more efficient use of limited resources and the alleviation of poverty and accompanying illness for millions of people living in rural and urban areas.

Integration efforts initially focused on ensuring cohesive responses to a specific disease within the NTD umbrella. This was reflected in the establishment of several disease-specific alliances, initiatives, and programmes during the late 1990s and early 2000s, including those on HAT, trachoma, Buruli ulcer, leprosy, and lymphatic filariasis. While this first level of integration was critical in ensuring consistent responses to NTDs, further efficiencies were realized when response efforts broadened to focus on several NTDs concurrently.

Most recently, integration efforts have focused on linking responses to NTDs with other diseases, as evidenced at the 2022 Kigali summit – a milestone in the international response to neglected tropical diseases and malaria integration efforts. As each next layer of integration has emerged, responses have become less disease-specific and more focused on meeting the needs of individuals and communities – improving health and wellbeing and decreasing the burden of both NTDs and other pressing health concerns.
Research
Research has played an overarching role in transforming and strengthening responses to NTDs, including through demonstrating the much larger significance of these diseases. Their impact on productivity has long been known but remained poorly quantified until very recently. In 1949 during the first expert consultation on schistosomiasis for example, experts noted the disease affects the physical and mental development of children and greatly diminishes the strength and productive power of adults. As they further concluded: it does so in ways that markedly diminish food production. Since then, evidence of the enormous economic consequences of these diseases, which extend far beyond the costs of care, has grown.

The household income lost from out-of-pocket health expenditures and the wages lost due to NTDs is estimated to be at least 33 billion International dollars per year. Overall, the benefit of ending NTDs for affected individuals in terms of averted out-of-pocket health expenditure and lost productivity exceeds US$ 342 billion during 2015–2030. Some of the most prevalent NTDs, including lymphatic filariasis, onchocerciasis, schistosomiasis, and soil-transmitted helminthiases, are responsible for an average annualized loss to productivity of about 29% in people with these diseases compared to uninfected persons.7 Human African trypanosomiasis in the Democratic Republic of Congo costs affected rural households more than 40% of their annual household income.8 These figures have great persuasive power when priorities are set and funds are allocated nationally and internationally.

The other side of the economic argument has also received attention in recent years. Economists have welcomed rapid impact interventions as bringing exceptionally high returns on investment. They are cost-effective, improve health, increase worker productivity, improve educational outcomes, and expand the domestic pool of resources. All these factors contribute in well-documented ways to economic growth. Research has also demonstrated a surprising number of ancillary benefits of preventive chemotherapy: improved micronutrient uptake and nutritional status, better cognitive performance, and improved childhood growth. Moreover, mass campaigns have completely eliminated some parasitic skin diseases. This unexpected benefit has increased public perceptions that these drugs are beneficial. It has also made populations receptive to subsequent campaigns.

Persuasive arguments have come from additional lines of evidence. Research has demonstrated how certain NTDs are associated with higher risks and poorer health outcomes from other diseases and conditions. Schistosomiasis, for example, has been associated with an increased risk of HIV transmission and progression.9 The morbidity and severity of parasitic infections, including malaria, is worse for individuals already living with schistosomiasis.10 Schistosomiasis has also been linked to poor pregnancy outcomes due to anemias in pregnancy, which may eventually cause maternal mortality and/or low birth weight.11 Research continues to reveal the intricate damage caused by these diseases. The subtle morbidity they cause – the excruciating pain, fatigue, and impaired cognitive function – are now better understood and appreciated. Such findings make these diseases important for other development sectors, including agriculture and education.
Landmark events

WHO Member States meet regularly at the World Health Assembly to evaluate the state of the world’s health and set the global health agenda. Several resolutions have been passed over the years that have a direct impact on the conditions now recognized as neglected tropical diseases.\textsuperscript{12} In 1949 for instance, just one year after WHO was established, the first expert consultation on schistosomiasis was held. The Fifth World Health Assembly, held in May 1952, addressed the technical assistance needed by countries to deal with treponematoses, rabies, leprosy, trachoma, hookworm, schistosomiasis and both forms of filariasis.\textsuperscript{13} Further, during the 1978 World Health Assembly, a goal was set to implement programmes for integrated control to interrupt the transmission of endemic treponematoses (including yaws) as early as possible.

Coordinated efforts to address NTDs in the African Region began in 1986 with the Guinea Worm Eradication Program, established by The Carter Center, US Centers for Disease Control and Prevention, WHO, UNICEF, and many others. Following \textit{Tropical Diseases 1990}, co-published by the WHO Division of Control of Tropical Diseases and UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases, several resolutions were passed during the 1990s by the World Health Assembly on eradicating, eliminating, or controlling Guinea worm disease, leprosy, onchocerciasis, lymphatic filariasis, and trachoma.

These early investments were consolidated at the global level with the inception of the Global Alliance for Leprosy Elimination (1999) and the Global Alliance to Eliminate Lymphatic Filariasis (2000), along with the establishment of the Department
of Control of NTDs within WHO in 2005. In 2007, the Global Partners’ Meeting on Neglected Tropical Diseases, hosted at WHO headquarters in Geneva, brought together over 200 participants including WHO Member States, United Nations agencies, the World Bank, philanthropic foundations, universities, pharmaceutical companies, international nongovernmental organizations, and other institutions dedicated to contributing their time, efforts, and resources to control NTDs. The theme – that the meeting marked a turning point in the long history of efforts against some of the oldest diseases – was developed to emphasize the transformative actions being implemented by governments and their partners.

In the same year, WHO published the first Global Plan to Combat Neglected Tropical Diseases, 2008–2015. Three years later, this was followed up with Working to overcome the global impact of neglected tropical diseases – the first report of its kind to review WHO’s work to prevent, control, eliminate, and eradicate 17 NTDs. The report, however, highlighted gains but also challenges, triggering a wave of additional pledges from public and private partners. In 2012, the WHO Strategic and Technical Advisory Group for Neglected Tropical Diseases and partners adopted a roadmap for implementation for NTD control, elimination, and eradication. The road map sets targets for the period 2012–2020. On 30 January 2012, pharmaceutical companies, donors, endemic countries, and nongovernment organizations came together to sign the London Declaration on Neglected Tropical Diseases. Together, they committed to control, eliminate, or eradicate 10 diseases by 2020 and improve the lives of over one billion people. Uniting to Combat NTDs (Uniting) was established as a unique global partnership in support reaching these goals.

Launched in 2016, the Expanded Special Project for the Elimination of Neglected Tropical Diseases (ESPEN), is WHO’s flagship project for tackling the five most prevalent NTDs in the African Region amenable to preventive chemotherapy through mass drug administration: lymphatic filariasis, onchocerciasis, soil-transmitted helminths, schistosomiasis, and trachoma. The project was established as a public-private partnership between the WHO Regional Office for Africa, Member States, and NTD partners to mobilize political, technical, and financial resources to reduce the burden of NTDs in the region.

The Global neglected tropical disease road map, 2021—2030, published in 2021, sets global targets and milestones to prevent, control, eliminate, or eradicate 20 diseases and disease groups as well as cross-cutting targets aligned with the Sustainable Development Goals. Three foundational pillars were developed to support global efforts to achieve the targets: accelerate programmatic action, intensify cross-cutting approaches, and change operating models and culture to facilitate country ownership. The road map seeks to reduce by 90% the number of people requiring treatment for NTDs; eliminate at least one neglected tropical disease from 100 countries; eradicate two diseases (Guinea worm disease and yaws); and reduce disability related to these diseases by 75%.

In June 2022, WHO supported the Kigali summit – a milestone in the international response to neglected tropical diseases and malaria integration efforts. Political leaders, the private sector, and civil society organizations made commitments to accelerate work in the elimination of neglected tropical diseases and malaria, through both verbal and financial commitments to support programmes, treatments, and scientific innovations. At the end of the summit, the Kigali Declaration on Neglected Tropical Diseases was endorsed by participants, which is expected to create momentum to deliver the 2021–2030 NTD road map.
In September 2022, WHO published *Ending the neglect to attain the sustainable development goals: a rationale for continued investment in tackling neglected tropical diseases 2021–2030*. The document sets out the investment priorities in the areas emphasized by the roadmap. These include the need for greater attention to key programme dimensions such as diagnostics and monitoring and evaluation, more catalytic support to mainstreaming NTD programmes with national health systems, more in-depth collaboration with individual countries, and more meaningful collaboration beyond the health sector. The rationale also draws attention to areas in which there is currently insufficient or partial economic evidence, and to the need for further evidence to institute and supplement best practices in this diverse field.

### Landmark events in the response to neglected tropical diseases

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1948</td>
<td>World Health Organization (WHO) begins work</td>
</tr>
<tr>
<td>1948</td>
<td>WHO establishes Veterinary Public Health Programme</td>
</tr>
<tr>
<td>1949</td>
<td>First expert consultation on schistosomiasis held</td>
</tr>
<tr>
<td>1952</td>
<td>UNICEF and WHO launch Global Yaws Programme</td>
</tr>
<tr>
<td>1960</td>
<td>WHO launches Programme for the Evaluation and Testing of New Insecticides</td>
</tr>
<tr>
<td>1974</td>
<td>Onchocerciasis Control Programme for West Africa begins</td>
</tr>
<tr>
<td>1976</td>
<td>Special Programme for Research and Training in Tropical Diseases established</td>
</tr>
<tr>
<td>1982</td>
<td>The Carter Center is inaugurated and begins work</td>
</tr>
<tr>
<td>1986</td>
<td>Guinea Worm Eradication Program established</td>
</tr>
<tr>
<td>1987</td>
<td>Mectizan® Donation Program created</td>
</tr>
<tr>
<td>1990</td>
<td><em>Tropical Diseases 1990</em> published</td>
</tr>
<tr>
<td>1995</td>
<td>International Commission for the Certification of Dracunculiasis Eradication established</td>
</tr>
<tr>
<td>1995</td>
<td><em>African Programme for Onchocerciasis Control</em> established</td>
</tr>
<tr>
<td>1997</td>
<td>Programme Against African Trypanosomiasis established</td>
</tr>
<tr>
<td>1997</td>
<td>WHO-GET 2020 Alliance (Global Elimination of Trachoma by the year 2020) created</td>
</tr>
<tr>
<td>1998</td>
<td>Prime Minister Hashimoto of Japan presents his parasite-control initiative to the G8 Meeting</td>
</tr>
<tr>
<td>1998</td>
<td>Global Buruli Ulcer Initiative established</td>
</tr>
<tr>
<td>1998</td>
<td>Médecins Sans Frontières initiates a fund to fight neglected tropical diseases from the proceeds of its Nobel Peace Prize</td>
</tr>
<tr>
<td>1999</td>
<td>WHO Study Group on Future Trends in Veterinary Public Health established</td>
</tr>
<tr>
<td>1999</td>
<td>Global Alliance for Leprosy Elimination launched</td>
</tr>
<tr>
<td>2000</td>
<td>WHO Global Programme to Eliminate Lymphatic Filariasis launched</td>
</tr>
<tr>
<td>2000</td>
<td>Pan African Tsetse and Trypanosomiasis Eradication Campaign created</td>
</tr>
<tr>
<td>2002</td>
<td>WHO publishes <em>Global defence against the infectious disease threat</em></td>
</tr>
<tr>
<td>2003</td>
<td>First issue of WHO’s newsletter <em>Action Against Worms</em></td>
</tr>
<tr>
<td>2003</td>
<td>Drugs for Neglected Diseases Initiative established</td>
</tr>
<tr>
<td>2004</td>
<td>Berlin, Germany, hosts workshop on intensified control of neglected diseases</td>
</tr>
<tr>
<td>2004</td>
<td>Third global meeting of the Partners for Parasite Control, leading to publication of <em>Deworming for health and development</em></td>
</tr>
<tr>
<td>2005</td>
<td>Strategic and technical meeting on intensified control of neglected tropical diseases held in Berlin, Germany</td>
</tr>
<tr>
<td>2005</td>
<td>First International Conference on the Control of Neglected Zoonotic Diseases: a route to poverty alleviation held at WHO headquarters in Geneva, Switzerland</td>
</tr>
<tr>
<td>Year</td>
<td>Event Description</td>
</tr>
<tr>
<td>------</td>
<td>-------------------</td>
</tr>
<tr>
<td>2006</td>
<td>WHO Department of Control of Neglected Tropical Diseases established</td>
</tr>
<tr>
<td>2006</td>
<td>Collaboration begins between WHO and the Foundation for Innovative New Diagnostics to develop and evaluate new diagnostic tests for human African trypanosomiasis</td>
</tr>
<tr>
<td>2007</td>
<td>Preventive chemotherapy in human helminthiasis: coordinated use of anthelmintic drugs in control interventions. A manual for health professionals and programme managers published by WHO</td>
</tr>
<tr>
<td>2007</td>
<td>Global partners’ meeting on neglected tropical diseases held at WHO headquarters in Geneva, Switzerland</td>
</tr>
<tr>
<td>2007</td>
<td>Joint meeting on Integrated Control of Neglected Zoonotic Diseases in Africa, held in Nairobi, Kenya</td>
</tr>
<tr>
<td>2008</td>
<td>The first Global Plan to Combat Neglected Tropical Diseases, 2008–2015, published by WHO</td>
</tr>
<tr>
<td>2008</td>
<td>Launch of the Neglected Tropical Disease Initiative by the Government of the United States</td>
</tr>
<tr>
<td>2008</td>
<td>Announcement that neglected tropical diseases are to be targeted following a new £50 million commitment from the Department for International Development of the Government of the United Kingdom</td>
</tr>
<tr>
<td>2010</td>
<td>Working to overcome the global impact of neglected tropical diseases published by WHO</td>
</tr>
<tr>
<td>2012</td>
<td>WHO publishes Accelerating work to overcome the global impact of neglected tropical diseases - A roadmap for implementation</td>
</tr>
<tr>
<td>2012</td>
<td>London Declaration on Neglected Tropical Diseases endorsed</td>
</tr>
<tr>
<td>2016</td>
<td>Uniting to Combat NTDs established</td>
</tr>
<tr>
<td>2021</td>
<td>Expanded Special Project for the Elimination of Neglected Tropical Diseases (ESPEN) established</td>
</tr>
<tr>
<td>2021</td>
<td>The Global neglected tropical disease road map 2021–2030 published by WHO</td>
</tr>
<tr>
<td>2022</td>
<td>Kigali Declaration on Neglected Tropical Diseases endorsed</td>
</tr>
<tr>
<td>2022</td>
<td>WHO publishes Ending the neglect to attain the sustainable development goals: a rationale for continued investment in tackling neglected tropical diseases 2021–2030</td>
</tr>
<tr>
<td>2023</td>
<td>Global Onchocerciasis Network for Elimination (GONE) established</td>
</tr>
</tbody>
</table>
Building on success: priority areas going forward

This report clearly shows how the successes of the past decades have been built on over 70 years of shared experience and lessons in controlling, eliminating, and eradicating neglected tropical diseases. The key factors that have contributed to these remarkable achievements need to be pulled together. Understanding these key factors will ensure that the aims of the Kigali summit and the Kigali Declaration on Neglected Tropical Diseases to deliver on the 2021-2030 NTD road map are realized.

Essentially, there are three broad areas that require prioritized actions to ensure that NTDs are no longer a public health threat in Africa. These are a health system response; governance and leadership; and country ownership.

Novel approaches in health system response require mapping and stratifying endemic regions, identifying high burden and underserved communities, and leaving no-one behind. NTD interventions need to be quantified and costed, while being integrated into the essential package of health services. At the same time, integration and enhancement of surveillance systems will lead to targeted interventions in high-risk areas, and better use of data for decision making. Institutional capacity building for data collection, impact assessments, operational research and innovative approaches to disease control will contribute to supporting research and development of new diagnostic tools, medicines, and vector control strategies.
Governance and leadership encompasses guidance for management of NTDs and related disability, as well as guidance for strategic planning and integrated service delivery in endemic areas, including attention to areas such as provision of clean water and sanitation. Advocacy and resource mobilization needs to include domestic funding with dedicated budget lines in member states.

Country ownership is vital to sustainable NTD interventions and involves multi-sectoral coordination mechanisms for NTD partners for joint planning, implementation, and reporting, and inclusion of NTDs in One Health coordination. NTD national master plans need to be aligned with the NTD road map at country level.

ESPEN is specifically positioned to drive implementation of the NTD road map, through close collaboration and partnership, and to ensure that the investment priorities of the road map are achieved. Although funding for NTDs is likely to remain constrained in the coming years, it is essential that there is continuing focus on presenting the case for protecting and promoting spending on NTDs. These are diseases of poverty. Strengthening the systems by which these vulnerable communities can access health care will strengthen community and country-level responses both to specific diseases and to wellbeing in general. The Regional Office will provide the means for countries to pursue the elimination agenda through the various committees of certification.
References


Ending the neglect: lessons from a decade of success in responding to NTDs

Universal Health Coverage, Communicable and Noncommunicable Diseases Cluster, WHO Regional Office for Africa