

Global report
on neglected
tropical diseases

2024

Buruli ulcer
Chagas disease
Dengue and chikungunya
Dracunculiasis
Echinococcosis
Foodborne trematodiasis
Human African trypanosomiasis
Leishmaniasis
Leprosy
Lymphatic filariasis
*Mycetoma, chromoblastomycosis
and other deep mycoses*
Noma
Onchocerciasis
Rabies
Scabies and other ectoparasitoses
Schistosomiasis
Snakebite envenoming
Soil-transmitted helminthiasis
Taeniasis and cysticercosis
Trachoma
Yaws

Global report on neglected tropical diseases 2024

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Official portrait of Dr Tedros Adhanom Ghebreyesus.
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Foreword

Globally, programmes to fight neglected tropical diseases (NTDs) are making significant progress. Fifty countries have eliminated at least one NTD, halfway towards the elimination target of 100 countries by 2030. That this milestone has been reached before the midway point of the road map's target date is no mean feat, given the challenges facing national health systems and the difficulties in attempting to recover to pre-COVID-19 pandemic levels of service. Much of this success is thanks to the concerted efforts of health workers and volunteers committed to alleviating and preventing the suffering of some of the world's most marginalized populations.


At the same time, climate change, population displacement, an uncertain funding landscape and other factors have the potential to increase the spread of many NTDs beyond their traditional breeding grounds in low-income countries and tropical zones. This only increases the need for cross-sectoral interventions to improve water, sanitation and hygiene; vector control; and One Health approaches to human, animal and environmental management; along with individual case management and preventive chemotherapy.

While we have many effective tools, we must also acknowledge the need for new and cost-effective strategic approaches for NTDs. Further research is needed for the development of diagnostics, drugs,

vaccines, antivenoms and morbidity management strategies. Additionally, mental health support and interventions to reduce the social stigma associated with NTDs need to be scaled up.

There is a concurrent need to strengthen data collection and surveillance mechanisms, to enhance the evidence base and to improve the global capacity to deliver high-quality interventions for NTDs. Many countries are now taking over domestic NTD programmes and initiatives, which can help empower affected communities to play an active role in their own health.

Despite the various challenges described in this report, it also provides many reasons to be optimistic. Although gaps remain, we have the know-how and the momentum to support countries to break generational cycles of disease and poverty and give their populations one of the greatest gifts – the elimination of diseases.



Dr Tedros Adhanom Ghebreyesus
Director-General
World Health Organization

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The activities described in this report were made possible by the contribution of the global NTD community.

Abbreviations and acronyms

COVID-19	coronavirus disease
DALY	disability-adjusted life year
ESPEN	Expanded Special Project for Elimination of Neglected Tropical Diseases
GHE	Global Health Estimates
GHED	Global Health Expenditure Database
GNARF	Global NTD Annual Reporting Form
MDA	mass drug administration
NTD	neglected tropical disease
pre-SAC	preschool-aged children
SAC	school-aged children
SDG	Sustainable Development Goal
TPP	target product profile
WHO	World Health Organization

Executive summary



Sudan: Conducting community health dialogues in a local village.
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Three full years have passed since the launch of the road map for neglected tropical diseases 2021–2030. Data on progress begin to provide insights into the prospects of attaining the 2030 targets.

In 2022, 1.62 billion people required interventions against neglected tropical diseases (NTDs). Although this reflects a 26% decrease from 2010, it does not provide the required trajectory to attain the road map's global target of a 90% reduction by 2030. Challenges persist, and the slow progress highlights the complexities of addressing NTDs on a global scale. Uncertain and evolving health, political and financial landscapes contribute to the difficulties in meeting the ambitious targets set in the road map.

Despite these challenges, significant milestones have been reached. In 2023, five countries were acknowledged by WHO for eliminating one NTD, and one country for eliminating two NTDs. As of December 2023, a total of 50 countries have successfully eliminated at least one NTD, marking the halfway point towards the 2030 target of 100 countries. This achievement is commendable and highlights opportunities for further

progress against the 13 NTDs targeted for eradication, elimination and elimination as a public health problem. At the same time, it underscores the need for additional innovative efforts to include new countries and address more diseases within this group.

The road map introduced cross-cutting indicators to monitor health system capacities and the political environment for combatting NTDs. To address the inherent data gaps, in 2023 WHO introduced the Global NTD Annual Reporting Form (GNARF). This exercise exposed challenges in the implementation of action related to several basic indicators as well as information system barriers that affect the data quality of NTD programmes.

As of end 2022, data record an increase (+22%) in reported deaths from vector-borne NTDs (as compared with 2016), a gradual scale-up of the adoption and implementation of integrated skin-NTD strategies (11 countries), of the development of guidance for management of NTD-related disabilities (19 countries), of integration on NTDs in national health plans (28 countries), of inclusion of NTD interventions in

packages of essential services (6 countries), of data reporting on all NTDs (32 countries), and of collecting and reporting gender-disaggregated data (17 countries). Health services have not yet fully recovered from the disruptions caused by the coronavirus disease (COVID-19) pandemic, as evidenced by the decrease in the number of people treated through preventive chemotherapy in 2022 (49 million fewer than in 2021, also confirmed by the slight drop of the integrated treatment coverage index, 46%), while access to water supply, sanitation and hygiene is overall 85.8% in NTD-endemic countries and 63% among the population requiring interventions against NTDs. The share of the population at risk protected against catastrophic out-of-pocket health expenditure due to NTDs is 87.4%.

In 2023, progress was also made under the three road map pillars.

Pillar 1 focuses on accelerating programmatic action. Medicine donation programmes achieved significant milestones in 2023, delivering 2.1 billion tablets and vials, 200 million more than in 2022. WHO and partners are actively working to strengthen the arsenal of medicines and diagnostics, and to make the supply of donated NTD medicines and provision of NTD services more effective and efficient in reaching those in need, through gender, equity and human rights sensitive approaches. A total of 48 technical products and operational tools of global relevance were published by WHO in 2023. The offer of capacity strengthening tools was also broadened, with 62 online courses and other products available on WHO online platforms. Advocacy events carried out in 2023 included the Global NTD Programme Partners' Meeting and the Reaching the Last Mile Forum, which raised the visibility of NTDs in the global health agenda and increased resource mobilization. The year 2023 also saw the inclusion of noma in the list of NTDs, and the mention of these diseases in two UN political declarations.

Pillar 2 addresses intensifying cross-cutting approaches, emphasizes integration across NTDs, cross-sectoral collaboration and mainstreaming of NTDs into health systems. Regarding integration, the global skin NTD community has notably gained momentum, as symbolized by the first global meeting at WHO headquarters in March 2023. Progress has also been made towards expanding the preventive chemotherapy approach to control of *Taenia solium* taeniasis.


In 2023, cross-sectoral coordination has been extended to address more NTDs. The National Bridging Workshop on Rabies (NBW-R) was piloted as a tool to increase One Health collaboration for rabies control, while the Global Arbovirus Initiative together with the Global Vector

Control Response 2017–2030 provided a framework for expanding integrated vector management, especially in light of the growing public health threat represented by dengue. The collaboration between the WHO Global NTD Programme and the WHO Health Emergencies Programme is being strengthened, notably in the areas of outbreak-prone NTDs and dracunculiasis eradication, and, in general, for the maintenance of NTD essential services in the context of health emergencies.

Two specific issues have been identified for facilitating the inclusion of NTDs within national health systems: positioning NTDs within universal health coverage and mainstreaming NTDs data into the national health information system. At the global level, this effort is reflected in having the NTD community actively participate in high-level discussions on primary health care and universal health coverage, as well as in ensuring that NTDs are part of WHO's corporate effort to strengthen routine health information systems, with the aim of facilitating the roll-out of data collection platforms and tools to enable a consistent flow and use of information on all indicators for each NTD.

Pillar 3 aims to change operating models and culture to facilitate country ownership. Efforts made in 2023 included supporting countries in developing sustainability plans and facilitating the development of the third or more generation of national NTD master plans. Fostering sustained country ownership remains a challenge, particularly where resources are limited and competition with other health priorities is fierce. Work carried out in 2023 to estimate the cost of specific NTD interventions or approaches will inform the costing of the road map operational plan for the period 2025–2030 at global, regional and country levels, which in turn is expected to serve as an efficient tool to support resource mobilization.

Epidemiological and programmatic data for 2022, as well as facts and events that occurred in 2023, depict encouraging advancements and bottlenecks in the battle against NTDs. Challenges, ranging from a slow post-COVID-19 recovery to funding uncertainties, from geopolitical disruptions to climate change, from gaps in knowledge and tools to insufficient data, highlight the complexities inherent in addressing NTDs. While progress has been slower than anticipated, there is optimistic confidence in bridging the gap and returning to the planned trajectory towards 2030. Addressing these challenges head-on and fostering innovative solutions will be critical in ensuring positive progress and sustained success in the global fight against NTDs.



“Successes in the global fight against NTDs are being achieved in spite of persisting and new challenges. In 2023, six countries were acknowledged by WHO for eliminating one or more NTD, thanks to broad support from national and international stakeholders. This contributed to the attainment of a landmark achievement for global health at which 50 countries have now eliminated at least one NTD, bringing us to the halfway point towards the ambitious target set in the WHO NTD 2021–2030 road map. These milestones underscore the dedication and collaborative efforts of the health community in the fight against NTDs.

The health community has shown great commitment and teamwork in tackling NTDs. We at WHO are proud to lead the global NTD agenda and support governments, partners and communities in their efforts. Together, we can make NTDs a thing of the past.”

Dr Jérôme Salomon

WHO Assistant Director-General

Universal Health Coverage/Communicable and Noncommunicable Diseases

1. Introduction

Neglected tropical diseases (NTDs) inflict significant physical, mental, economic and socioeconomic harm on over one billion people worldwide, mostly in tropical and subtropical areas. These diseases and disease groups¹ maim, debilitate, disfigure and can be fatal.

NTDs cause immense human suffering. They affect some of the world's most vulnerable people, who often live in remote communities, thereby creating NTD-related generational cycles of poverty that cost low- and middle-income countries billions of dollars every year (1). To combat these diseases, NTD programmes continue to deliver vital interventions to some of the world's hardest-to-reach populations – often representing a community's first entry point to a health system. Prioritizing NTD control, elimination and eradication efforts makes significant strides towards achieving broader global public health goals and development agendas and can be considered a tracer for equity in providing services and attaining universal health coverage. Fighting NTDs is intrinsically linked to multiple Sustainable Development Goals (SDGs), ranging from poverty eradication to health improvement, education, gender equality, reduced inequalities, and partnerships (2).

This document is the second in a series of global reports describing progress towards the 2030 targets set in *Ending the neglect to attain the Sustainable Development Goals: a road map for neglected tropical diseases 2021–2030* (the road map) (3). It describes a wide range of activities, accomplishments and challenges across the portfolio of NTDs and across all six WHO regions.

The report presents epidemiological and programmatic data for 2022, which were gathered, compiled and analysed in 2023. In some cases, 2023 data are available and presented; in other cases, less recent information is included, when 2022 data are not available. In addition, it presents the main facts or events that occurred in 2023.

In line with the road map's companion document *Ending the neglect to attain the Sustainable Development Goals: a framework for monitoring and evaluating progress of the road map for neglected tropical diseases 2021–2030* (the M&E framework) (4), the report includes quantitative information on the status of the overarching, cross-cutting and disease-specific indicators. This is followed by qualitative information on each of the three road map pillars and on regional and country progress. The conclusions of the report and way forward are further complemented by annexes on cross-cutting indicator 6 (Annex 1), status of donated medicines for treatment of NTDs (Annex 2), articles on NTDs in the *Weekly Epidemiological Record* (Annex 3) and target product profiles (TPPs) published as of 31 December 2023 (Annex 4), and the list of global NTD reports published by WHO so far (Annex 5). Details on the rationale, definition and methodology used to report against the indicators included in the present report can be found in the indicator compendium (5).

Data and information included in this report were submitted by the health authorities of WHO Member States, and by those of other countries, areas and territories, as relevant, through different tools and platforms. Global tools and platforms used to report data to WHO include the Global NTD Annual Reporting Form (GNARF), the Preventive Chemotherapy Joint Application Package (JAP), the Trachoma Evaluation and Monitoring Form (TEMF) and the WHO Integrated Data Platform (WIDP) for NTDs.

¹ Buruli ulcer; Chagas disease; dengue and chikungunya; dracunculiasis; echinococcosis; foodborne trematodiasis; human African trypanosomiasis; leishmaniasis; leprosy; lymphatic filariasis; mycetoma, chromoblastomycosis and other deep mycoses; noma; onchocerciasis; rabies; scabies and other ectoparasitoses; schistosomiasis; snakebite envenoming; soil-transmitted helminthiasis; taeniasis and cysticercosis; trachoma; yaws.

Information was also extracted from databases managed by relevant WHO regional offices: in the African Region, these include the ESPEN (Expanded Special Project for Elimination of Neglected Tropical Diseases) portal for diseases amenable to preventive chemotherapy. In the Region of the Americas, these include the SisLeish platform for aggregated data on leishmaniasis, the *Plataforma de Información en Salud para las Américas* (PLISA) for arboviral diseases and the *Sistema de Información Regional para la Vigilancia Epidemiológica de*

la Rabia (SIRVERA) for rabies. Data on echinococcosis were provided by the Pan American Center for Foot and Mouth Disease and Veterinary Public Health (PANAFTOSA) for the Region of the Americas, and by the WHO Regional Office for Europe and the European Centre for Disease Prevention and Control for the European Region.

In this report, in certain cases, references to “countries” should be understood to signify countries, territories and areas.





“NTDs must be firmly repositioned within the global health architecture, given that interventions against these diseases can contribute to a wide range of ancillary benefits to other programmes within and beyond the health sector. The global health community has vast experience and several strengths that should be leveraged to improve the design and efficiencies in implementation of interventions combating NTDs. With a renewed focus on strategic priorities addressing advocacy for action, partnership, costing and accelerated implementation, technical gaps including R&D and leadership, we must intensify our collective action to address the deep-rooted inequalities that fuel the transmission of NTDs in the populations where they persist. From policy-makers to field teams who work to reach the most remote and inaccessible communities, each one of us must commit to play our respective roles to ensure the delivery of interventions against these diseases which in turn supports the much-needed progress towards universal health coverage, primary health care, health security and the Sustainable Development Goals.”

Dr Ibrahima Socé Fall

Director

WHO Global Neglected Tropical Diseases Programme

2. Status of the global NTD response

NTDs have complex epidemiologies with diverse life cycles that typically involve the environment, vectors, zoonotic reservoirs, and intermediate and definitive hosts.

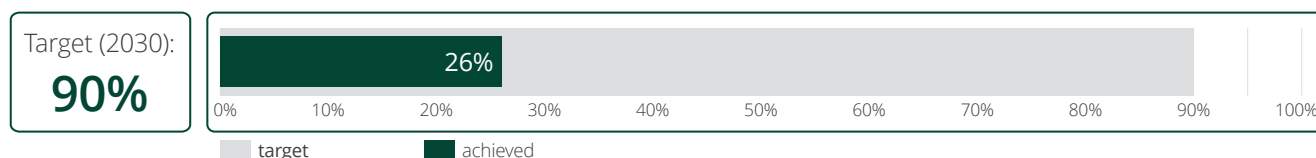
This makes control and measurement of progress towards established programme goals challenging. Tracking progress is generally linked to disease-specific interventions for which a significant amount of data are regularly reported for most NTDs. However, monitoring the overall performance of national NTD programmes

within the context of national health systems, as well as synergistic intersectoral actions, is more difficult yet essential for the sustainable achievement of the overarching, cross-cutting and disease-specific targets set by the road map for 2030.

2.1 Progress against road map indicators 2021–2030

2.1.1 Overarching global indicators and targets for 2030

Overarching global indicator 1: Percentage reduction in people requiring interventions against neglected tropical diseases, 2022 versus 2010



The indicator used to track the percentage reduction in people requiring interventions against NTDs is also SDG indicator 3.3.5 (number of people requiring interventions against neglected tropical diseases). Metadata for this indicator are available in the SDG Indicators metadata repository (6).

The main drivers of reduction in the number of people requiring interventions are the progressive attainment of end-point programmatic targets (interruption of transmission, elimination as a public health problem) by countries, the achievement of post-intervention surveillance status, and the reclassification of endemic areas from requiring to not requiring interventions because of improvement of epidemiological conditions or access to water and sanitation.

In 2022, 1.62 billion people required interventions against NTDs. The highest proportion was in the South-East Asia Region (51.4%), followed by the African (35.8%), Eastern Mediterranean (4.6%), Western Pacific (4.6%), Americas (3.2%) and European (0.4%) regions.

This was approximately 26% less than the 2.19 billion people requiring interventions in 2010, and about 33 million people fewer than reported in 2021. Between 2020 and 2021 the decrease had been of 81 million people, thus highlighting a slowdown in this indicator. The current reduction trend is insufficient to meet the indicator target by 2030 (Fig. 2.1).

Fig. 2.2 shows the proportion of the burden (expressed as people requiring interventions) by country. More than 50% of the burden can be found in the top

three countries, and more than 80% in the top 15 countries. Successful interventions in high-burden

countries are likely to generate a significant impact on global indicators.

Fig. 2.1. Number of people requiring interventions against NTDs in 2022 and percentage reduction since 2010

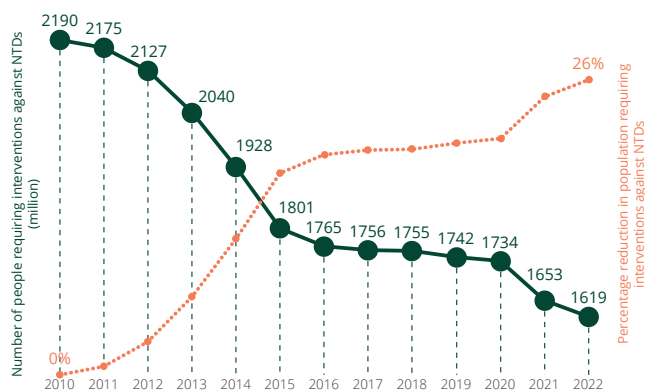
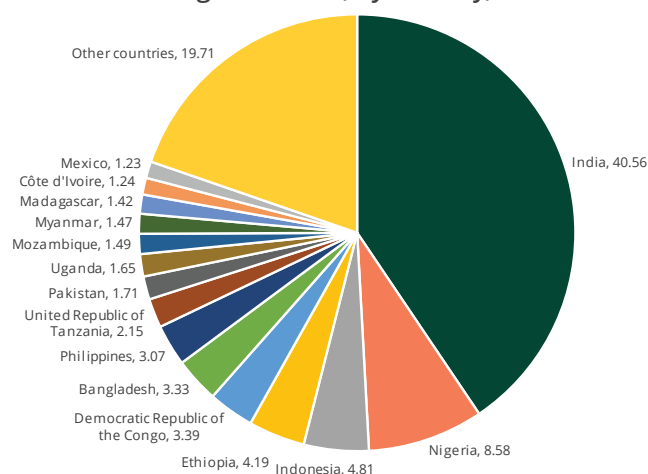
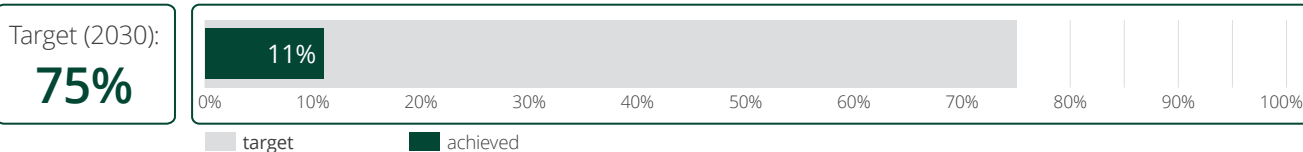


Fig. 2.2. Proportion (%) of people requiring interventions against NTDs, by country, 2022



Overarching global indicator 2: Percentage reduction in disability-adjusted life years related to neglected tropical diseases, 2019 versus 2015



Disability-adjusted life years (DALYs) for NTDs are calculated by extracting DALYs related to these conditions from general figures published by WHO's Global Health Estimates (GHE). It is not yet possible to assess the value of this indicator after the launch of the road map as the latest available data refer to 2019. In 2019, the DALYs related to NTDs were 14.5 million, down from 16.3 million in 2015, having decreased in all regions; the global reduction between 2015 and 2019 was 11% (7).

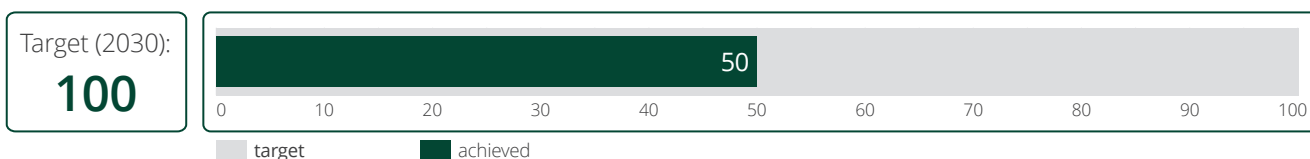
Limitations affecting the tracking of this indicator include the following:

- DALY estimates published by GHE are only available for 17 conditions related to 14 NTDs or groups of NTDs; no DALY estimates are available for Buruli ulcer, chikungunya, mycetoma,

chromoblastomycosis and other deep mycoses, noma, snakebite envenoming, taeniasis and yaws.

- DALYs related to dracunculiasis and scabies have been published by the Institute for Health Metrics and Evaluation (IHME) and are included in the Global Burden of Diseases (GBD) study: they have not been included in GHE as yet.
- Methodologies used by IHME to estimate DALYs for some conditions included in the GBD study and thereafter applied by GHE (e.g. onchocerciasis, schistosomiasis, trachoma) require updating.
- The current schedule of release of DALY estimates by GHE does not coincide with the road map's reporting requirements of every 4–5 years. The 2021 estimates are expected to be released in the course of 2024.

Overarching global indicator 3: Number of countries having eliminated at least one neglected tropical disease, 2023



In July 2023, Iraq became the 50th country to eliminate at least one NTD. This event marks the halfway point towards achieving the 100-country target set for 2030 (8). As of December 2023, 68 acknowledgement processes (certification, verification or validation) have been successfully completed, as shown in Table 2.1 and Fig. 2.3. In 2023 alone, seven acknowledgement processes were completed in six countries; notably, three countries (Bangladesh, Iraq and Mali) were acknowledged for the first time, thus contributing to this indicator and moving it from 47 in 2022 to 50 in 2023:

- Bangladesh: elimination of lymphatic filariasis and visceral leishmaniasis as a public health problem
- Benin: elimination of trachoma as a public health problem
- Ghana: elimination of gambiense human African trypanosomiasis as a public health problem
- Iraq: elimination of trachoma as a public health problem
- Lao People's Democratic Republic: elimination of lymphatic filariasis as a public health problem
- Mali: elimination of trachoma as a public health problem

Table 2.1. Number of countries having successfully completed WHO acknowledgement processes

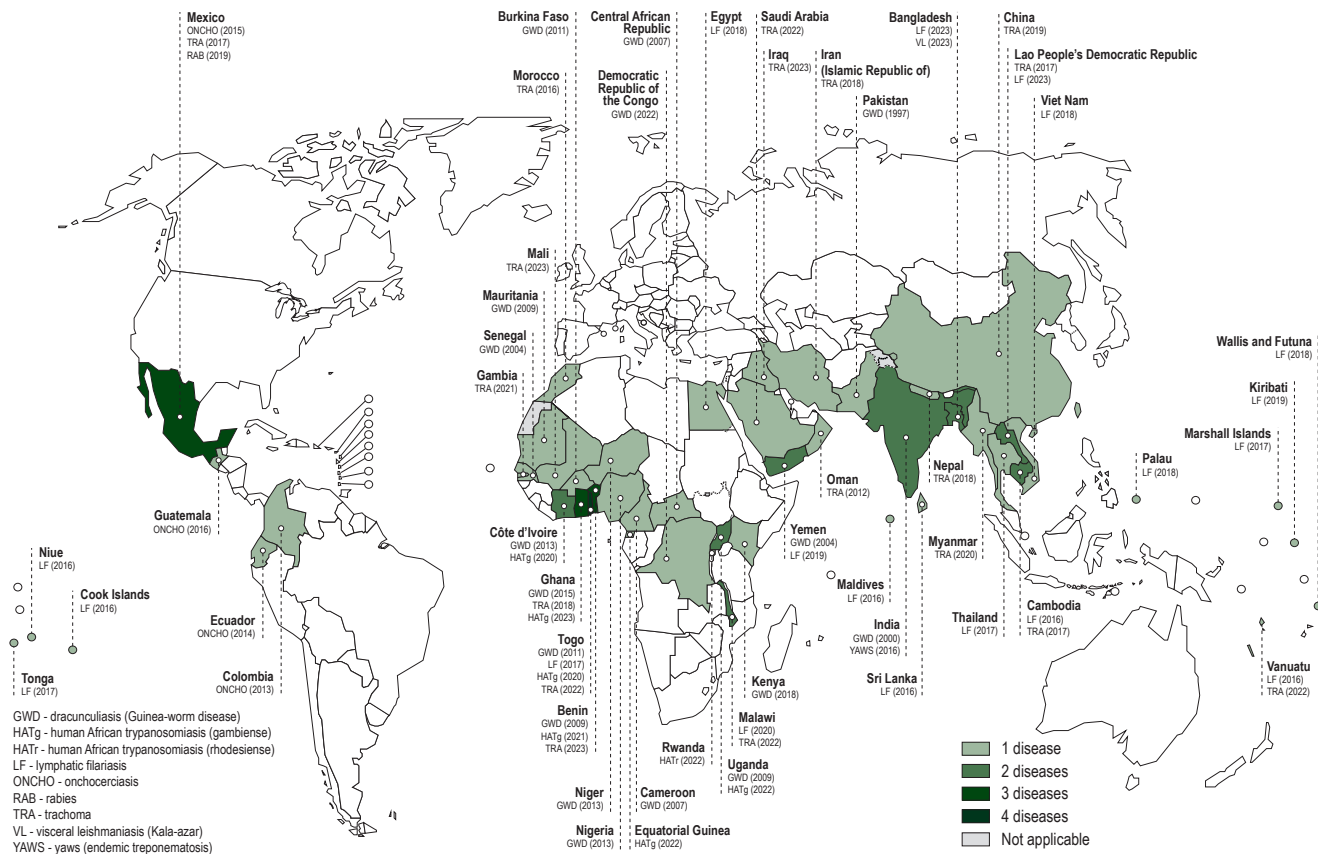
WHO region	No. of countries	GWD	gHAT ^a	rHAT	LF	ONC	RAB	TRA	VL	Yaws	No. of acknowledgements
African	19	14	6	1	2	–	–	6	–	–	29
Americas	4	–	–	–	–	4	1	1	–	–	6
Eastern Mediterranean	8	2	–	–	2	–	–	5	–	–	9
European	0	–	–	–	–	–	–	–	–	–	0
South-East Asia	7	1	–	–	4	–	–	2	1	1	9
Western Pacific	12	–	–	–	11	–	–	4	–	–	15
Global	50	17	6	1	19	4	1	18	1	1	68

GWD: dracunculiasis (Guinea-worm disease); gHAT: gambiense human African trypanosomiasis; rHAT: rhodesiense human African trypanosomiasis; LF: lymphatic filariasis; ONC: onchocerciasis; RAB: rabies; TRA: trachoma; VL: visceral leishmaniasis.

^a Number of countries validated by WHO as having eliminated gambiense human African trypanosomiasis as a public health problem (road map target 2010–2020).



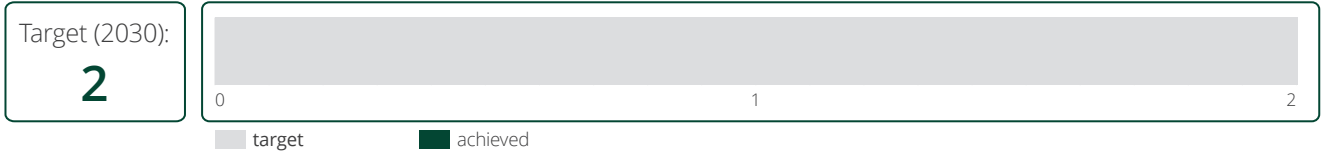
Fig. 2.3. Countries that have eliminated at least one NTD as of December 2023



Important progress has been made for this indicator. However, 50% of the acknowledgement processes successfully completed over the past 5 years (2019–2023) have occurred in countries that had already eliminated an NTD, thus not contributing to this indicator. As a reflection of this consideration, we see an increasing number of countries acknowledged for eliminating multiple NTDs: Togo (four diseases); Benin, Ghana and Mexico (three diseases); and Bangladesh, Cambodia, Côte d'Ivoire, India, Lao People's Democratic Republic, Malawi, Uganda, Vanuatu (two diseases). Tracking the number of acknowledgment processes that have been successfully completed enables a better appreciation of progress towards elimination of NTDs. However, to achieve this indicator, missing

criteria and acknowledgement processes for all diseases targeted for eradication, elimination and elimination as a public health problem need to be established; and NTD-endemic countries that have not yet completed any acknowledgment process should be encouraged to scale up interventions against NTDs and compile evidence demonstrating the attainment of the set target, as relevant. Currently, WHO has established acknowledgement processes for dracunculiasis, human African trypanosomiasis, lymphatic filariasis, onchocerciasis, rabies, trachoma and visceral leishmaniasis; India was certified free of yaws through an ad-hoc process, after which guidance on procedures and criteria has been published (9); guidance has also been recently published with regard to leprosy (10).

Overarching global indicator 4: Number of neglected tropical diseases eradicated, 2023



The road map calls for the eradication of dracunculiasis and yaws by 2030. Neither disease has been eradicated so far, although progress has been made towards this target. Please see disease-specific indicators further below.

2.1.2 Cross-cutting global indicators and targets for 2030

The 10 cross-cutting indicators monitor progress made in four broad thematic areas aligned with WHO's Thirteenth General Programme of Work 2019–2025, the SDGs and the key strategic approaches proposed by the road map. Similarly to overarching indicators, the road map established 2030 targets for each of the cross-cutting indicators, but no 2023 or 2025 milestones.

Information used to report against the cross-cutting indicators relates to 2022 and 2023, and was largely collected through the GNARF except for indicators 2, 4

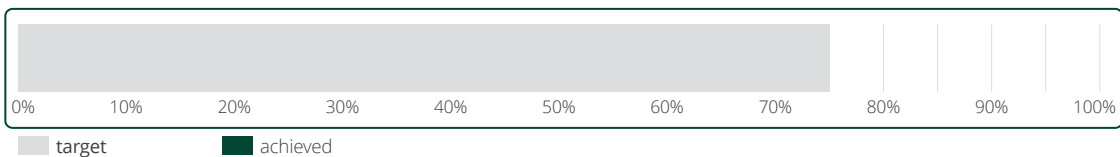
and 6. The GNARF was introduced to Member States in the African, Eastern Mediterranean, Western Pacific and European regions. A total of 60 countries submitted the GNARF and the data were compiled in the NTD global database (NTD SMART): this database was used to report on cross-cutting indicators 1, 3, 5 and 7–10. Of the 60 countries, 47 reported to be endemic for at least one NTD, 44 reported to have skin NTDs and 46 reported to have NTD-related disabilities.

Integrated approaches

Cross-cutting indicator 1: Percentage reduction in number of deaths from vector-borne neglected tropical diseases (relative to 2016) – to achieve WHO's global vector control response goal, 2022

Target (2030):

75%



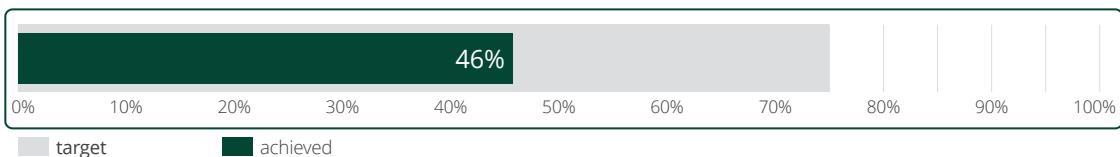
This indicator monitors the percentage reduction in the number of reported deaths from chikungunya, dengue and leishmaniasis in accordance with the Global Vector Control Response, adopted in 2017 through resolution WHA70.16. The number of deaths related to vector-borne diseases increased by 22% in 2022 compared

with 2016. This is attributable to the increase in the number of dengue-related deaths by 27% compared with 2016, although there was a 25% reduction in the number of deaths related to visceral leishmaniasis compared with 2016. Zero deaths from chikungunya were reported for 2022.

Cross-cutting indicator 2: Integrated treatment coverage index for preventive chemotherapy, 2022

Target (2030):

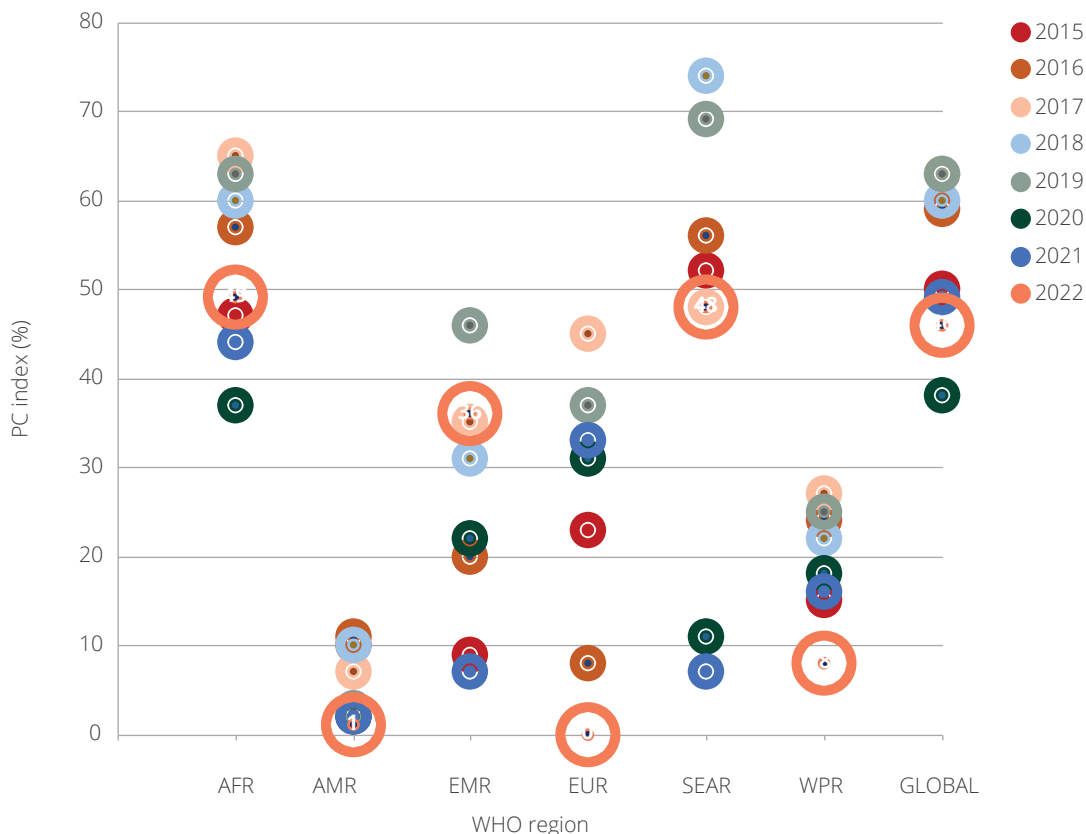
75%



The integrated treatment coverage index for preventive chemotherapy is the geometric mean of the reported coverage rates achieved by programmes directed against the five main NTDs amenable to preventive chemotherapy: lymphatic filariasis, onchocerciasis, schistosomiasis, soil-transmitted helminthiasis and trachoma. Use of the geometric mean makes the integrated treatment coverage index very sensitive to low coverage rates achieved by individual disease-specific indexes, thus amplifying poor performances. The geometric mean is used deliberately to emphasize equity and promote integrated delivery across diseases.

In the context of leaving no one behind, high coverage for one disease does not compensate for low coverage for another disease, even if the population requiring interventions is small. The global index was 63% in 2019, 38% in 2020, 49% in 2021, and 46% in 2022. In 2022, 31 countries achieved $\geq 75\%$ integrated coverage index for preventive chemotherapy, the target set for 2030 (Fig. 2.4). Information used to report against this indicator was collected through the JAP; details of the methodology used can be found in a dedicated issue of the *Weekly Epidemiological Record* (11).

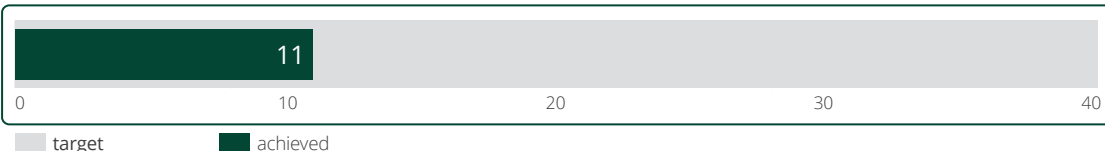
Fig. 2.4. Integrated preventive chemotherapy index: progress by WHO region, 2015–2022



AFR: WHO African Region; AMR: WHO Region of the Americas; EUR: WHO European Region; SEAR: WHO South-East Asia Region; WPR: WHO Western Pacific Region; PC: preventive chemotherapy.

Cross-cutting indicator 3: Number of countries that adopt and implement integrated skin neglected tropical disease strategies, 2022

Target (2030):
40

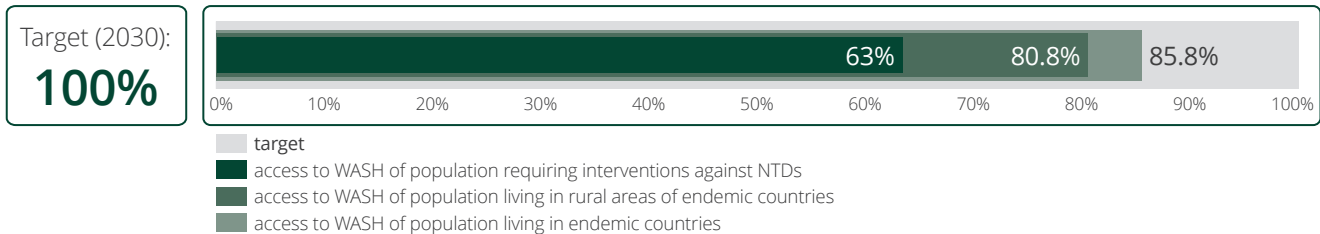


Of the 44 countries that reported to have skin NTDs, 35 were endemic for at least 2 or more of them; 18/35 countries responded on this indicator and 11 reported that they had adopted and were implementing integrated skin NTD strategies, as of 2022. These include Ethiopia, Guinea, Kenya, Liberia, Senegal and Togo in the African Region; Iraq and Sudan in the Eastern Mediterranean Region; and Lao People’s Democratic Republic, the Philippines and Vanuatu in the Western Pacific Region. In the context of the skin NTDs, integration is defined as the implementation of

two or more programme activities simultaneously at community and health facility levels. Activities are diverse and include social mobilization, case-finding, disease management, capacity building, etc. The following conditions are considered skin NTDs: Buruli ulcer; cutaneous leishmaniasis; leprosy (Hansen’s disease); lymphatic filariasis; mycetoma, chromoblastomycosis and other deep mycoses; onchocerciasis; post-kala-azar dermal leishmaniasis; scabies and other ectoparasitoses; and yaws. Recently, noma has also been added to the skin NTD portfolio.

Multisectoral coordination

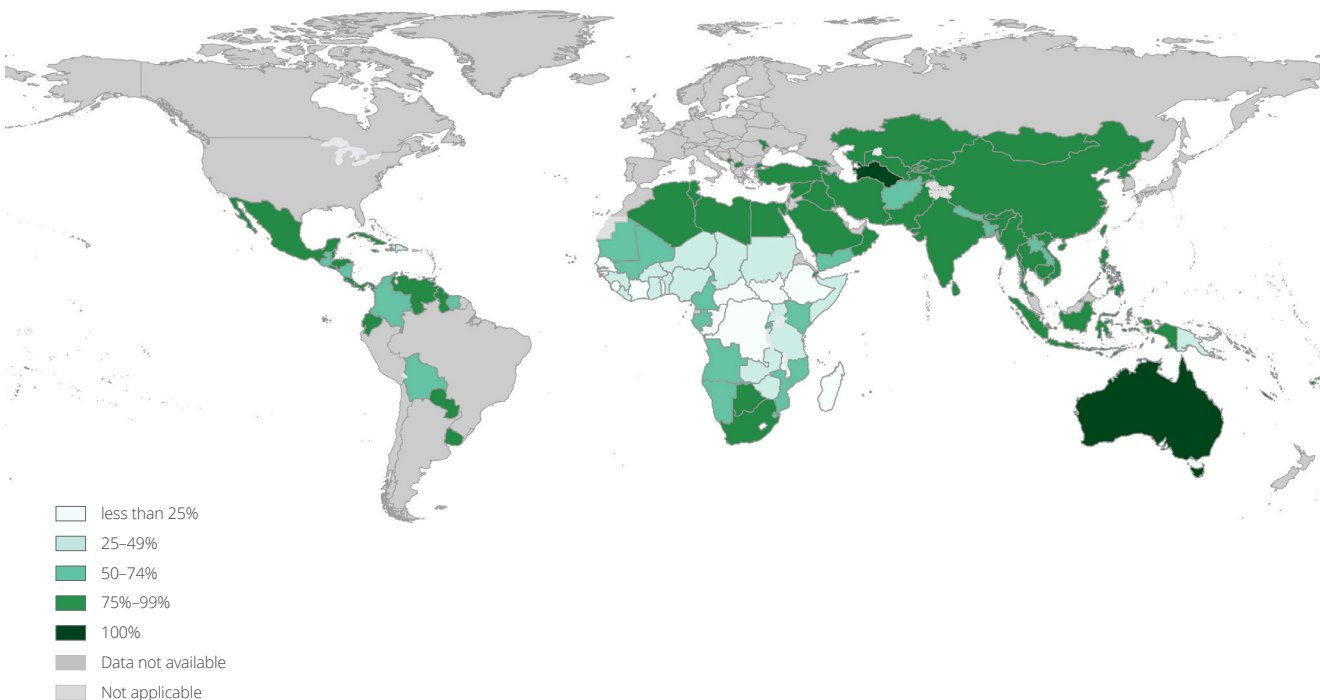
Cross-cutting indicator 4: Access to at least basic water supply, sanitation and hygiene in areas endemic for neglected tropical diseases – to achieve targets 6.1 and 6.2 of Sustainable Development Goal 6, 2022



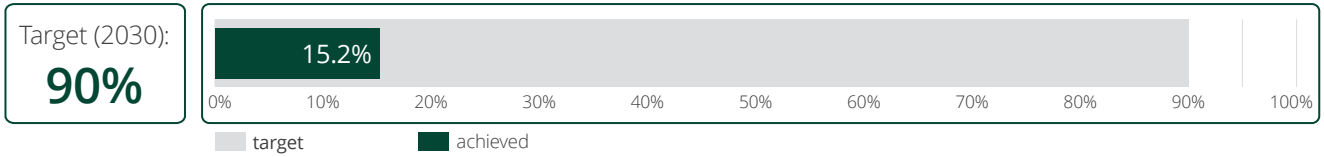
Access to at least basic water supply, sanitation and hygiene is defined based on the service ladder used by the WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene, established to monitor progress against SDG targets 6.1 on drinking-water and 6.2 on sanitation (12). Given the difficulty of defining “areas endemic for neglected tropical diseases”, different interpretations of this indicator have been applied. As of 2022, 85.8% of the global population living in the 118 countries endemic for NTDs for which data are available have access to at least basic water supply and sanitation and basic hygiene (this percentage decreases to 80.8% if we only consider the population living in rural settings in the same countries). Values vary across WHO regions: 48.6% in the African Region, 84.2% in the Region

of the Americas, 80.9% in the Eastern Mediterranean Region, 93.5% in the European Region, 84% in the South-East Asia Region and 96.4% in the Western Pacific Region (Fig. 2.5). Globally in 2022, 78.9% of the population were using at least basic sanitation, 90.2% were using at least basic water supply and 82.2% have hand-washing facilities, including soap and water. If we focus our analysis on the population requiring interventions against NTDs, the global proportion of those with access to at least basic water supply, sanitation and hygiene further decreased to 63% (30.9% in the African Region, 82.6% in the Region of the Americas, 64.7% in the Eastern Mediterranean Region, 90.2% in the European Region, 82.5% in the South-East Asia Region and 77.7% in the Western Pacific Region).

Fig. 2.5. Countries endemic for NTDs with percentage of population having access to at least basic water supply, sanitation and hygiene, 2022



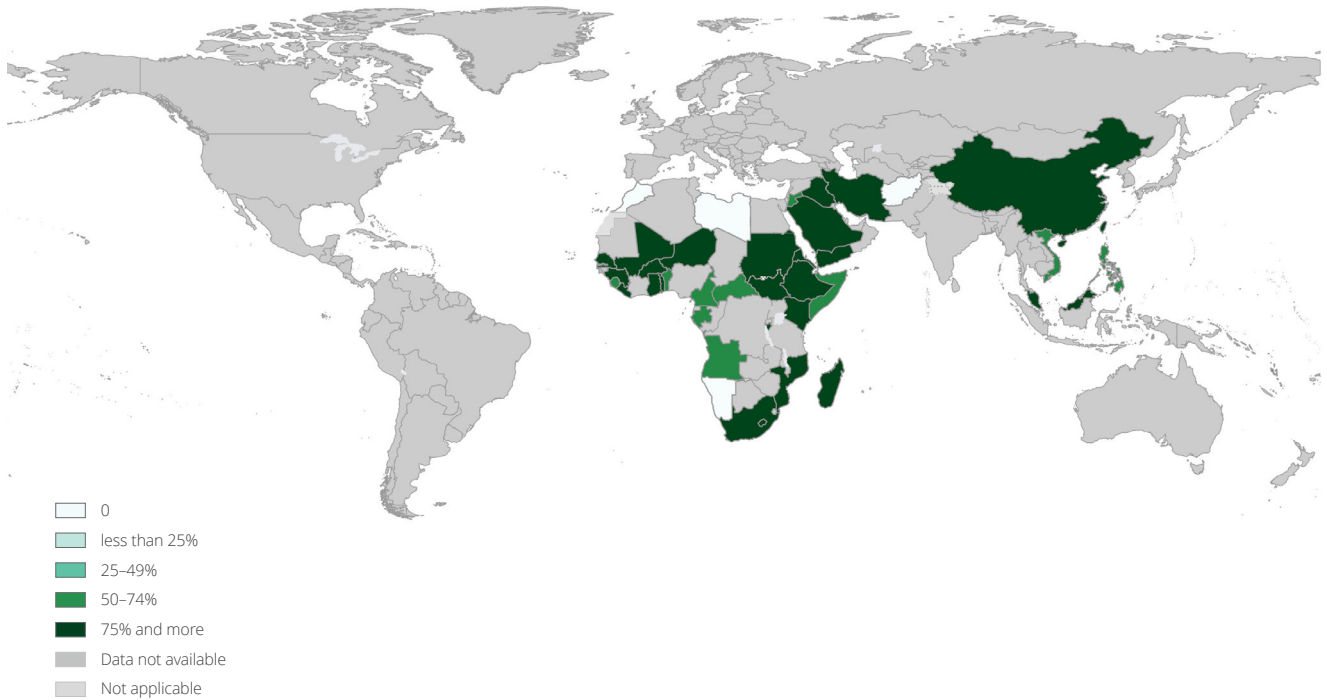
Cross-cutting indicator 5: Share of countries with neglected tropical diseases integrated in national health strategies/plans, 2022



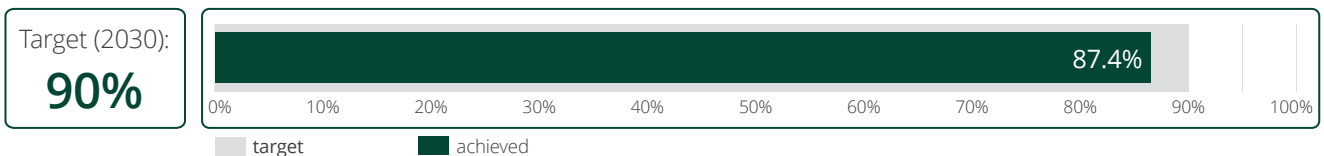
Out of the 43 countries that responded to questions on the integration of NTDs into national health strategies/plans through the GNARF, 28 (65.1%) met the criteria that at least 75% of relevant endemic NTDs are integrated into their national health strategies/plans. Burkina Faso, Burundi, Eritrea, Ethiopia, Ghana, Guinea, Kenya, Lesotho, Liberia, Madagascar, Mali, Mozambique, Niger, Senegal, South Africa, South Sudan, Togo, United Republic of Tanzania from the African Region; Islamic Republic of Iran, Iraq, Saudi Arabia, Sudan and Yemen

from the Eastern Mediterranean Region; and China, French Polynesia, Malaysia, Nauru and Vanuatu from the Western Pacific Region. Ten countries (Angola, Benin, Cameroon, Central African Republic, Gabon, Jordan, the Philippines, Sierra Leone, Somalia and Viet Nam) reported some integration (Fig. 2.6). If we use as denominator all the 184 countries considered endemic for at least one NTD according to historical data, the value for this indicator decreases to 15.2% (28/184).

Fig. 2.6. Countries with percentage of prevalent NTDs integrated in national health strategies/plans, 2022



Cross-cutting indicator 6: Share of the population at risk protected against catastrophic out-of-pocket health expenditure due to neglected tropical diseases, 2021



Preliminary calculations based on a number of assumptions indicate that the global share of the population at risk of NTDs encountering catastrophic

health spending was 12.6% in 2021. Consequently, the population at risk of NTDs protected against catastrophic out-of-pocket expenditure was 87.4%. By WHO region,

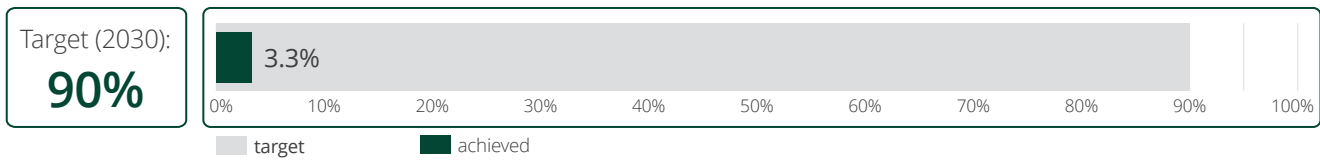
all regions are close to or exceeding the road map target of 90%. However, the Eastern Mediterranean Region and the South-East Asia Region show higher financing risk than other regions.

Information used to report against this indicator was extracted from the WHO Global Health Observatory (13,14). Annex 1 provides details on the methodology applied.



Universal health coverage

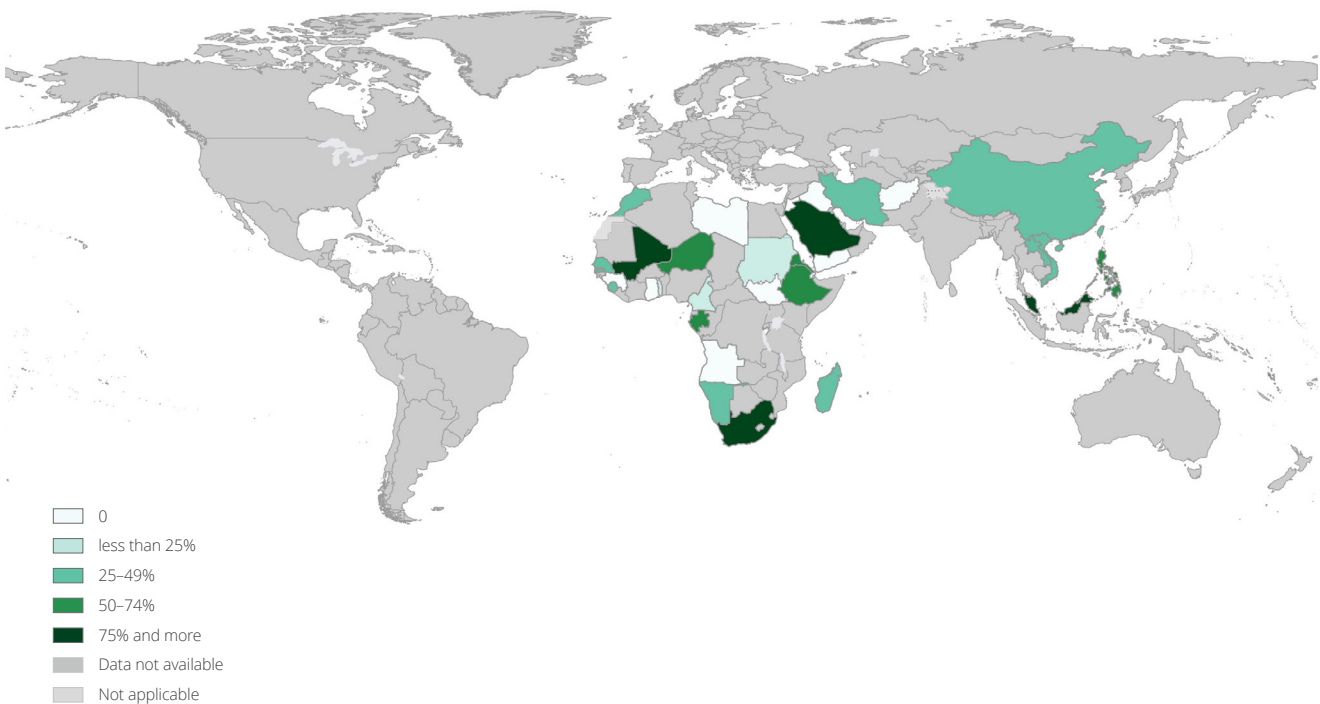
Cross-cutting indicator 7: Share of countries including neglected tropical disease interventions in their package of essential services and budgeting for them, 2022



Of the 36 endemic countries that responded on this indicator, 6 (16.7%) met the criteria that at least 75% of NTDs in the country had interventions included in national packages of essential services and were budgeted. Mali, South Africa from the African Region, Saudi Arabia from the Eastern Mediterranean Region,

and Malaysia, Singapore and Vanuatu from the Western Pacific Region (Fig. 2.7). If we use as denominator all the 184 countries considered endemic for at least one NTD according to historical data, the value for this indicator decreases to 3.3% (6/184).

Fig. 2.7. Countries with percentage of prevalent NTDs against which interventions are included in packages of essential services and having budgeted for them, 2022



Cross-cutting indicator 8: Share of countries with guidelines for management of neglected tropical disease-related disabilities within national health systems, 2022

Target (2030):

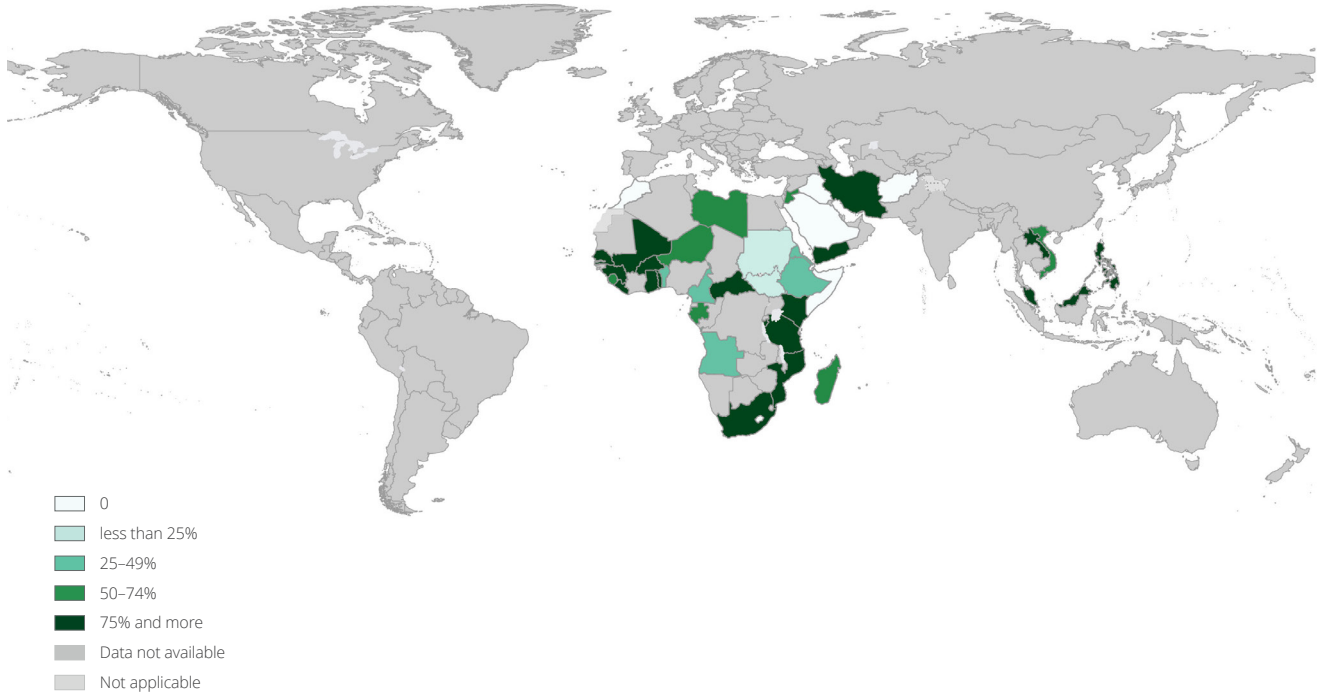
90%



Of the 46 countries that reported having NTD-related disabilities through the GNARF, 42 responded on this indicator: 19 (45.2%) had guidelines, protocols or policies dedicated to the management of disabilities that covered at least 75% of all the disability-associated NTDs prevalent in the country, namely Burkina Faso, Burundi, Central African Republic, Ghana, Guinea, Kenya, Liberia, Mali, Mozambique, Senegal, South Africa, Togo, United Republic of Tanzania (from the African

Region) Islamic Republic of Iran and Yemen (from the Eastern Mediterranean Region), and French Polynesia, Lao People's Republic, Malaysia and the Philippines (from the Western Pacific Region) (Fig. 2.8). If we use as denominator all the 178 countries considered endemic for at least one disability-associated NTD according to historical data, the value for this indicator decreases to 10.7% (19/178).

Fig. 2.8. Countries with percentage of prevalent NTDs having guidelines for management of related disabilities within national health systems, 2022

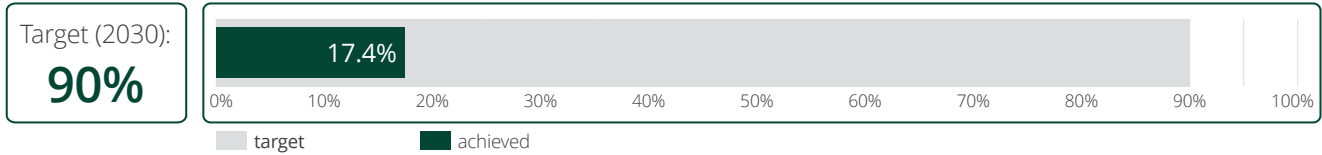


Uruguay: Searching for mosquito larvae in a water container to assess dengue risk.

© WHO/Sebastian Oliel

Country ownership

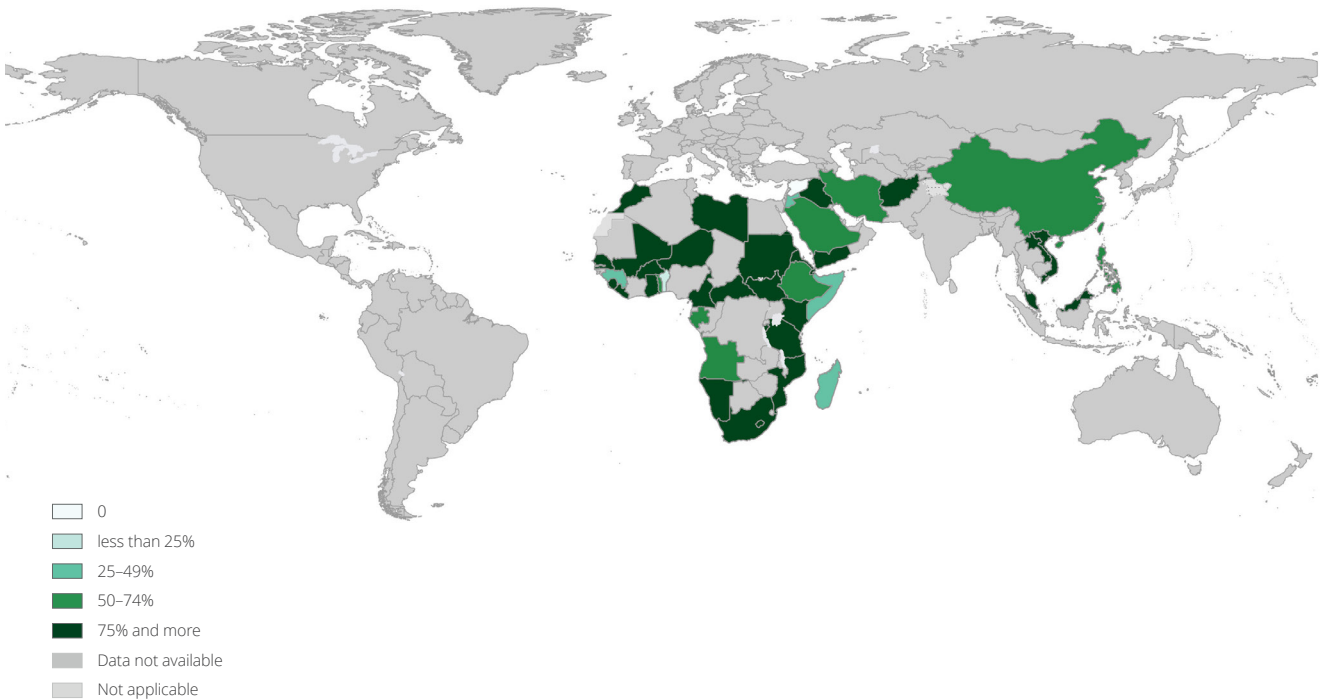
Cross-cutting indicator 9: Share of countries reporting on all relevant endemic neglected tropical diseases, 2022



Of the 47 countries that reported to be endemic for at least one NTD through the GNARF, 45 (95.8%) reported epidemiological and/or treatment data on at least one NTD, and 32 (68.1%) reported the same data on 75% or more of the NTDs prevalent in the country (Fig. 2.9).

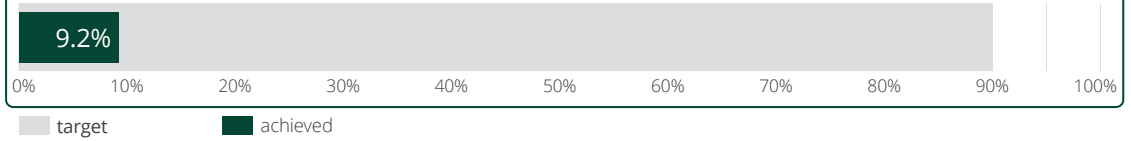
Countries that reported zero values were included in the analysis. If we use as denominator all the 184 countries considered endemic for at least one NTD according to historical data, the value for this indicator decreases to 17.4% (32/184).

Fig. 2.9. Countries with percentage of endemic NTDs having reported data, 2022



Cross-cutting indicator 10: Share of countries collecting and reporting data on neglected tropical diseases disaggregated by gender, 2022

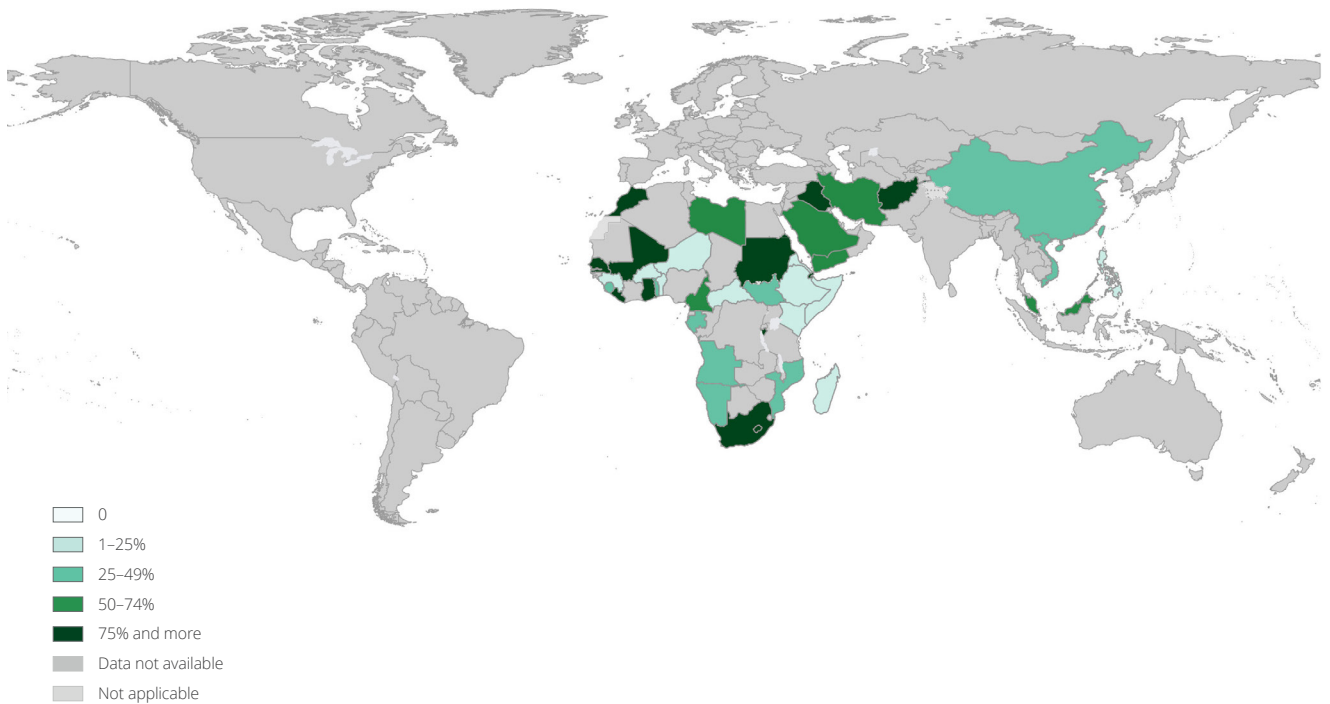
Target (2030):
90%



Endemic countries are expected to collect and report epidemiological/treatment data on at least 75% of prevalent NTDs disaggregated by gender (male, female). Of the 47 countries that reported to be endemic for at least one NTD through the GNARF, 27 (57.4%) reported collecting data at national level disaggregated by

gender; however, only 17 (36.1%) countries shared this information with WHO for at least 75% of prevalent NTDs (Fig. 2.10). If we use as denominator all the 184 countries considered endemic for at least one NTD based on historical data, the value for this indicator decreases to 9.2% (17/184).

Fig. 2.10. Countries with percentage of prevalent NTDs having collected and reported data disaggregated by gender, 2022



2.1.3 Number of people treated for neglected tropical diseases

In 2022, approximately 848 million people received treatment for at least one NTD through preventive chemotherapy interventions, achieving a global coverage of 51% across 71 countries, a minor decrease from 53% in 2021, across 69 countries, when a total of 897 million were treated (Fig. 2.11).

Although the decrease in the number of people treated also reflects the scale-down of programmes when epidemiological targets are met, the main reason for the decrease observed between 2022 and 2023 is that India, the highest burden country requiring preventive chemotherapy, in 2022 covered about 117 million fewer

people for lymphatic filariasis and soil-transmitted helminthiasis than in 2021 (11). Excluding India, the number of people who received treatment for at least one disease increased by almost 60 million globally, from 402.3 million in 2021 to 462.2 million in 2022, confirming that the recovery after the disruptions caused by COVID-19 is progressing overall, although exceptions remain. In total, 1.47 billion treatments were delivered to individuals in 2022, indicating that a significant proportion of people were targeted for more than one NTD (15).

Fig. 2.11. Number of people receiving interventions against NTDs through preventive chemotherapy, 2010–2022

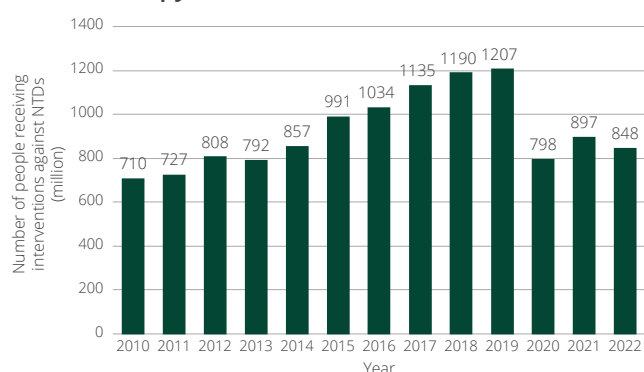


Table 2.2 shows the number of cases reported for diseases requiring individual management; it is assumed that most cases are also treated. A general increase can be observed as a result of improved active and passive case-finding after COVID-19. Dengue data are largely driven by outbreaks and fluctuate over time, although the disease is now endemic in over 100 countries. Also surgeries for trachomatous trichiasis increased more significantly in 2022 than in previous years. Rabies data show the number of deaths but are largely incomplete. Data on echinococcosis also suffer from poor reporting. 2022 data on chikungunya, foodborne trematodiasis, mycetoma, chromoblastomycosis and scabies were collected for the first time though the GNARF in 2023, and although incomplete are presented here. Only fragmentary data on other NTDs are reported to WHO.

Table 2.2. Number of cases reported for diseases requiring individual case management, 2019–2022^a

Disease	2019	2020	2021	2022
Buruli ulcer	2271	1459	1665	2121
Chikungunya	–	–	–	3613
Dengue	5 059 379	2 821 285	1 736 661	4 517 120
Dracunculiasis ^b	54	27	15	13
Echinococcosis ^c	6006	3785	2942	2802
Foodborne trematodiasis	Clonorchiasis	–	–	304
	Fascioliasis	–	–	7063
	Opisthorchiasis	–	–	161
	Paragonimiasis	–	–	32
Human African trypanosomiasis	gambiense	876	565	747
	rhodesiense	116	98	55
Leishmaniasis ^d	cutaneous	281 778	218 761	222 784
	visceral	14 649	12 893	12 076
Leprosy	202 166	128 397	140 111	174 087
Mycetoma, chromoblastomycosis and other deep mycoses ^e	Actinomycetoma	–	–	2431
	Eumycetoma	–	–	7788
	Chromoblastomycosis	–	–	110
Rabies ^f	1401	906	1141	795
Scabies	–	–	–	455 870
Trachoma ^g	92 622	42 045	69 266	129 224
Yaws ^h	98 162	106 911	126 186	168 239

^a Data refer to WHO Member States only for all diseases except dengue and leprosy, for which data refer to all countries, areas and territories.

^b A total of 14 cases of dracunculiasis were reported in 2023.

^c Data refer to any type of echinococcosis; data for 2019, 2020 and 2021 from the Americas and European regions; data for 2022 from the African, Eastern Mediterranean, European and Western Pacific regions.

^d Number of autochthonous and imported cases.

^e No cases of paracoccidiodomycosis and sporotrichosis were reported to WHO.

^f Number of deaths.

^g Number of people operated for trachomatous trichiasis.

^h Number of confirmed and suspected cases.

2.1.4 Disease-specific global indicators, milestones and targets for 2030

Diseases targeted for eradication

Dracunculiasis

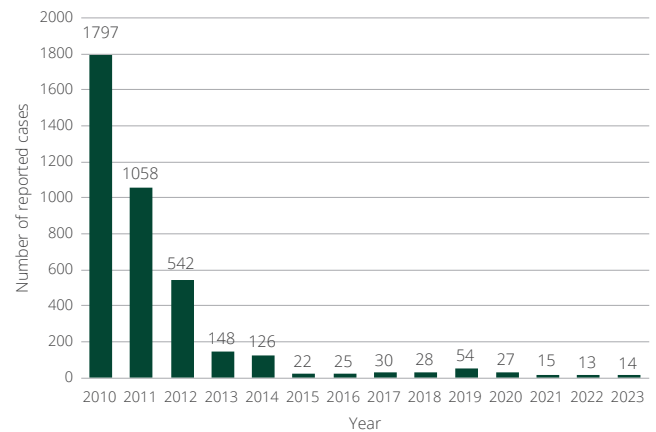


In 2023, a total of 14 human cases of dracunculiasis and 886 infections in animals (of which 784 in dogs) were reported globally. In 2022, 13 human cases of dracunculiasis and 686 infections in animals had been reported (of which 597 in dogs). As of December 2023, only five countries are still considered endemic (Angola, Chad, Ethiopia, Mali and South Sudan). Sudan has been reporting zero cases for several years but remains to be certified. The Democratic Republic of the Congo was certified as free of transmission in December 2022, bringing the total number of certified countries to 188. Main challenges to eradication include: insecurity in countries with ongoing transmission, notably Mali and South Sudan, and in Sudan, which is in the precertification stage; infections in humans and/or in animals (mostly dogs) are being reported in Cameroon and in the Central African Republic due to cross-border movement of populations, notably from Chad. This highlights the risk of reintroduction of transmission in certified countries sharing borders with endemic countries, and the need for sustained and adequate

post-certification surveillance until global eradication is declared.

The number of cases of dracunculiasis reported to WHO since 2010 and the certification status by country are shown in Fig. 2.12 and 2.13.

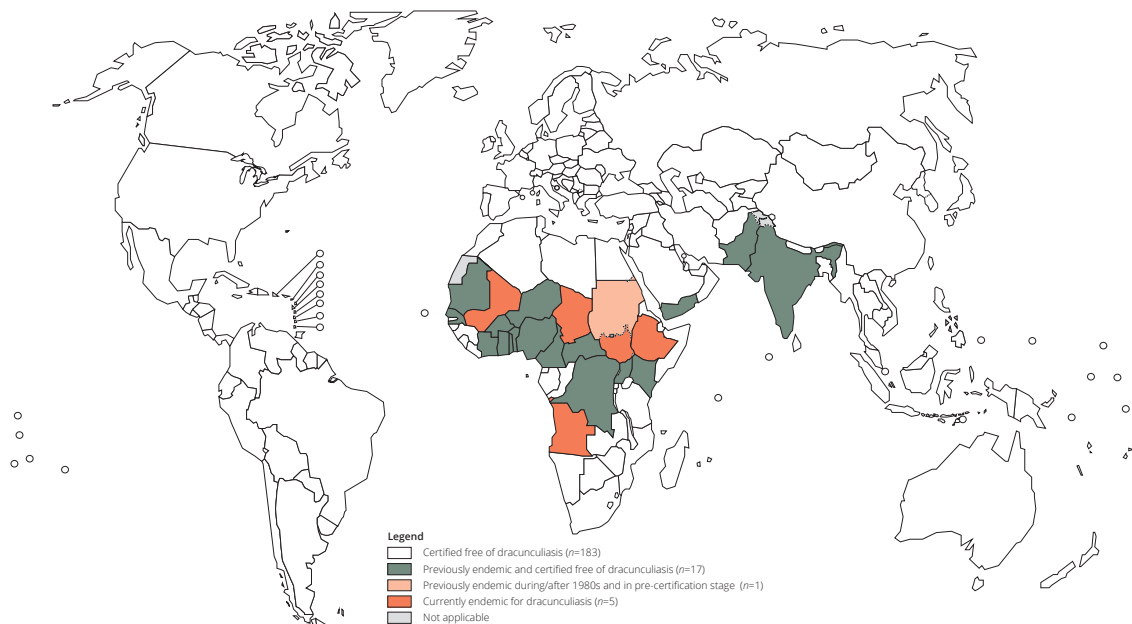
Fig. 2.12. Number of reported dracunculiasis cases, 2010–2023



WHO target, milestone and achievement

Indicator	Target (2030)	Milestone (2023)	Achieved (2023)
Number of countries certified free of transmission	194/194 (100%)	189/194 (97%)	188/194 (97%)

Fig. 2.13. Status of dracunculiasis certification





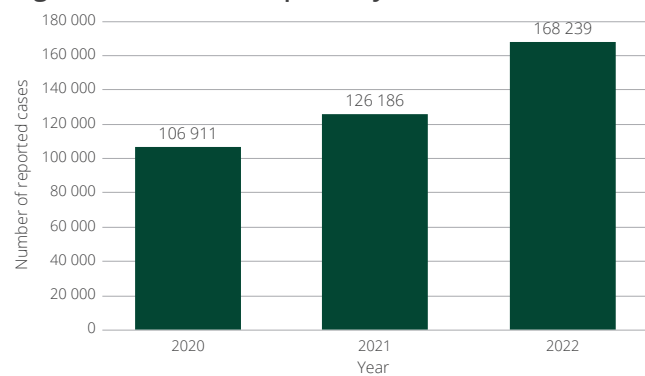
Intensified surveillance and capacity strengthening continue in the 16 endemic countries in WHO's African, South-East Asia and Western Pacific regions, together with the set-up of laboratory networks to strengthen diagnostic capacities and monitor any potential drug resistance. In the African Region, over the past years, Cameroon, Central African Republic and Congo have been implementing mass drug administration (MDA) with azithromycin at regular intervals. In the South-East Asia Region, Timor-Leste is planning to conduct surveys to demonstrate interruption of transmission, while Indonesia is scaling up surveillance activities. In the Western Pacific Region, Papua New Guinea, the most affected country, is planning to scale up access to diagnostic testing to confirm clinically-diagnosed cases, which are still the majority; the Philippines, Solomon Islands, Malaysia (where cases have recently been reported) and Vanuatu are strengthening surveillance – the last country has also been conducting MDA. In the Region of the Americas, all countries are considered as previously endemic or with no previous history of yaws. Nevertheless, investigations are required to confirm the current status of transmission in some of the countries in the first group, in response to recent rumours of cases.

In 2022, 168 239 suspected cases and 1480 confirmed cases were reported to WHO; they were 126 186 and

1165 in 2021, respectively. As of December 2023, 82 countries are considered as previously endemic; among these, several are compiling information to initiate the certification process. India remains the only country certified as having interrupted transmission, through an ad-hoc process. WHO is currently in the process of establishing a joint commission to oversee certification processes for both dracunculiasis and yaws.

The number of cases of yaws reported to WHO since 2020 and the status of yaws endemicity are shown in Fig. 2.14 and Fig. 2.15.

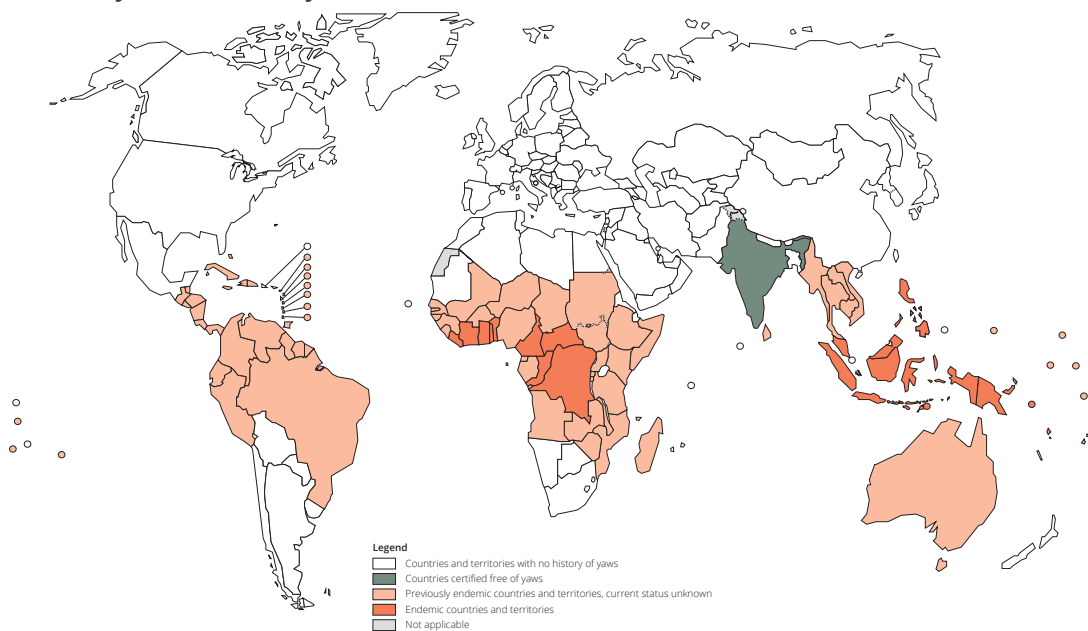
Fig. 2.14. Number of reported yaws cases, 2020–2022



WHO target, milestone and achievement

Indicator	Target (2030)	Milestone (2023)	Achieved (2023)
Number of countries certified free of transmission	194/194 (100%)	97/194 (50%)	1/194 (0.5%)

Fig. 2.15. Status of yaws endemicity



Diseases targeted for elimination (interruption of transmission)

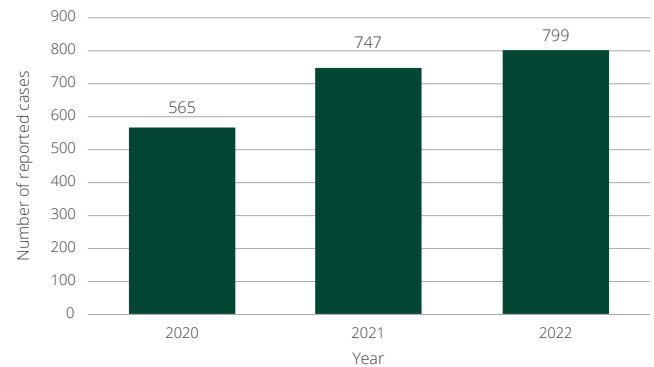
Human African trypanosomiasis (gambiense)



In 2022, 799 cases of gambiense human African trypanosomiasis were reported from 10 countries, registering an increase from 747 in 2021, but still a 97% reduction since 2000. As of December 2023, six countries have been validated by WHO for eliminating gambiense human African trypanosomiasis as a public health problem, as a first step towards its interruption of transmission: Côte d'Ivoire and Togo in 2020, Benin in 2021, Equatorial Guinea and Uganda in 2022, and Ghana in 2023. A total of 24 countries are currently considered endemic.

The number of cases of human African trypanosomiasis (gambiense) reported to WHO since 2020 is shown in Fig. 2.16.

Fig. 2.16. Number of reported gambiense human African trypanosomiasis cases, 2020–2022



WHO target, milestone and achievement

Indicator	Target (2030)	Milestone (2023)	Achieved (2023)
Number of countries verified for interruption of transmission	15/24 (62%)	0	0
			Achieved (2022)
Number of gHAT cases reported (2023)	0	500	799

Leprosy



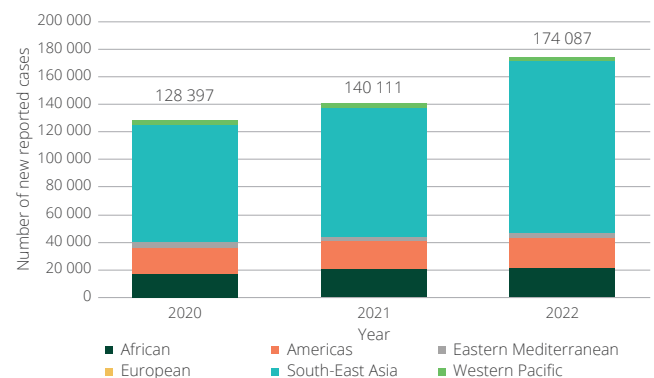
Reports on leprosy for 2022 were received from 182 countries, areas and territories, of which 54 reported zero cases. Globally, 174 087 new cases were reported; 10 302 cases (5.9%) were children, equivalent to a rate of 5.1 per million children. The number of new cases with grade 2 disability was 9554, equivalent to a rate of 1.2 per million population. In 2021, figures were as follows: 143 reporting countries, areas and territories, 36 of which reported zero cases; 140 111 new cases reported globally; 8991 child cases (6.4% of the total), equivalent to a detection rate of 4.46 per million child population; 8469 cases with grade 2 disability, equivalent to a rate of 1.08 per million population.

Criteria for assessment of interruption of transmission of *M. leprae* and elimination of leprosy disease were published in 2023; a few countries reporting zero cases for several years in a row have started applying them to

their datasets with the aim of ascertaining the prevalent epidemiological status.

The number of new leprosy cases reported to WHO since 2020, by Region, is shown in Fig. 2.17.

Fig. 2.17. Number of new reported leprosy cases, by WHO region, 2020–2022



WHO target, milestone and achievement

Indicator	Target (2030)	Milestone (2023)	Achieved (2022)
Number of countries with zero new autochthonous leprosy cases	120/194 (62%)	75/194 (39%)	54/194 (28%)
Annual number of new leprosy cases detected	62 500	148 000	174 087
Rate (per million population) of new cases with grade 2 disability	0.12	0.92	1.2
Rate (per million children) of new child cases with leprosy	0.77	5.66	5.1

Onchocerciasis

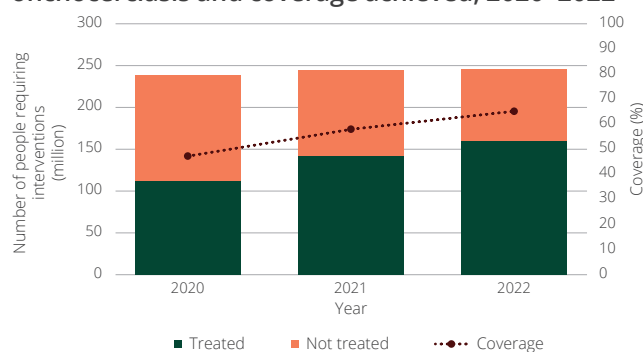


As of December 2023, four countries in the Region of the Americas have been verified as having interrupted transmission of onchocerciasis (Colombia, Ecuador, Guatemala and Mexico); six countries have stopped MDA and moved to post-treatment surveillance for 100% of the population requiring preventive chemotherapy (the four countries in the above group plus Equatorial Guinea and Senegal); nine countries have stopped MDA and moved to post-treatment surveillance for more than 50% of the population requiring preventive chemotherapy (the six countries in the above groups plus Uganda, Sudan and Venezuela (Bolivarian Republic of)); and 14 countries have stopped MDA in at least one focus (the nine countries in the above groups plus Ethiopia, Malawi, Mali, Nigeria, and United Republic of Tanzania). In 2023, the first country in the African Region, Niger, submitted a dossier to WHO and requested the Organization to start the verification process. Treatment continues in all endemic countries in the three affected regions (African, Americas, Eastern Mediterranean). The Global Onchocerciasis Network for Elimination (GONE) was launched in January 2023 with the aim

of empowering countries to accelerate progress towards the achievement of the road map targets for onchocerciasis elimination (16).

The number of people requiring treatment for onchocerciasis, the number of people treated and the corresponding coverage in 2020–2022 are shown in Fig. 2.18.

Fig. 2.18. Number of people requiring treatment for onchocerciasis and coverage achieved, 2020–2022



WHO target, milestone and achievement

Indicator	Target (2030)	Milestone (2023)	Achieved (2023)
Number of countries verified for interruption of transmission	12/38 (31%)	5/38 (13%)	4/38 (11%)
Number of countries that stopped MDA for ≥ 1 focus	34	22	14
Number of countries that stopped MDA for $\geq 50\%$ of population	>16	10	9
Number of countries that stopped MDA for 100% of population	>12	6	6

Diseases targeted for elimination as a public health problem

Chagas disease



The only verification process for Chagas disease currently established by PAHO/WHO is the one for interruption of domiciliary vectoral transmission, which has been completed, in whole or in part of their national territory, in a total of 10 Latin American countries. In addition, progress has also been made in the Americas, European

and Western Pacific regions towards the interruption of other transmission routes of *Trypanosoma cruzi*: these include by transfusion of blood and blood products, organ transplantation, congenital, oral and laboratory accident.

Surveillance and control activities for Chagas disease have gradually returned to pre-pandemic levels everywhere, with special significance in Latin America, where the impact of the COVID-19 pandemic has been one of the most severe globally, and where the peak of the last wave of SARS-CoV-2 was registered in January 2022. It should also be noted that Chagas disease has increasingly become a relevant public health problem beyond the continental Latin American countries where vectorial transmission has long been documented. In this regard, as of December 2023, 44 countries have detected Chagas disease cases in the African, Americas, Eastern Mediterranean, European and Western Pacific regions, all of which have been provided with technical support and antiparasitic medicines. Technical support on vectorial surveillance and control has also been provided to an additional group of countries with house infestation of triatomine bugs, including China, India, the Philippines, Viet Nam and the French overseas department of Réunion.

Various networks in support of public health control of Chagas disease are currently active: these gather sentinel laboratories involved in diagnostic activities, centres working on vectorial surveillance, and scientists dedicated to HIV/AIDS–*T. cruzi* coinfection. More than 30 patients' associations are distributed among the Americas, European and the Western Pacific regions, under the umbrella of the International Federation of Associations of People Affected by Chagas disease (FINDECHAGAS).

World Chagas Disease Day has been observed annually since 14 April 2020. Each year, over 30 in-person and virtual events, spread over a period of several weeks before and after the actual Day, focus on the different themes selected each year: "Let's make Chagas disease visible now" (2020); "Comprehensive, equitable health care services for all people affected by Chagas disease" (2021), "Finding and reporting every case to defeat Chagas disease" (2022), and "Time to integrate Chagas disease into primary health care" (2023).

WHO target, milestone and achievement

Indicator	Target (2030)	Milestone (2023)	Achieved (2023)
Number of countries achieving interruption of transmission through the four transmission routes (vectorial, transfusion, transplantation and congenital), with 75% antiparasitic treatment coverage of the eligible population	15/41 (37%)	4/41 (10%)	0
Number of countries achieving verification of interruption of domiciliary vectorial transmission	18/21 (86%)	9/21 (43%)	10/21 (48%)
Number of countries achieving verification of interruption of transfusional transmission	41/41 (100%)	5/41 (12%)	0
Number of countries achieving verification of interruption of organ transplantation transmission	41/41 (100%)	5/41 (12%)	0
Number of countries achieving verification of interruption of congenital transmission	15/41 (37%)	4/41 (10%)	0

A few countries are progressing towards monitoring and verifying interruption of transmission through all transmission routes at national or first-administrative level: among others, this group includes include Brazil, Italy, Japan, Spain and Switzerland.

Ten Latin American countries have been verified for interruption of domiciliary vector transmission in the whole national territory or a portion of it. An additional group of countries have interrupted vectorial transmission by the principal triatomine bug, in the whole national territory or in a portion of it.

As of December 2023, a total of 27 countries in the Americas, European and Western Pacific regions are fully implementing universal screening of blood and blood products, and are ready to request verification, once the process is established.

Several countries are regularly screening both organ donors and receivers and no new cases of infection have been reported to WHO for the past 3 years. These countries are ready to request verification, once the process is established.

Interventions for elimination of transmission of congenital Chagas disease have been initiated in different countries in the Americas and in Europe, with the screening and antiparasitic treatment of girls and women of childbearing age with *T. cruzi* infection, or screening of pregnant women and antiparasitic treatment of newborns and siblings. The region of Murcia, a first administrative division of Spain, is the first territory to claim to have achieved sustained interruption of congenital transmission over the past 7 years.

Human African trypanosomiasis (rhodesiense)

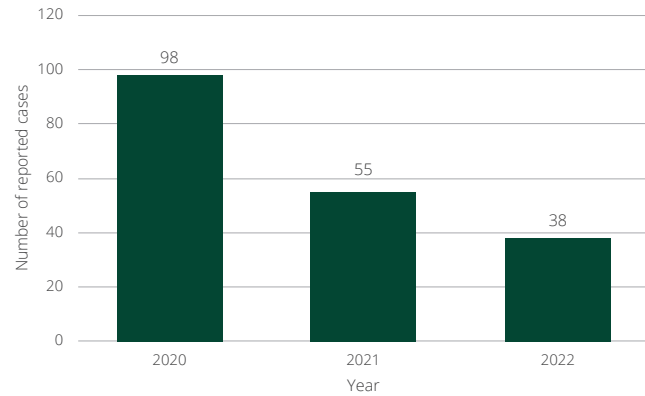


The decreasing trend in transmission of rhodesiense human African trypanosomiasis observed since the early 2000s is continuing; in 2022, only 38 cases were reported (equivalent to a 94% reduction between 2000 and 2022). In 2022, Rwanda was validated by WHO as the first country to achieve elimination of rhodesiense human African trypanosomiasis as a public health problem. The geographical area at moderate or higher risk of rhodesiense HAT (reporting ≥ 1 case per 10 000 people per year) was 14 913 km² in the period 2018–2022. This figure reflects a 46% reduction from the 2000–2004 baseline, but is still above the 5000 km² milestone set for 2023.

As of December 2023, 13 countries are considered endemic.

The number of cases of human African trypanosomiasis (rhodesiense) reported to WHO since 2020 is shown in Fig. 2.19.

Fig. 2.19. Number of reported rhodesiense human African trypanosomiasis cases, 2020–2022



WHO target, milestone and achievement

Indicator	Target (2030)	Milestone (2023)	Achieved (2023)
Number of countries validated for elimination as a public health problem (defined as <1 case/10 000 people per year, in each health district of the country averaged over the previous 5-year period)	8/13 (61%)	2/13 (15%)	1/13 (8%)
Area with ≥ 1 rHAT case per 10 000 people per year (average of 5 years)	0	5000 km ²	14 913 km ²

Visceral leishmaniasis



In 2022, the number of reported cases of visceral leishmaniasis was 13 081 (13 012 autochthonous and 69 imported cases). In 2021, 12 076 cases (12 016 autochthonous and 60 imported) had been reported, the lowest number since 1998. There were 53 reporting countries in 2022 and 61 in 2021. As of December 2023, 80 countries are considered endemic for visceral leishmaniasis.

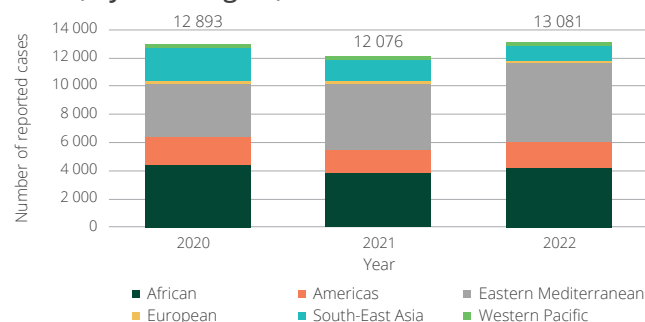
In the South-East Asia Region, 99% (772 out of 775) of implementation units have achieved the epidemiological threshold of elimination as a public health problem. Out of the total reported cases of post-kala-azar dermal leishmaniasis (PKDL), the proportion of cases detected and treated in the Region was 96% in 2021 and 87% in 2022. In 2022, the case-fatality rate among all types of visceral leishmaniasis cases (primary, relapse, HIV-coinfected) was still $\geq 1\%$ in 16 of the 80 countries that reported at least one death.

As of December 2023, only one country, Bangladesh (in the South-East Asia Region) has been validated by WHO for eliminating visceral leishmaniasis as a public health problem.

Criteria and processes for validation of elimination of visceral leishmaniasis as a public health problem outside the South-East Asia Region are expected to be established by the end of 2024. It is foreseen that the first countries could start the validation process in early 2025; several health ministries have already contacted WHO to request undergoing the validation process.

The number of cases of visceral leishmaniasis reported to WHO since 2020, by Region, is shown in Fig. 2.20.

Fig. 2.20. Number of reported visceral leishmaniasis cases, by WHO region, 2020–2022



WHO target, milestone and achievement

Indicator	Target (2030)	Milestone (2023)	Achieved (2023)
Number of countries validated for elimination as a public health problem (defined as <1% case-fatality rate due to primary visceral leishmaniasis)	64/75 (85%)	32/75 (43%)	0
Number of countries in SEAR validated for elimination as a public health problem (defined as <1 case (new and relapses) per 10 000 population at district level in Nepal and at sub-district level in Bangladesh and India)	3/3 (100%)	3/3 (100%)	1/3 (33%)
			Achieved (2022)
In SEAR, cases of PKDL detected (VL post-treatment follow-up 3 years) and treated	100%	90%	87%

Lymphatic filariasis



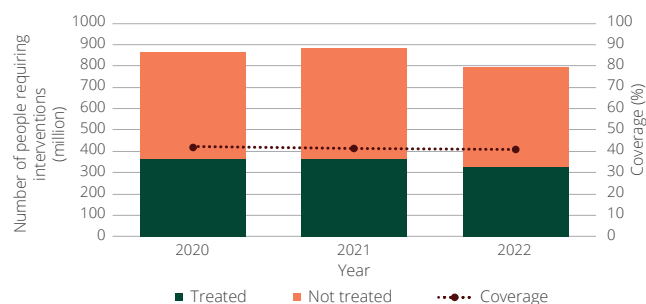
In 2022, overall 794 million people in 44 countries required preventive chemotherapy, down from 88 million in 2021 (882 million). In 2022, 325.7 million people were treated, 39.2 million fewer than in 2021, reflecting the persistent disruptions caused by the COVID-19 pandemic. The number of countries implementing post-MDA surveillance was 10 in 2022. As of December 2023, some 19 countries or territories have been validated for eliminating this disease as a public health problem.

The population requiring MDA in 2022 was well above 2023 projections included in the road map. The projections were based on an optimistic assumption that triple-therapy MDA with ivermectin, diethylcarbamazine and albendazole (IDA) would be introduced in all areas where warranted by 2020 and transmission assessment surveys (TAS) would be implemented in all evaluation units when eligible. With some exceptions, COVID-19 delayed or disrupted MDA and TAS implementation

for a 2-year period taking countries off-track from projected progress.

The number of people requiring treatment for lymphatic filariasis, the number of people treated and the corresponding coverage in 2020–2022 are shown in Fig. 2.21.

Fig. 2.21. Number of people requiring treatment for lymphatic filariasis and coverage achieved, 2020–2022



WHO target, milestone and achievement

Indicator	Target (2030)	Milestone (2023)	Achieved (2023)
Number of countries validated for elimination as a public health problem (defined as: — infection sustained below transmission assessment survey thresholds for at least 4 years after stopping MDA; — availability of essential package of care in all areas of known patients)	58/72 (81%)	23/72 (32%)	19/72 (26%)
			Achieved (2022)
Number of countries implementing post-MDA or post-validation surveillance	72/72 (100%)	37/72 (51%)	29/72 (40%)
Population requiring MDA	0	330 million	794 million

Rabies

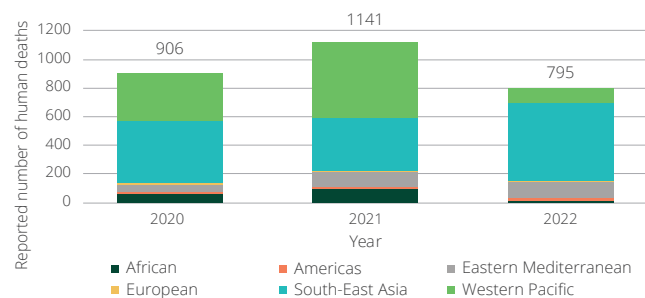


Rabies is still largely under-reported, mis- and under-diagnosed. As a result, data on mortality, access to vaccines and immunoglobulins, and occurrence in animal populations are limited, as is information on programmatic interventions such as mass dog vaccination. In general, surveillance for rabies is weak at country level, and misattribution of the cause of death is frequent. Currently, 71 countries are classified as endemic for human rabies, indicating that dog rabies and dog-transmitted human rabies are present in the country; however, only 24 of these countries have reported data for 2021; 17 reported data for 2022. Globally, 1141 deaths were reported in 2021 from 31 countries, and 795 in 2022 from 21 countries. Seven countries have sporadic occurrence of dog-transmitted human rabies, nine countries have widespread occurrence of dog rabies but no dog-transmitted human cases, and seven countries have limited occurrence of dog rabies and no cases of dog-transmitted human rabies. Finally, 82 countries are classified as having zero dog rabies and zero dog-transmitted human rabies cases. As of December 2023, Mexico is the only country

validated for elimination of rabies as a public health problem, defined as the absence of a human death from dog-mediated rabies for at least 24 months in a country that is operating and continues to maintain adequate surveillance for rabies and demonstrates an effective rabies control programme in human and animal populations.

The number of human rabies deaths reported to WHO since 2020, by Region, is shown in Fig. 2.22.

Fig. 2.22. Number of reported human rabies deaths, by WHO region, 2020–2022



WHO target, milestone and achievement

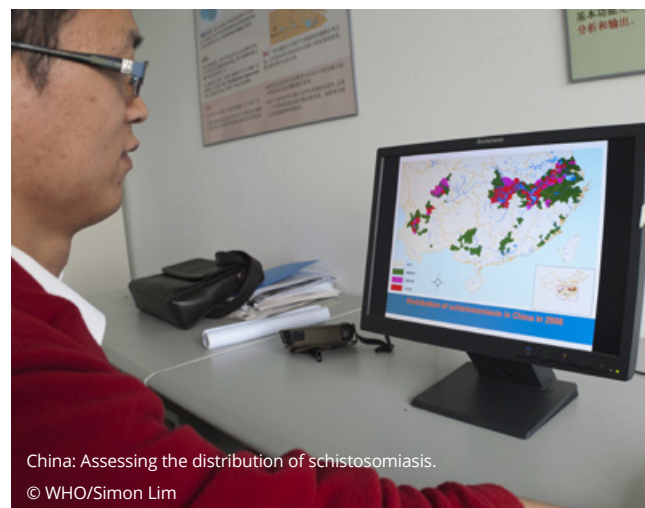
Indicator	Target (2030)	Milestone (2023)	Achieved (2022)
Number of countries having achieved zero human deaths from rabies ^a	155/169 (92%)	89/169 (53%)	35/169 (21%)
			Achieved (2023)
Number of countries having reduced mortality due to dog-transmitted human rabies by 50%	169/169 (100%)	134/169 (79%)	information not available
Number of countries having reached 70% vaccination coverage of dogs in high-risk areas	154/169 (91%)	96/169 (57%)	information not available

^a Number of human deaths attributable to dog-transmitted rabies.

Schistosomiasis



Overall, 264.3 million people in 50 countries required preventive chemotherapy for schistosomiasis in 2022, representing an increase of 11.2 million from 2021. This increase is mainly due to population growth in endemic areas, the limited number of impact assessment surveys conducted, the delay in changing treatment strategy after surveys, and the persistent use of district level as implementation unit (rather than lower administrative jurisdictions). In this regard, WHO is currently undertaking a global review of the number of people requiring preventive chemotherapy for schistosomiasis at community level, as recommended in the guideline on control and elimination of human schistosomiasis (17). These data will contribute to an evidence-based estimate of the global number of people in need of treatment and enable monitoring its reduction in compliance with SDG indicator 3.3.5.

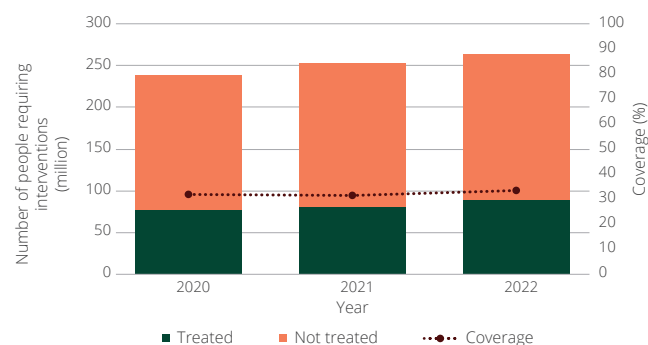


China: Assessing the distribution of schistosomiasis.
© WHO/Simon Lim

In 2022, 89.1 million people received treatment for schistosomiasis, that is, 8.4 million more than in 2021 (80.7 million) and 11.8 million more than in 2020 (77.3 million), thus confirming a positive recovery trend after COVID-19 disruptions. As of December 2023, 18 formerly endemic countries, areas and territories have been reporting zero autochthonous cases for several years in a row and claim to have interrupted transmission of *Schistosoma* spp.; although formal criteria have not been defined by WHO, evidence provided by one country, Japan, is considered conclusive in this regard. In the absence of a formal process for acknowledging elimination of schistosomiasis as a public health problem, the number of countries validated by WHO for this target remains zero. Action is currently being taken to define criteria and establish the mentioned process.

The number of people requiring treatment for schistosomiasis, the number of people treated and the corresponding coverage in 2020–2022 are shown in Fig. 2.23.

Fig. 2.23. Number of people requiring treatment for schistosomiasis and coverage achieved, 2020–2022



WHO target, milestone and achievement

Indicator	Target (2030)	Milestone (2023)	Achieved (2023)
Number of countries validated for elimination as a public health problem (currently defined as <1% proportion of heavy intensity schistosomiasis infections)	78/78 (100%)	49/78 (63%)	0
Number of countries where absence of infection in humans has been achieved	25/78 (32%)	10/78 (13%)	1/78 (1%)

Soil-transmitted helminthiases



In 2022, preventive chemotherapy for soil-transmitted helminthiases was required in 87 countries, with 897.9 million children in need, of which 265.3 million were preschool-aged children (pre-SAC) and 632.6 million were school-aged children (SAC). In addition, 108 million adolescent girls and 138.8 million pregnant and lactating women were estimated to require this intervention.

In 2022, 492.6 million children who required preventive chemotherapy were treated for soil-transmitted helminth infections (101.8 million pre-SAC and 390.8 million SAC). Coverage of pre-SAC and SAC was 38.4% and 61.8%, respectively. In addition, 89.1 million women of reproductive age were treated with albendazole through lymphatic filariasis elimination programmes.

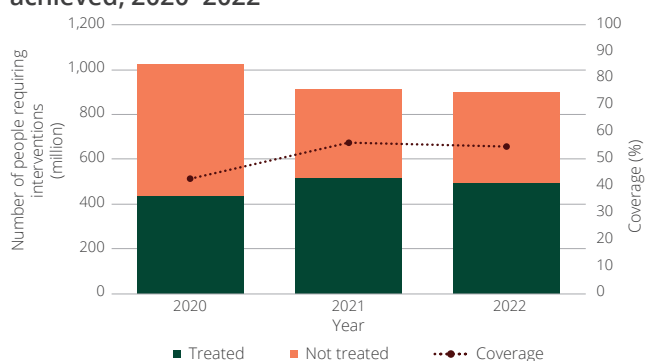
As of December 2023, five countries have been classified as no longer requiring preventive chemotherapy and have stopped this intervention: Burkina Faso, Ghana, Mali, Sudan and Niger; the decision was based on the reduced national prevalence of soil-transmitted helminthiases to below 2% derived from impact assessment surveys. A large number of countries has also been progressively removed from the list of

those requiring preventive chemotherapy following the analysis of data on access to improved sanitation, based on a formal process agreed by WHO (18). WHO is in the process of establishing the validation processes for countries that wish to be acknowledged for elimination of soil-transmitted helminthiases as a public health problem: as such no countries have yet been acknowledged.

With regard to strongyloidiasis, among the 107 estimated endemic countries, 51 have been implementing MDA with ivermectin for lymphatic filariasis and/or onchocerciasis for several years. However, since information on geographical distribution of strongyloidiasis within such countries is not available, it is not possible to ascertain if all endemic areas are being treated. WHO guidelines on control of strongyloidiasis are under development.

The number of people requiring treatment for schistosomiasis, the number of people treated and the corresponding coverage in 2020–2022 are shown in Fig. 2.24.

Fig. 2.24. Number of people requiring treatment for soil-transmitted helminthiases and coverage achieved, 2020–2022



WHO target, milestone and achievement

Indicator	Target (2030)	Milestone (2023)	Achieved (2023)
Number of countries validated for elimination as a public health problem (defined as <2% proportion of soil-transmitted helminth infections of moderate and heavy intensity due to <i>Ascaris lumbricoides</i> , <i>Trichuris trichiura</i> , <i>Necator americanus</i> and <i>Ancylostoma duodenale</i>)	96/101 (96%)	60/101 (60%)	0
Number of countries including ivermectin in preventive chemotherapy in all areas endemic for <i>S. stercoralis</i>	96/101 (96%)	10/101 (10%)	information not available

Trachoma

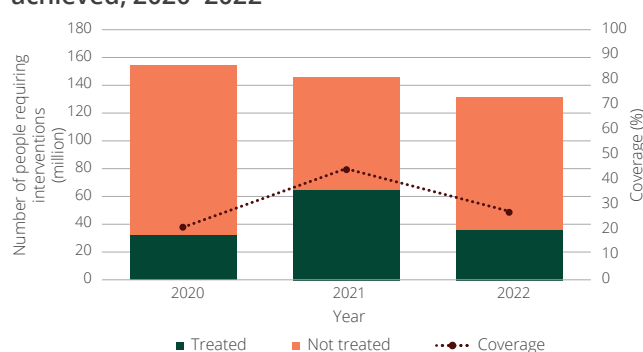


In 2022, an estimated 132 million people in 31 countries required antibiotic MDA, interventions to improve facial cleanliness and environmental improvement for trachoma, confirming a declining trend; the equivalent estimates for 2021 and 2020 were 146 million and 155 million, respectively. In 2022, however, only 36.2 million people were given antibiotics, down from 64.6 million in 2021 and 32.8 million in 2020. The estimated total global number of people suffering from trachomatous trichiasis, the late, blinding stage of trachoma, has fallen from 1.8 million in 2021 to 1.7 million in 2022 to 1.5 million cases in 2023. In 2021–2023, eight countries were validated for having eliminated trachoma as a public health problem, bringing the total number of countries to 18.

The number of people operated for trachomatous trichiasis in 2020–2022 is shown in Table 2.2. The

number of people requiring antibiotic treatment for trachoma, the number of people treated and the corresponding coverage in 2020–2022 are shown in Fig. 2.25.

Fig. 2.25. Number of people requiring antibiotic treatment for trachoma and coverage achieved, 2020–2022



WHO target, milestone and achievement

Indicator	Target (2030)	Milestone (2023)	Achieved (2023)
Number of countries validated for elimination as a public health problem (defined as (i) a prevalence of trachomatous trichiasis “unknown to the health system” of <0.2% in ≥15-year-olds in each formerly endemic district; (ii) a prevalence of trachomatous inflammation—follicular in children aged 1–9 years of <5% in each formerly endemic district; and (iii) written evidence that the health system is able to identify and manage incident cases of trachomatous trichiasis, using defined strategies, with evidence of appropriate financial resources to implement those strategies)	66/66 (100%)	28/66 (42%)	18/66 (27%)

WHO target, milestone and achievement

Indicator	Target (2030)	Milestone (2023)	Achieved (2023)
Number of people at risk requiring A, F and E of SAFE [surgery, antibiotics, facial cleanliness, environmental improvement] for trachoma elimination purposes	not defined	not defined	115 671 329*
Number of people requiring management of trachomatous trichiasis; S of SAFE [surgery, antibiotics, facial cleanliness, environmental improvement]	not defined	not defined	1.5 million*

* As of 25 April 2023.

Diseases targeted for control

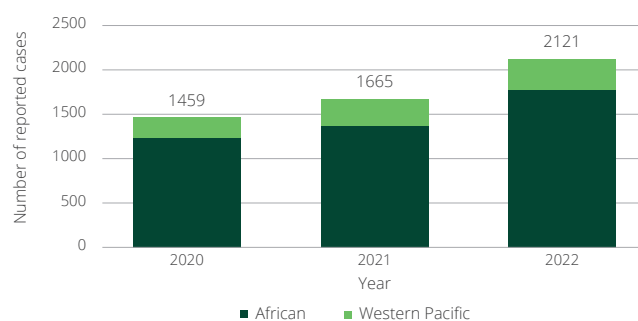
Buruli ulcer



Integrated surveillance, active case-finding and capacity strengthening of health workers for Buruli ulcer have increased in all the countries and territories classified by WHO as endemic; in 2022, 2121 suspected, clinically-diagnosed cases were reported from 11 countries to WHO, of which 982 were laboratory confirmed (46.3%); 40.7% of the laboratory-confirmed cases completed a full course of antibiotic treatment; 25.2% of the laboratory-confirmed cases were classified as category III (late stage) at diagnosis. In 2021, figures were as follows: 1665 cases reported from 12 countries, of which 851 were laboratory confirmed (51.1%); 43% of the laboratory-confirmed cases completed a full course of antibiotic treatment; 25.5% of the laboratory-confirmed cases were classified as category III at diagnosis.

The number of cases of Buruli ulcer reported to WHO since 2020, by Region, is shown in Fig. 2.26.

Fig. 2.26. Number of reported Buruli ulcer cases, by WHO region, 2020–2022



WHO target, milestone and achievement

Indicator	Target (2030)	Milestone (2023)	Achieved (2022)
Proportion of cases in category III (late stage) at diagnosis	<10%	<22%	25.2%
Proportion of laboratory-confirmed cases	>95%	>85%	46.3%
Proportion of confirmed cases who have completed a full course of antibiotic treatment	>98%	>95%	40.7%

Dengue and chikungunya



The Global Arbovirus Initiative was launched in March 2022, with a goal to mitigate the risk of epidemics, notably those due to *Aedes*-borne diseases, including dengue and chikungunya.

In response, efforts are being made to address the growing challenge of *Aedes*-borne arboviral diseases, as a reflection of the large number of cases reported every year. The number of cases has gradually increased since the beginning of the century, reaching a peak in 2019,

with over 5 million cases reported. After a decline in 2020 and 2021 due to lower reporting in conjunction with the COVID-19 pandemic, over 4.5 million cases were notified to WHO in 2022.

Key activities implemented to address the burden of arboviral diseases include review of country-level programmes and capacities for surveillance and control, build-up of preparedness and response, update of guidance and capacity strengthening. This has resulted in

a larger number of countries able to detect and respond to dengue outbreaks (65, exceeding the milestone set for 2023), and an improvement in case-management practices, which led to a decreased case-fatality rate (0.10% as of 2022).

With regard to chikungunya, the first vaccine against the disease was approved by the US Food and Drug Administration in November 2023. As of December 2023, 55 countries with transmission of chikungunya virus have been identified.

Based on the information received from the health ministries, seven countries (Burkina Faso, Eritrea, Gabon, Lao People’s Democratic Republic, Malaysia, the Philippines and Sudan) reported being endemic for chikungunya; and six countries (Ethiopia, French Polynesia, Kenya, Madagascar, Senegal and Singapore) reported sporadic presence of chikungunya. Additionally, three countries (Angola, Saudi Arabia and Yemen) claimed to be suspected endemic. Of the countries where transmission is ongoing, sporadically present or suspected to occur, five countries (French Polynesia, Lao People’s Democratic Republic, Malaysia, Singapore and

Yemen) reported to be either partially mapped or having completed mapping for chikungunya. Mauritius reported never being endemic for chikungunya.

In 2022, zero deaths related to chikungunya were reported. In the same year, 3613 suspected cases were reported, of which 2028 were confirmed.

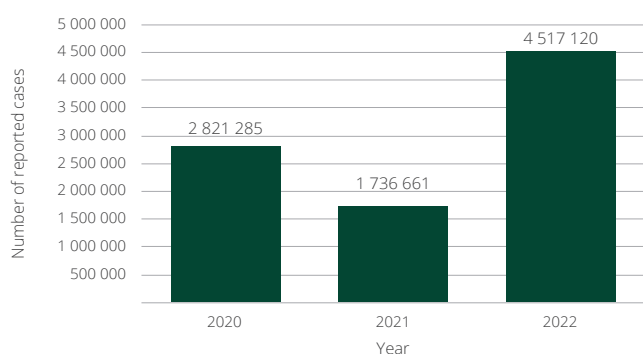
Finally, 20 countries are implementing the integrated case management of arboviral infections, i.e. are capable of detecting and managing people affected by the three main viruses transmitted by *Aedes aegypti*, namely chikungunya, dengue and Zika.

In the near future, rapid unplanned urbanization and the emerging threats associated with climate change are expected to amplify transmission of dengue and other arboviral diseases.

The number of cases of dengue reported to WHO since 2020 is shown in Fig. 2.27. The number of cases of chikungunya reported to WHO for 2022, by Region, is shown in Fig. 2.28.

Dengue

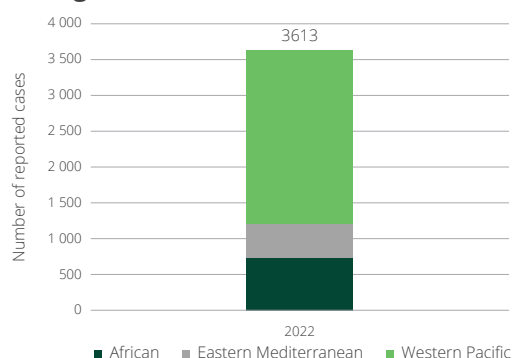
Fig. 2.27. Number of reported dengue cases, 2020–2022



WHO target, milestone and achievement

Indicator	Target (2030)	Milestone (2023)	Achieved (2022)
Case-fatality rate due to dengue	0%	0.50%	0.10%
To reduce the burden of the disease and its incidence by 25% (2020 as baseline)	2.35 million	3 million	4 517 120
			Achieved (2023)
Number of countries able to detect and respond to dengue outbreaks	96/128 (75%)	26/128 (20%)	65/128 (51%)

Fig. 2.28. Number of reported chikungunya cases, by WHO region, 2022



WHO target, milestone and achievement

Indicator	Target (2030)	Milestone (2023)	Achieved (2023)
Vaccine development for one or more vaccine candidates	Licensed vaccine	not defined	one vaccine approved
Number of countries identified and mapped for chikungunya	110/110 (100%)*	55/110 (50%)	55/110 (50%)
Develop optimized and prioritized integrated strategies for case management and estimate the potential public health benefits by 2025	40*	20	20

* To be achieved by 2025.

Echinococcosis (alveolar and cystic)



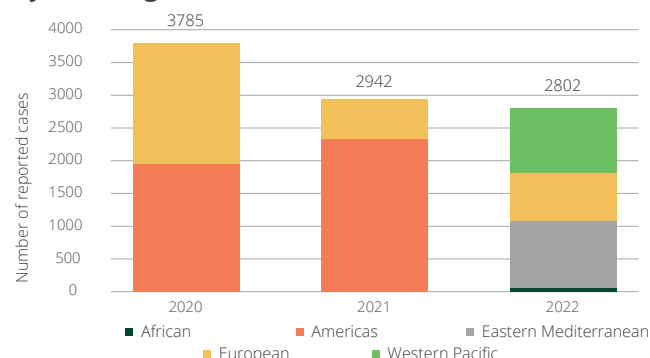
In 2022, a total of 2802 cases of echinococcosis were reported from 31 countries: 63 cases from two countries in the African Region, 1017 cases from four countries in the Eastern Mediterranean Region, 731¹ cases from 24 countries in the European Region and 991 cases from one country in the Western Pacific Region. Three countries reported zero cases, bringing to 34 the total number of reporting countries. In 2021, data on echinococcosis were only available from the Americas and European regions: 2942 cases were reported from 22 countries, while eight countries reported zero cases, bringing the total number of reporting countries to 30.

As of 2023, countries implementing intensified control of cystic echinococcosis in hyperendemic areas include Argentina, China, Kyrgyzstan and Peru. The disease is targeted for elimination in the Americas, and the Pan American Health Organization publishes biennial epidemiological reports on this disease. Conversely, data from Africa, Asia and Eastern Europe are limited; many

endemic countries still need to collect baseline data to ascertain the magnitude of the burden of disease.

The number of cases of echinococcosis reported to WHO for 2022, by Region, is shown in Fig. 2.29.

Fig. 2.29. Number of reported echinococcosis cases, by WHO region, 2020–2022



¹ Data source: European Centre for Disease Prevention and Control (19).

WHO target, milestone and achievement

Indicator	Target (2030)	Milestone (2023)	Achieved (2023)
Number of countries with intensified control of cystic echinococcosis in hyperendemic areas	17	4	4

Foodborne trematodiasis



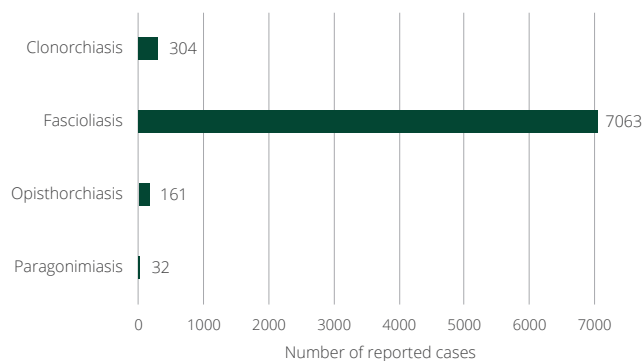
As of 2023, intensified control in areas hyperendemic for foodborne trematodiasis is implemented in Bolivia (Plurinational State of) (for fascioliasis), Cambodia (for opisthorchiasis) and Thailand (also for opisthorchiasis); in these countries MDA is implemented with triclabendazole, praziquantel and praziquantel, respectively. In Cambodia, both opisthorchiasis and *T. solium* taeniasis are targeted by such exercise. In Bolivia (Plurinational State of) and Cambodia the medicines are donated by WHO. In December 2023, PAHO released a set of operational guidelines for the elimination of fascioliasis as a public health problem in the Americas (20), a further contribution to the PAHO Elimination Initiative, which seeks to put an end to more than 30 communicable diseases and related conditions in the Americas.

Information on number of cases detected at health facilities was also reported for 2022, however this is still very fragmentary; a total of 7560 cases of foodborne

trematodiasis were reported to WHO from only two countries (Egypt and Viet Nam).

The number of cases of foodborne trematodiasis reported to WHO for 2022 is shown in Fig. 2.30.

Fig. 2.30. Number of reported foodborne trematodiasis cases, 2022^a



^a Clonorchiasis, opisthorchiasis and paragonimiasis: all cases from Viet Nam; fascioliasis: 850 cases from Egypt and 6213 cases from Viet Nam.

WHO target, milestone and achievement

Indicator	Target (2030)	Milestone (2023)	Achieved (2022)
Number of countries with intensified control in hyperendemic areas	11/92 (12%)	3/92 (3%)	3/92 (3%)

Cutaneous leishmaniasis



In 2022, 205 990 cases of cutaneous leishmaniasis were reported to WHO (205 653 autochthonous and 337 imported), while in 2021 reported cases were 222 784 (222 395 autochthonous and 389 imported). Reporting countries were 58 in 2022 and 64 in 2021.

Information shared by countries indicates that 78% of the cases of cutaneous leishmaniasis reported to WHO are treated by the relevant health authorities. Information on the remaining 22% is missing but it is assumed that a large proportion is in fact also treated. It can be concluded that the vast majority of cases reported to WHO are managed through one or more of the available curative options. In 2022, 99.98% of cutaneous leishmaniasis cases reported globally were treated in six high-burden countries (Afghanistan, Brazil, Colombia, Morocco, Peru and Syrian Arab Republic).

Approximately three quarters of all cases are detected in the Eastern Mediterranean region, with the Syrian Arab Republic and Afghanistan accounting for largely more than 50% of the global burden.

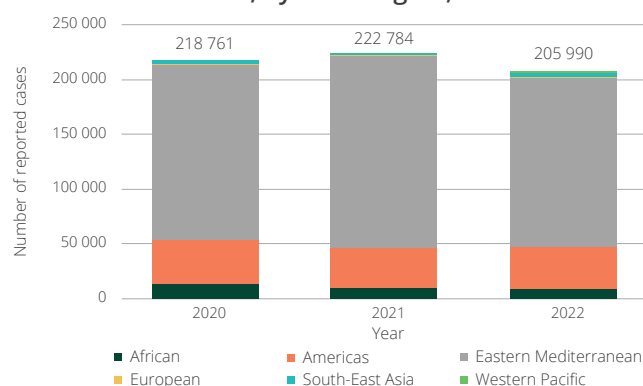


Expanded access to physical therapy (cryotherapy and thermotherapy), integration within the skin NTD approach, and increased supplies of medicines, especially in crisis-affected countries in the Eastern Mediterranean Region, have enabled a progressive improvement of case detection and management. Nevertheless, not all incident cases are detected, and not all detected cases are reported to WHO; in 2022, for example, epidemiological information was not available for five high-burden countries (Algeria, Islamic Republic of Iran, Pakistan, Saudi Arabia and Tunisia).

The true incidence of cutaneous leishmaniasis remains uncertain; surveys are required to generate information and enable reporting against the indicator.

The number of cases of cutaneous leishmaniasis reported to WHO since 2020, by Region, is shown in Fig. 2.31.

Fig. 2.31. Number of reported cutaneous leishmaniasis cases, by WHO region, 2020–2022



WHO target, milestone and achievement

Indicator	Target (2030)	Milestone (2023)	Achieved (2023)
Number of countries in which: 85% of all cases are detected and reported and 95% of reported cases are treated	87/87 (100%)	44/87 (51%)	information not available

Mycetoma, chromoblastomycosis and other deep mycoses



In many countries, systemic fungal infections are not notifiable diseases, which limits the understanding of their geographical distribution, incidence, prevalence and morbidity. In the absence of a surveillance system and a register of cases, information available is usually generated by prospective or retrospective surveys.

In 2023, WHO started collecting information through the GNARF, although this is still fragmentary: in 2022, 2431 suspected or clinical cases of actinomycetoma were reported from seven countries (Cameroon, Ethiopia, Gabon, Kenya, Mauritania, Senegal, and Sudan; one country, Eritrea, reported zero cases); of them, 2158 cases were confirmed by laboratory. Also, in 2022, 7788 suspected or clinical cases of eumycetoma were reported from two countries only, Senegal and Sudan; all cases were laboratory confirmed.

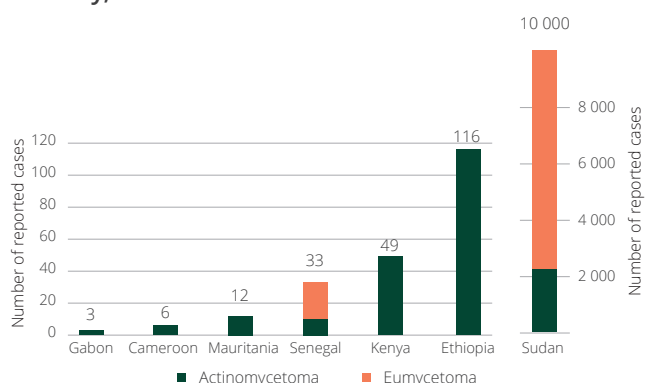
With regard to chromoblastomycosis, only one country, Madagascar, reported 110 clinical cases in 2022, of which 81 were laboratory-confirmed. No cases of paracoccidioidomycosis and sporotrichosis were reported to WHO.

In only a few countries can health systems rely on more effective services for the active or passive detection of cases and their management. These include Brazil, where detection and control of chromoblastomycosis, paracoccidioidomycosis and sporotrichosis are under the responsibility of the Ministry of Health's surveillance services; China, where high prevalence of chromoblastomycosis is recorded especially in eastern provinces such as Guangdong and Shandong; Madagascar, one of the leading global foci of chromoblastomycosis; Senegal, where mycetoma is included in the NTD master plan; and Sudan, where the Mycetoma Research Centre of the University of Khartoum provides diagnostic and curative services to patients throughout the country, and often from neighbouring countries as well.

At global level, progress was also noted with regard to the evaluation of a new medicine (fosravuconazole) and the publication of a TPP for a diagnostic test, both for mycetoma; access to existing treatment for chromoblastomycosis has also improved.

The number of cases of mycetoma reported to WHO for 2022, by country, is shown in Fig. 2.32.

Fig. 2.32. Number of reported mycetoma cases, by country, 2022



WHO target, milestone and achievement

Indicator	Target (2030)	Milestone (2023)	Achieved (2023)
Number of countries in which mycetoma, chromoblastomycosis, sporotrichosis and/or paracoccidioidomycosis are included in national control programmes and surveillance systems	15/30 (50%)	4/30 (13%)	5/30 (17%)

Scabies and other ectoparasitoses



Scabies is ubiquitous, and several countries, notably those with higher income economies, have included management and control of scabies as part of the services they provide to their citizens through the health system; nevertheless, the quantification of the number of such countries is challenging.

In 2023, WHO started collecting information on scabies through the GNARF: a total of 455 870 suspected or clinical cases of scabies were reported from 23 countries for the year 2022.

In addition, 12 countries (Central African Republic, Eritrea, Eswatini, French Polynesia, Jordan, Lao People's Democratic Republic, Malaysia, Morocco, Saudi Arabia, Senegal, Spain and Vanuatu) reported having incorporated scabies management in the universal health coverage package of care.

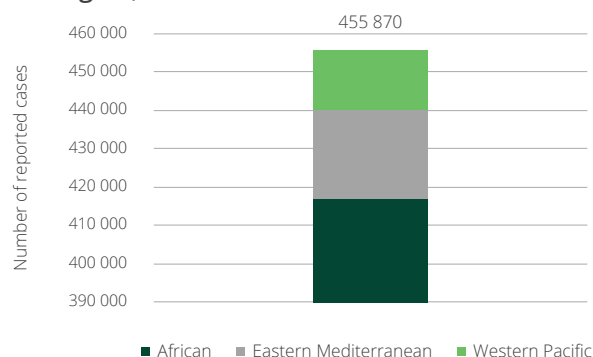
Currently, only two countries report implementing MDA with ivermectin in all endemic districts, namely Fiji and Solomon Islands. In addition, during 2023, population groups were treated with ivermectin, notably in response to outbreaks, in three high-prevalence provinces in Vanuatu and in areas such as Cox's Bazar in Bangladesh. Topical scabicides are still more widely used, for example in the Syrian Arab Republic where a surge of cases has been recorded, notably in camps for displaced people and in earthquake-affected areas.

In line with the recommendations of the *WHO informal consultation on a framework for scabies control* held in 2019 (21), WHO is working towards strengthening both public health control and data reporting on scabies.

A manual for programme managers is being prepared in collaboration with the International Alliance for the Control of Scabies (IACS); it will address technical and operational issues such as mapping, implementation of MDA with ivermectin, and monitoring and evaluation.

The number of cases of scabies reported to WHO for 2022, by Region, is shown in Fig. 2.33.

Fig. 2.33. Number of reported scabies cases, by WHO region, 2022



WHO target, milestone and achievement

Indicator	Target (2030)	Milestone (2023)	Achieved (2022)
Number of countries having incorporated scabies management in the universal health coverage package of care	194/194 (100%)	25/194 (13%)	12/194 (6%)
			Achieved (2023)
Number of countries using MDA intervention in all endemic districts	25	3	2

Snakebite envenoming



Snakebite envenoming is still largely under-reported. As a result, data on mortality and morbidity and on access to antivenoms are limited. Progress in 2023 includes the progressive accumulation of information on epidemiology and distribution of medically important venomous snakes, particularly in the African Region, where a standardized reporting tool has been adopted by 14 countries.

The epidemiological data and snake distribution maps are regularly updated on WHO's Snakebite Information and Data Platform (22). The implementation of the regional action plan for prevention and control of snakebite envenoming in South-East Asia is being promoted and rolled-out following its launch in 2022 (23).

In 2023, WHO released TPPs for conventional animal plasma-derived snake antivenoms for use in sub-Saharan Africa (24). By the end of 2023, three different antivenoms had been endorsed by WHO following a rigorous risk-benefit assessment and are now recommended for procurement by Member States and other parties in the African Region. Whilst the market for these products is sub-Saharan Africa, the manufacturers are located in three different continents thus representing a new benchmark that can be applied to other antivenoms for other regions of the world. Some 26 additional products are under assessment for the African, Eastern Mediterranean and South-East Asia regions.

WHO target, milestone and achievement

Indicator	Target (2030)	Milestone (2023)	Achieved (2023)
Number of countries having achieved reduction of mortality by 50%	132/132 (100%)	32/132 (30%)	information not available
Percentage of new antivenom producers joining market by 2030	25%	5%	information not available
Number of effective treatments for snakebite envenoming available worldwide	3 million	300 000	information not available
Minimum number of WHO-recommended poly-specific antivenom products in each region	6	2	3



Colombia: Sewing customized nets to cover beds and window openings.

© WHO/Catalina Cardenas

Taeniasis and cysticercosis



The programme is relatively new; reliable data on burden of disease are scarce and many countries are still in the process of mapping endemic areas; these include Costa Rica, Nicaragua, Cameroon, Madagascar, Namibia and the United Republic of Tanzania.

As of 2023, intensified control of *Taenia solium* taeniasis is implemented in Cambodia, Honduras, Madagascar and Zambia. In these countries, MDA in some hyperendemic areas is implemented with praziquantel or niclosamide donated by WHO, except in Honduras where the programme also targets soil-transmitted helminthiases and albendazole is used. In Zambia, where taeniasis, schistosomiasis and soil-transmitted helminthiases are co-endemic, there is good cooperation and synergies between the different programmes, and praziquantel or

niclosamide are co-administered with albendazole. In Madagascar, praziquantel is administered to treat both schistosomiasis and taeniasis in co-endemic areas, and is coupled with pig vaccination as a fully-fledged One Health intervention. The lack of resources to implement control activities in the animal sector hinders the effectiveness of the programme in other countries.

Access to antiepileptics for patients affected by neurocysticercosis requires improvement in some regions such as Africa (especially in rural areas), while it is considered satisfactory in others such as Latin America. Access to imaging diagnostics (CT/MRI) is problematic in many parts of the world, with widely differing availability, cost and expertise.

WHO target, milestone and achievement

Indicator	Target (2030)	Milestone (2023)	Achieved (2023)
Number of countries with intensified control in hyperendemic areas	17/64 (27%)	4/64 (6%)	4/64 (6%)

3. Progress under road map pillars

Meeting the 2030 road map targets requires concerted action in areas built on strategic pillars to support global efforts to control, eliminate and eradicate NTDs.

The road map further describes strategic approaches needed to achieve these targets through cross-cutting activities that intersect to change operating models

towards strengthening country ownership of NTD programmes. Highlights of events and accomplishments are summarized below.

3.1 Pillar 1 – Accelerate programmatic action

Programmatic action has been accelerated for the areas identified under Pillar 1 of the road map.

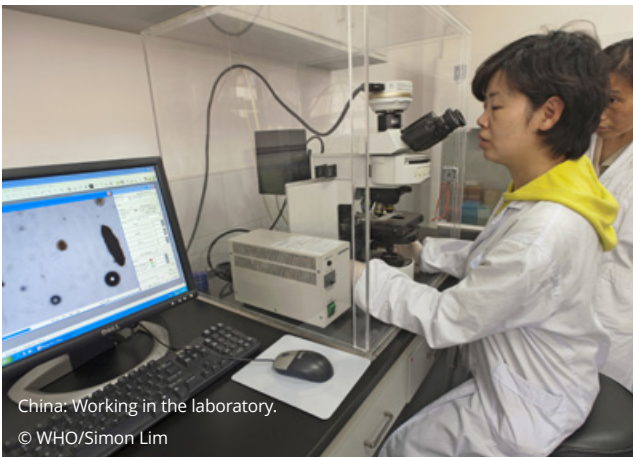
Strategic and technical recommendations have progressed. At its seventeenth meeting (Geneva, 11–12 October 2023), the Strategic and Technical Advisory Group for Neglected Tropical Diseases (STAG-NTD) discussed yaws eradication, One Health, the relationship between climate change and NTDs, and noma (also called cancrum oris or gangrenous stomatitis). Recommendations aimed at advancing the global NTD agenda included the addition of noma to the list of NTDs, bringing the total number of conditions or groups of conditions to 21 (Box 3.1). The recommendation follows the submission of a formal request by Nigeria on behalf of 32 countries and was subsequently endorsed by the WHO Director-General

and publicly announced on 15 December 2023. Work has already started to facilitate the integration of noma in the road map and to foster collaboration between oral health and NTD programmes. The objective of this collaboration is to reinforce all programmatic areas, including surveillance, detection and management of cases, community engagement and capacity-building, advocacy and awareness, research and development, and partnership and resource mobilization.

Numerous technical products and a variety of operational tools of global relevance were published by WHO in 2023, bringing their total to 48. These include an operational manual for vector control of both cutaneous and visceral leishmaniasis (25), a set of tools to facilitate the rollout of preventive chemotherapy for *Taenia solium* taeniasis (26), criteria and procedures for the

Box 3.1. Noma: the latest addition to WHO's portfolio of NTDs

Information on the burden of noma is scarce: most cases are reported from the African continent. Since 2001, the WHO Regional Office for Africa's oral health programme has been expanding support with the aim of strengthening services for noma in the most affected areas – as of 2023, 11 priority countries have been identified, located mainly in West Africa. Approximately 680 cases, including early to late stages of noma, were reported from these priority countries in 2023. Support provided by WHO includes integrating noma prevention and control interventions into national health plans (including skin-NTD activities), and building capacities of primary care workers, oral health professionals and community actors to promote oral health and reinforce early detection and management of noma. Guidance, fact sheets, tools and an online training course have also been developed. Key partners and actors include Hilfsaktion Noma, Médecins Sans Frontières, the Infectious Diseases Data Observatory (IDDO) located at the Centre for Tropical Medicine & Global Health of the University of Oxford, as well as several nongovernmental organizations and patients' associations.



verification of elimination of transmission of gambiense human African trypanosomiasis (27), updated criteria for certification of dracunculiasis eradication (28), guidance to assess interruption of transmission of *M. leprae* and elimination of leprosy disease (29), an entomological manual for onchocerciasis elimination programmes (30) and new recommendations on oral vaccination of dogs against rabies (31). Noteworthy regional publications released in 2023 include the *Regional Action Plan for prevention and control of snakebite envenoming in the South-East Asia 2022–2030* (32) and *Ending the neglect: lessons from a decade of success in responding to neglected tropical diseases in Africa* (33). Several publications reporting on progress made were also released, including the *Global report on neglected tropical diseases 2023* (the first global report published since 2017) (34), as well as 10 articles and several updates published in different issues of the *Weekly Epidemiological Record* (Annex 3).

With regard to global advocacy, key events included the First Global Meeting on Skin NTDs (Geneva, 27–31 March 2023) (35) and the Global NTD Programme Partners' Meeting (Geneva, 12–13 June 2023) (36). World Neglected Tropical Diseases Day was observed on 30 January, pursuant to World Health Assembly decision WHA74(18) (37), under the theme “Act Now. Act Together. Invest in Neglected Tropical Diseases” (38). World NTD Day is one of the 13 global health days and weeks currently recognized by WHO.

As an outcome of advocacy work, NTDs were also mentioned in the *Political declaration of the General Assembly high-level meeting on pandemic prevention, preparedness and response (A/78/L.2)* (39), and in the *Political declaration of the high-level meeting on universal health coverage (A/78/L.3)* (40), both adopted by the United Nations General Assembly on 5 October 2023.

Resource mobilization, both internally within WHO, and externally with the aim of bringing more funding to WHO and the global NTD community of national programmes and national and international actors, has

been identified as a strategic priority of the WHO Global NTD Programme. Consequently, work in this area is progressing, with the profile of NTDs being raised further with visits to parliamentarians in Canada, Germany, Japan and the United Kingdom of Great Britain and Northern Ireland, and participation at events such as the World Health Summit, a G7 side meeting, and, importantly, towards the end of the year, the 28th United Nations Climate Change Conference (COP28), held in Dubai. In the context of the first ever Health Day organized within a COP Conference, during the Reaching the Last Mile Forum 2023, held under the patronage of His Highness Sheikh Mohamed bin Zayed Al Nahyan, President of the United Arab Emirates, and in collaboration with the Bill & Melinda Gates Foundation, more than US\$ 777 million was pledged by the global donors' community. These pledges are poised to enable a major scale up of interventions against lymphatic filariasis and onchocerciasis in Africa and Yemen during the next years, and to contribute to other significant activities directed against other NTDs.

3.1.1 Capacity strengthening

The offer of resources for capacity-building has been progressively strengthened following the launch of the NTD channel on the OpenWHO platform in 2021 (41). The platform currently offers online NTD-related training courses on 26 different topics in 12 languages, bringing the total number of products to 62: these are available in English (26), French (7), Spanish (6), Portuguese (6), Bahasa Indonesia (5), Arabic (4), Russian (3), Amharic (1), Catalan (1), Hausa (1), Hindi (1), and Ukrainian (1). Additional translations are in preparation, both into the above languages, and into new ones such as Chinese and Lao.

As of December 2023, total enrolments in NTD-related courses are more than 128 000, of which:

- 15% have a completion rate of 100% (i.e. have completed all the modules)
- 45% have a completion rate of 1-99% (i.e. have completed at least one module)
- 40% have a completion rate of 0% (i.e. no-show)
- Certificates of achievement were issued after successfully passing the final assessment to 38% of the enrolled

The above courses are located in the OpenWHO platform's NTD channel or in the 'Serving countries' section of the same platform. An online course on WASH and NTDs was released by WHO in 2023.

Three mobile applications developed by WHO in collaboration with partners are currently available: on the road map, on skin NTDs and on supply chain

management. Two more – equipped with artificial intelligence algorithms and a photographic databank – are being developed, one to recognize snail intermediate hosts of schistosomiasis and one to orientate the diagnosis of common skin conditions.

A section dedicated to NTDs has been established on the WHO YouTube channel (@WHO), where official videos are posted. This is complemented by an informal YouTube channel (@NTDworld), which serves as repository for videos and materials related to NTDs (currently their number exceeds 200). Messages related to NTDs are regularly disseminated by WHO's corporate X account (formerly Twitter) in coordination with WHO's Department of Communications.

Less webinars dedicated to NTDs have been organized since movement restrictions due to the COVID-19 pandemic have largely been lifted, but they are still occasionally convened by the Global NTD Programme, also in collaboration with other divisions or departments (e.g. EPI-WIN Webinar: Managing Dengue: a rapidly expanding epidemic on 2 August 2023) (42).

3.1.2 Medicines

Donations of medicines for treatment of NTDs represent one of the largest public health initiatives globally. WHO manages most of these donations, which are regulated by a series of memoranda of understanding signed between the Organization and each of the relevant manufacturers, following a rigorous assessment of the quality of medicines. Currently, 18 different types of medicines are donated to WHO by 10 manufacturers. Such donations cover 11 diseases and are fully managed by WHO (Annex 2). In addition, two manufacturers donate two medicines to national authorities through other entities in support of three disease programmes.

Between 2011 and 2023, over 27.7 billion tablets and vials of medicines have been delivered to countries for the implementation of NTD treatment interventions such as MDA and individual case management, through different donation mechanisms. In 2023 alone, approximately 2.1 billion tablets and vials were delivered, of which over 994 million were managed by WHO and made available to 112 Member States free of charge. Although these figures mark a significant increase from 2022, when only 1.9 billion and 781 million had been delivered to the same number of countries, they are still below pre-COVID-19 levels.

Disruptions caused by the COVID-19 pandemic affected the entire supply chain management cycle for donated medicines, from submission of requests to production, from shipment to customs clearance to in-country distribution of medicines and reporting



on their utilization. In 2023, the outlook has improved significantly, although challenges remain, mainly due to uncertain and unpredictable funding for distribution of medicines, which limit demand for medicines and hampers forecasting of needs. In addition to reduced treatment of those in need, this situation has been responsible for the expiration of important quantities of medicines, either at manufacturing sites or in-country, especially for products with a relatively short shelf-life (e.g. praziquantel for schistosomiasis and chewable mebendazole for soil-transmitted helminthiasis).

Disruptions to treatment interventions and efforts to prevent expiration of medicines prompted WHO to work with recipient countries to implement stringent monitoring of available stock balances, improve inventory management practices, and account for all the medicines received. These measures have enabled countries to retrieve, at national and subnational levels, significant balances of undistributed medicines which were therefore reported as available stock balances in the medicine requests for 2023 and 2024, thus reducing the need for fresh supplies.

Notwithstanding the persisting impact of COVID-19, structural challenges continue to affect the supply management cycle for NTD medicines. These include: late or incomplete submission of the request for medicines; late review, approval or clearance of the request; late granting of the greenlight to shipment by the recipient country; delayed clearance through customs; limited availability and inadequacy of warehouses; insufficient resources for in-country distribution; poor stock management practices.

In order to address these challenges, in 2023 WHO facilitated the establishment of a Global Oversight Committee with membership extended to a wide range of actors, with the aim of reviewing and monitoring medicine applications, coordinating all stakeholders and creating a supportive operational platform to enable frank discussion, address outstanding issues, identify best practices and encourage country-led solutions.

Action has also been taken to facilitate uptake by national, regional and district and community-level stakeholders of the standard operating procedures for supply chain management of NTD health products (43). Information technology resources on supply chain management include an online course available on the OpenWHO platform and a mobile application.

Some countries in the South-East Asia (India, Indonesia, Nepal), Western Pacific (the Philippines) and Eastern Mediterranean (Egypt and Sudan) regions procure or produce medicines for preventive chemotherapy locally. In 2022 alone, such supplies amounted to 2.3 billion tablets (ALB, MEB, DEC and PZQ).¹ This practice follows government policies encouraging local production, marketing and sustainability; in addition, WHO cannot meet all the needs for medicines (e.g. for DEC² for India). WHO encourages local sourcing of medicines, provided these are of assured quality. This is why since 2001 WHO has established processes for prequalification of medical products, including medicines. As of December 2023, the total number of WHO-prequalified finished pharmaceutical products for NTDs is nine, while that of prequalified active pharmaceutical ingredients is eight. WHO has also continued the dialogue with existing and potential pharmaceutical companies for low-cost procurement process (e.g. for ivermectin and sodium stibogluconate).

In 2023, WHO has released the first ever list of paediatric formulations whose prioritization for research, development and access within a time horizon of 3–5 years is considered necessary in order to advance the global NTD agenda. The list includes six medicines for treatment of five NTDs: acoziborole for human African trypanosomiasis, ivermectin and moxidectin for scabies and onchocerciasis, L-praziquantel for schistosomiasis and miltefosine and amphotericin B for visceral leishmaniasis. The compilation of the list is based on the results of a “Paediatric Drug Optimization” (PADO) exercise and has the aim of fostering investments

to complete the development of these formulations, support their production and facilitate their access. WHO has also released a “watch list” containing promising NTD paediatric formulations that are candidates for investigation and development within a time horizon of 5–10 years. This list includes emodepside and oxfendazole for scabies and onchocerciasis, and LXE408 for visceral leishmaniasis (44).

Finally, it is worth noting that in December 2023, arpraziquantel, the paediatric formulation of praziquantel developed by the Pediatric Praziquantel Consortium, received a positive scientific opinion from the European Medicines Agency for the treatment of schistosomiasis in preschool-aged children (45).

3.1.3 Diagnostics

Although no donation programmes are in place for NTD diagnostics to date, in 2023 WHO facilitated the procurement of over 1.1 million individual tests for Buruli ulcer, Chagas disease, human African trypanosomiasis, lymphatic filariasis, visceral leishmaniasis and yaws, an increase of over 80 000 tests from 2022; procurement of diagnostics through WHO is made possible thanks to financial contributions from various partners.

Innovation has been fostered to fill existing gaps in NTD diagnostic tools; 20 TPPs for diagnostics against 11 diseases have been developed so far (Annex 4). Two diagnostic TPPs were released in 2023: one for a test to detect *Mycobacterium leprae* infection among asymptomatic household and familial contacts of leprosy patients for post-exposure prophylaxis regimen (46), and one on a test to confirm leprosy in individuals with signs and symptoms (47). In addition, a TPP for animal plasma-derived antivenoms for the treatment of snakebite envenoming in sub-Saharan Africa (24) was also published in 2023, bringing the total number of TPPs to 21, against 12 diseases.

During 2023, WHO launched a pilot Expert Review Panel for Diagnostics (ERPD) for NTDs, which is expected to facilitate smaller/medium sized manufacturers of NTD diagnostics in gaining WHO endorsement for their products, reassure countries of quality assurance about diagnostic tests available in the market, and foster accessibility. Accordingly, two calls inviting manufacturers to submit expressions of interest for product evaluation were issued in 2023, one on k39 rapid diagnostic tests for visceral leishmaniasis, and one on rapid diagnostic tests for lymphatic filariasis.

Within WHO, the Global NTD Programme connected with the Access to Medicines and Health products division, which is working on diagnostics and laboratory, to align WHO’s contributions and impact on diagnostics.



¹ Albendazole, mebendazole, diethylcarbamazine citrate and praziquantel.

² Diethylcarbamazine citrate.

A WHO diagnostic task force has been established across WHO departments to follow up on resolution WHA76.5's recommendation for strengthening diagnostics capacity where local capacity strengthening is the key area identified. The resolution was adopted by the Seventy-sixth World Health Assembly on 30 May 2023 (48).

3.1.4 Monitoring drug efficacy and resistance

The development and/or potential emergence of drug resistance against certain medicines for NTDs, in specific areas and populations, is a threat to treatments that have proven to be highly successful in the past. The progressive emergence of treatment failure is a well-known phenomenon in kinetoplastid NTDs and leprosy. Resistance to anthelmintic medicines is a serious concern that the veterinary sector has faced in recent years, as most of the medicines used in this area are also used to treat parasitic infections in animals.

Various levels of resistance have been reported from the field in relation to medicines used to treat human African trypanosomiasis (melarsoprol) and, in the past, to pentavalent antimonials and miltefosine employed for the treatment of visceral leishmaniasis. Antimicrobial

resistance has been reported almost in all leprosy medicines (dapsone, rifampicin and ofloxacin) in different countries.

WHO guidance for monitoring antimicrobial resistance is available for leprosy (49). Controlled distribution of donated medicines has allowed WHO to support targeted pharmaco-epidemiological surveillance systems to closely monitor their standardized use, safety and efficacy, in over 50 countries. Guidance is also available to monitor drug efficacy for medicines used against schistosomiasis and soil-transmitted helminthiases, for which resistance has not yet been detected in humans (50). Currently, schistosomiasis and STH programmes are being monitored in 10 countries through a standardized protocol.

Most NTD programmes depend on a variety of medicines to scale up interventions for the control, elimination and eradication of these diseases. Closely monitoring drug efficacy is essential, therefore, as is instituting surveillance mechanisms for the monitoring of resistance, defining strategies to delay or curb resistance, and developing an appropriate arsenal of second-line medicines to ensure the continued efficacy of antimicrobials for the treatment of NTDs.

3.1.5 Gender, equity and human rights

Barriers related to gender inequalities, discrimination and other social and economic factors disproportionately impact women, as well as those facing disabilities (16% of the world's population), refugees and migrants (12% of the world's population) and indigenous peoples (6% of the world's population). As of 2021, approximately 1.3 billion people have a disability. This number has increased substantially during the past decade due to different demographic and epidemiological changes such as population growth and extended lifespan, meaning that those affected by disabilities live longer and age with limitations in functioning (51,52). These are often the same populations among whom the highest prevalence of NTDs persists.

At global level, some attention has been given towards addressing gendered NTD inequalities. For example, important efforts are being made by the female genital schistosomiasis Integration Group (FIG), which gave oral evidence to the UK Parliament's International Development Committee inquiry on UK Aid's impact on sexual and reproductive health and rights (SRHR), Women Deliver Conference (Kigali, Rwanda, 17–20 July 2023) and International Conference on AIDS and STIs in Africa (Harare, Zimbabwe, 4–9 December 2023). Another example relates to vector control activities, which are an essential component of the interruption



of transmission cycles of several vector-borne NTDs. The unregulated use of pesticides impacts people around the world, contaminating their lands, waters, food and ecosystems, undermining their reproductive and intergenerational health, and threatening their cultures and ways of life with profound and devastating results. In 2022, considerations of the effects of the unregulated use of pesticides and their differential impact on marginalized and indigenous populations led to the amendment of the international code of conduct on pesticide management in response to United Nations Special Rapporteur for human rights' recommendations on the environmentally sound management and disposal of hazardous substances and wastes. Consequently in 2023, WHO, FAO and other actors have collaborated in the development of technical guidance on sustainable pesticide management for the benefit of Member States, which NTD programmes are adopting (53).

The outgoing UN Special Rapporteur on the elimination of discrimination against persons affected by leprosy and their family, Ms Alice Cruz, presented thematic reports on her work to the 53rd regular session of the Human Rights Council, which met in Geneva in June 2023 (A/HRC/53/30) (54), as well as to the 78th

session of the General Assembly, which met in New York in October 2023 (A/78/173) (55). These reports presented an account of the progress made towards reducing the stigma and social exclusion associated with this condition, and of the challenges faced by affected persons and their families; she also formulated recommendations that would inform the mandate of her successor, Dr Beatriz Miranda Galarza, who started her term on 1 November 2023.

The epidemiology of NTDs offers pragmatic opportunities to monitor progress at all levels, which should be better measured along the axes of gender, equity and human rights. However, this work is still incomplete without a holistic view across all NTDs or even within a specific disease. Without better understanding of the root causes of inequalities to access of interventions against NTDs through the lens of gender, health inequity and neglect of human rights, achieving and sustaining the gains from the shifts advocated in the road map to 2030 will be very difficult. Key improvements are required to strengthen the systematic collection of data disaggregated by gender, age-groups and key stratifiers on social determinants of health in order to inform programme actions towards equitable delivery of NTD interventions.

3.2 Pillar 2 – Intensify cross-cutting approaches

Cross-cutting approaches have been intensified in three different areas: integration across NTDs, cross-sectoral coordination and mainstreaming within national health systems.

3.2.1 Integrating across NTDs

Integration among different NTDs has focused on two main areas, the consolidation of the preventive chemotherapy strategy and the roll-out of the skin-NTD approach.

The list of diseases amenable to preventive chemotherapy has been widened following the publication of WHO guidelines recommending this strategic intervention for the public health control of *Taenia solium* taeniasis in 2021 (56). In 2023, additional guidance to support the roll-out of preventive chemotherapy against taeniasis was published on mapping for identification of endemic and high-risk areas (57), on criteria to exclude people with symptoms and signs of neurocysticercosis from treatment (58) and on the early detection and management of neurological symptoms following administration of anthelmintics (59). This set of guidance has facilitated the scale-up of MDA with praziquantel or niclosamide in Cambodia, Madagascar and Zambia, and with albendazole in Honduras. Discussions are also ongoing

to expand access to single-dose rifampicin so as to enable the scale-up of post-exposure prophylaxis to contacts of detected leprosy cases, in an effort to reduce incidence of new cases and onward transmission of *Mycobacterium leprae*.

The skin-NTD approach is rapidly imposing itself as a powerful resource to address the burden of at least 10 diseases with dermatological manifestations, as shown by the interest elicited by the first global meeting on skin NTDs (Geneva, 27–31 March 2023) (35). A wide choice of online courses dedicated to NTDs with skin manifestations is available on the OpenWHO platform, and a new version of the WHO Skin NTDs mobile application was developed in collaboration with NLR (until No Leprosy Remains) and released in 2023. A further version of the application, equipped with two artificial intelligence algorithms aimed at orientating the diagnosis of skin NTDs and 24 additional common skin conditions through a photographic databank, will be field-tested in 2024–2025. To address the burden of skin NTDs more effectively and efficiently, WHO is encouraging countries to add skin NTD screening

activities to other health interventions; in this regard, several countries are implementing pilot activities to assess the feasibility of the different types of integration, as well as their relevant advantages and possible disadvantages.

3.2.2 Cross-sectoral coordination

Coordination between NTD programmes and other health programmes, and between the health sector and other sectors has also progressed, notably for One Health, the global vector control response, WASH and health emergencies.

To support countries in implementing effective rabies control programmes, the National Bridging Workshop on Rabies (NBW-R) aiming to increase One Health collaboration for rabies control was piloted in Ghana (August 2022) and Bali, Indonesia (April 2023). The primary objective of this workshop is to improve coordination among the different sectors and disciplines by increasing understanding and recognition of their contributions to rabies control and by facilitating an in-depth analysis of collaboration gaps in rabies prevention and control within the host countries (60).

The *Global vector control response 2017–2030* (61) has been strengthened by activities supported by the Global NTD Programme, such as review of country-level programmes and capacities for surveillance and control, build-up of preparedness and response, update of

guidance and operational tools, and implementation of capacity strengthening activities, with the aim of improving case-management and decrease case-fatality rates. The Global Arbovirus Initiative was launched on 31 March 2022 as a cross cutting strategy to deal with epidemics of four arboviruses transmitted by *Aedes* spp. Together with the global vector control response, it provides a framework for the implementation of integrated vector management. The Global Arbovirus Initiative's goal is to strengthen the coordination, communication, capacity-building, research, preparedness and response necessary to mitigate the growing risk of epidemics. Further work is in progress to align impact of climate change and urbanisation. Publications released in 2023 on vector control include set of recommendations on insecticide discriminating concentrations for monitoring resistance in sand fly vectors of leishmaniasis, and an extensive review on insecticides, insecticide resistance, mechanisms of resistance and standard test procedures in countries in WHO's South-East Asia region.

Application of the WASH strategy to NTD activities has somewhat benefited from the COVID-19 crisis, which widely increased practices such as hand-washing, although the impact of these efforts on transmission of relevant NTDs is yet to be fully appreciated. An online training course dedicated to the prevention and care of NTDs through WASH was released by WHO in 2023, with the aim of encouraging further synergism between these two programmes, in line with the WASH-NTD strategy released in 2021 (62). This companion document to



the road map complements the WASH-NTD toolkit, the second edition of which was released in 2023 (63).

To further strengthen its cross-cutting and systems-based approach to disease control, in 2023, the WHO Global NTD Programme engaged with the leadership of the WHO Health Emergencies Programme to ensure collaboration in emergency settings and continuation of support to NTD programming and resources during health crises.

Collaboration with health emergencies programmes has been ongoing for several years, notably in the area of vector-borne diseases such as cutaneous and visceral leishmaniasis, chikungunya, and especially dengue. In addition, new operational linkages have recently been established in the field, for example with regard to the response to the outbreak of visceral leishmaniasis in the South Omo region of Ethiopia, or to the outbreak of tungiasis in South Sudan, for which a three-level organizational response for technical assistance was effected.

This collaboration is expected to be more formally sanctioned by the establishment of an accelerated dracunculiasis eradication programme, that would benefit from a more direct involvement of health emergencies programmes. This and other NTD flagship programmes have been identified with the aim of uniting efforts and maximizing WHO's output towards a defined, measurable goal.



South Sudan: A person affected by dracunculiasis walking towards the nearest case containment centre.

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The potential role of NTD programmes as a platform for pandemic preparedness has been highlighted, with the consequence that including NTD interventions in national epidemic response and pandemic preparedness plans will lead to stronger health systems and workforces that are better equipped to detect and respond to both existing epidemics and new global health threats. Decreasing efforts against these diseases can result in a large-scale resurgence of infections that would be even more costly to address – and with potentially disastrous consequences – as evidenced in a study to assess the impact of chikungunya on health costs during the epidemic on Réunion island in 2005–2006 (64).

The single specific mention of NTDs in the *Political declaration of the General Assembly high-level meeting on pandemic prevention, preparedness and response*, adopted by the United Nations General Assembly on 5 October 2023 (A/78/L.2) (39), has left many actors in the global NTD community disappointed. It is hoped that the Pandemic Prevention, Preparedness and Response Accord which is currently being negotiated by WHO Member States and is expected to be submitted for consideration by the 77th World Health Assembly in May 2024, will include more detailed reference to the need to maintain essential health services, including NTD services, in the context of health emergencies such as pandemics.

In this regard, it is worth reminding that NTD services were among the most frequently and severely disrupted by the COVID-19 pandemic, and that although the most recent (fourth) round of the WHO pulse survey on continuity of essential health services during the COVID-19 pandemic (carried out between November 2022 and January 2023) registered some improvement in implementation of NTD activities, it also showed that the impact of disruptions remained significant during the period considered, in terms of community-based interventions, health facility-based services, and capacity to respond to NTD outbreaks. It is in the interest of all countries and stakeholders to ensure the inclusion of NTDs in epidemic and pandemic preparedness and response efforts.

3.2.3 Mainstreaming within national health systems

During 2023, efforts were dedicated to streamlining, integrating and mainstreaming processes. Work focused on two areas: positioning of NTDs within universal health coverage, and data collection, analysis and management for monitoring and evaluation of NTD programmes.

As highlighted above, NTDs were mentioned in the *Political declaration of the high-level meeting on universal*

health coverage, adopted by the United Nations General Assembly on 5 October 2023 (A/78/L.3) (40). This is the outcome of advocacy work carried out by WHO and the global NTD community with the aim of seeing coverage of NTD interventions recognized as a tracer for equity on progress towards universal health coverage. Although this aspect does not seem to have been explicitly acknowledged by the text of the declaration, the text indeed calls for more “efforts to address the specific physical and mental health needs of all people as part of universal health coverage [...], by advancing comprehensive approaches and integrated service delivery”. Furthermore, the declaration “recogniz[es] the fundamental role of primary health care in achieving universal health coverage and other Sustainable Development Goals and targets”; it is foreseeable that a reinforcement of primary health care will benefit NTD interventions, which largely implemented at the peripheral level of the health system.

With regard to data collection and analysis, WHO is embarked in a corporate effort to strengthen routine health information systems (RHISs) to improve the use of health service data which are essential for patient management, facility management, disease surveillance, stock management and monitoring of service provision and resource use (65). In line with this, the WHO Global NTD Programme is working to develop a toolkit and modules to facilitate the integration and mainstreaming of NTDs into national RHISs.

The RHIS toolkit for NTDs consists of a series of general and programme-specific modules that contain guidance documents, electronic configuration packages and training materials. It promotes an integrated approach using a limited set of standardized core indicators with recommended analyses, visualizations and dashboards. This guidance can be applied to any type of data management software. However in response to expressed country interests and with the collaboration of the University of Oslo, some of the modules are being digitalized for countries that use DHIS2. The overall guidance and disease-specific modules for rabies, Buruli ulcer and schistosomiasis are being finalized for release in 2024, to be followed by the remaining disease-specific modules. RHIS modules for cross-cutting approaches such as vector control and supply chain are also being developed.

The RHIS modules for NTDs will reduce the administrative burden of reporting by countries and minimize data fragmentation within and beyond NTD programmes. The modules will enable the mainstreaming of NTD information pathways into national systems from health facilities, increase access, visibility and use of the NTD programme data in national health strategic planning, budgeting and review processes. They will be periodically reviewed

and updated to ensure alignment with the most recent guidelines and evidence and its evolution and improvement over time.

Additionally, efforts have been made to improve the gap assessment methodology used to track progress against the 11 dimensions for programmatic support as categorized in the NTD road map's Fig. 7, and to implement the gap assessment tool (GAT, Box 3.2). As a result, an updated heat map for NTDs from 2019 version will be published in 2024 along with an update on specific actions required to further accelerate and maintain progress towards 2030 goals.

Furthermore, the Global NTD Programme engaged with WHO's corporate response to recommendations made by the Executive Board (EB146/3, 3 February 2020) (66) to streamline data management and reporting by all programmes through the World Health Data Hub (A74/8, 10 May 2021) (67). These processes aim at minimizing fragmentation of mechanisms for collection of information, reducing the administrative burden of reporting by Member States to WHO, and ensuring timely, reliable disaggregated and actionable data.

During 2023, action was taken to improve the range of forms used by WHO to facilitate the exchange of information related to NTDs with its Member States.

The GNARF was developed and formally released for use in 2023, to enable the integrated collection from WHO Member States of data for quantitative and qualitative road map indicators generally not reported to WHO. A dedicated country portal was created for each Member State to access and submit the GNARFs. The most immediate contribution made by GNARF has been towards obtaining data that are included in the present report and for reporting purposes to the 77th World Health Assembly in May 2024.

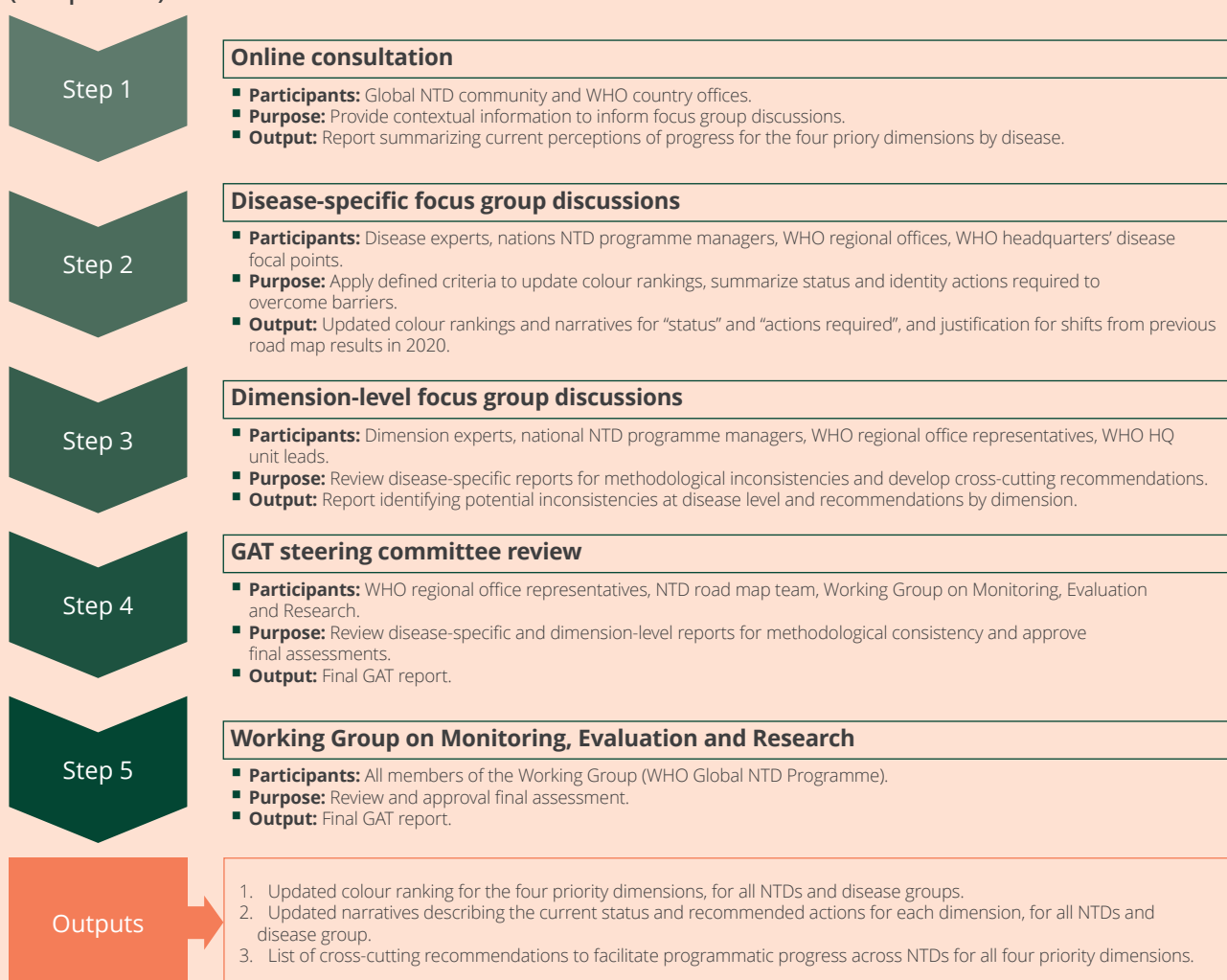
The GNARF was introduced to Member States in the African, Eastern Mediterranean, Western Pacific and European regions. A total of 60 countries submitted the GNARF through the WHO Country Portal at <https://countryportal.who.int/>: 28 (60%) of 47 countries in the African region, 15 (83%) of 18 countries in the Eastern Mediterranean Region, 3 (6%) of 53 countries in the European region and 14 (52%) of 27 countries in the Western Pacific region. As such, a 41% submission rate was attained during 2023 as the inaugural year.

In 2023, work was carried out to further improve uptake and use of the PC Joint Application Package (JAP). The tool aims to facilitate the process of application for NTD medicines for preventive chemotherapy interventions by national health authorities, the review and reporting of data on implementation of such interventions, and the coordination and integration among different programmes. The current set includes four forms (the

Box 3.2. Implementation of the 2023–2024 gap assessment to update the road map

In 2019, WHO initiated an extensive qualitative consultation to identify the cross-cutting and disease-specific actions required to attain the road map targets and generate heat map colour rankings to signify the progress status of such actions (see Fig. 7 in the road map). That prototype process paved the way for the development of a refined methodology by the STAG-NTD Working Group on Monitoring, Evaluation and Research, called the gap assessment tool (GAT). The GAT is being implemented in the 2023–2024 reporting period with the aim of updating the original heat map included in the road map. Three inputs inform the gap assessments for the 20 groups of NTDs: (i) global NTD community and country online surveys; (ii) disease-specific focus group discussions; and (iii) dimension-specific (cross-disease) focus group discussions. The GAT process is shown in the figure below.

Visual representation of the improved gap assessment to update the NTD heat map 2023–2024 (GAT process)



As a first step, the Working Group completed a rigorous review of criteria for each of the 11 dimensions to ensure objective, comprehensive and standardized assessments. In 2023, it focused on four dimensions (diagnostics; monitoring and evaluation; access and logistics; and advocacy and funding).

Work is still ongoing, and the key outputs from the GAT exercise will be an updated heat map showing progress and challenges towards the 2030 targets.

A total of 25 disease-specific focus group discussions updating four dimensions has been completed. The full set of GAT results will be published in 2024.

Joint Request for Selected Preventive Chemotherapy Medicines, the Joint Reporting Form, the Epidemiological Data Reporting Form and the Annual workplan). Version 1 of the JAP was released in 2013. Since then, WHO has been collecting feedback from countries and partners on its use to improve the tool. Several versions have been released since 2013 to address comments and suggestions received from end-users, such as customization, data validation, analysis of reported data, adaptation to the new strategies and improvement of functionalities and interface. The last version of JAP (version 4) was released in August 2023. The forms are available in English, French and Spanish. Any countries requiring PC for lymphatic filariasis, onchocerciasis, schistosomiasis and soil-transmitted helminthiasis can request medicines and submit data using the JAP. During the last submission cycle (2023), 78 countries submitted reports on implementation of preventive chemotherapy, 26 countries reported epidemiological data and 65 countries submitted requests for preventive

chemotherapy medicines to be distributed in 2024. In an effort to foster integration and reduce administrative burden for Member States, the JAP was also adapted for reporting and requesting medicines for echinococcosis, some of the foodborne trematodiasis (clonorchiasis and opisthorchiasis), taeniasis and yaws.

Overall, a total of 187 Member States and 24 areas and territories reported information on at least one NTD to WHO.

Finally, efforts have been made to boost data visualization through interactive dashboards. Information reported by Member States is presented in an up-to-date NTD road map tracker (launched in 2022) and NTD country profiles (launched in 2023), published online on WHO's website (68). Work towards the development of a third dashboard dedicated to NTD disease profiles is ongoing.

3.3 Pillar 3 – Change operating models and culture to facilitate country ownership

Countries are both the drivers and the beneficiaries of progress towards the road map targets for 2030, and country ownership is essential for meeting the 2030 NTD targets. Meeting the targets set in the road map requires important shifts in the culture of work among stakeholders in favour of national NTD programmes.

3.3.1 Sustainability

Preserving the impact of NTD interventions requires sustained implementation of key interventions to prevent and treat NTDs. Member States, with the support of stakeholders, are increasingly using the WHO M&E framework (4) to inform the development of sustainability plans for national programmes which typically take 8–16 months to complete. When finalized, they present a consolidated 5-year actionable plan for mainstreaming NTDs into routine health service platforms and national budgets. These government plans are comprehensive in terms of the diseases they include and are specific to individual country needs, with benchmarks defined by the countries' health ministries.

To date, 11 USAID-supported countries have developed national NTD sustainability action plans, of which nine have been validated by the political leadership. These

include Côte d'Ivoire (2020), Senegal (2021), Uganda (2021), Togo (2021), Ghana (2021), United Republic of Tanzania (2022), Ethiopia (2022), Niger (2022), Sierra Leone (2023), Mali (2023) and Burkina Faso (2023). More countries in West Africa are starting the sustainability planning process. Additionally, a number of countries, including Ethiopia, United Republic of Tanzania and Yemen, are requesting support for conducting mid-term reviews towards informing sustainability action at country level.

Even though similar principles are applied towards a common goal, each country's process, experience and desired outcomes for sustainability are quite different and provide important peer-to-peer learning for programmes (Box 3.3). Consequently, monitoring global progress of sustainability requires common understanding of outcomes from cross-cutting activities related to coordination, integration and mainstreaming of NTD programme action into national health systems. Ten indicators for tracking country and global progress towards sustainability of NTD programmes have been described (68). WHO is working with Member States to strengthen data collection, reporting and use for these 10 indicators.

Box 3.3. Country examples of sustainability for national NTD programmes

Ghana - expanding NTD coverage in the national health insurance scheme

Ghana's national health policy is centred on a commitment to achieve universal health coverage. The national health insurance scheme (NHIS) was introduced in 2003 to replace the cash-and-carry system for paying for health-care services at the point of receiving care and has become a key mechanism for ensuring health equity and social protection. Its quest to sustainably provide morbidity management and disability prevention care to individuals affected by NTDs through the existing health system is gaining traction. Beyond meeting the need to provide care without exposing individuals and their families to catastrophic health expenditures, NHIS is now being regarded as a potential solution to overcome both perceived and experienced financial barriers that contribute to late presentation and worse NTD disability outcomes.

Since 2022, the Intra-Country Coordination Committee for NTDs (ICCC) within the Ministry of Health and the Ghana Health Service has been working on expanding the NHIS coverage for NTDs with support from the USAID's Act to End NTDs | West Program. A comprehensive desk review was performed following a meeting in June 2022 to sensitize stakeholders on the framework for expanding the NHIS benefits package with respect to NTD services. This was followed by technical consultations to develop a comprehensive costing framework to guide the inclusion of NTD services within the NHIS benefits packages and revision of all NTD management protocols for submission to the Ministry of Health's Standard Treatment Guidelines Committee. These now serve as the basis for the revision of Ghana's Essential Medicines List and NHIS' benefits package. ICCC has facilitated a high-level consultation with decision-makers to seek commitment to including new NTD services within NHIS and shared a policy brief and formal request to complete the expansion of the NHIS benefits packages.

Uganda - ensuring sustainable systems for combatting NTDs

Uganda's NTD programming represents an important lesson for sustainability that could be replicated elsewhere. Uganda has initiated domestic resource mobilization, with three districts allocating budgets for NTDs. This landmark was achieved through systematic data-driven advocacy. A landscape analysis was conducted to identify the relevant stakeholders, determine the existing barriers and design applicable strategies targeting effective domestic resource mobilization. Tracking financial and programmatic data from existing NTD interventions throughout the country accelerated understanding of local budgeting cycles and identified optimal entry points for periodic evidence-based advocacy.

Uganda plans to increase domestic financing of the total NTD budget from 12% in 2020 to 30% by 2025. This will reduce dependence on donor support and boost the sustainability journey towards achieving the road map 2030 targets. A tool for enhancing resource mobilization and allocation for NTDs in districts has been developed and approved by the Ministry of Health to provide them with comprehensive guidance on planning and budgeting for NTDs. Monitoring existing programmes continues to build the evidence base to inform advocacy messaging. Plans for further high-level engagement with key stakeholders such as the health parliamentary committee are under way to increase visibility and domestic funding for all NTDs of public health importance in Uganda.

3.3.2 Costing the road map

In 2023, an informal Costing Task Team was convened by the WHO Global NTD Programme to collect information on the resources needed to implement the road map. The Bill & Melinda Gates Foundation, in collaboration with the Costing Task Team, has worked on costing of delivering the 2030 road map targets for seven diseases during the time frame 2023–2030. Discussions are ongoing on the results of this exercise and how it will feed into future workplans. Notably, the development of a costed implementation plan for the second 5 years

of the road map (Global Action Plan 2025–2030) was endorsed by the seventeenth meeting of the STAG-NTD (Geneva, 11–12 October 2023) as a key priority (69). The plan would detail the activities required year by year to achieve the overarching, cross-cutting and disease-specific targets, including a timeline, roles and responsibilities, and estimated cost.

Unlike some high-profile diseases or intervention programmes that have a pooled funding mechanism, NTD programmes have diverse and often one-disease international donors. This makes it difficult to build an integrated picture of the global financing situation for



NTD programmes. Nevertheless, the financing difficulties faced by WHO's Global NTD Programme could be representative of the wider picture: since the onset of the COVID-19 pandemic, the Programme has faced funding withdrawal or cuts from several major donors, which continue to cause severe budget restrictions and have led to a significant reduction in workforce.

In 2023, ESPEN conducted a comprehensive mapping of the financial landscape in 26 African countries that planned MDA campaigns (ESPEN, unpublished data, 20 November 2023). The findings revealed significant funding gaps¹ for MDA planned in 2024 against lymphatic filariasis, onchocerciasis, schistosomiasis, and soil-transmitted helminthiasis: depending on the disease, 10% to 35% of the implementation units were found to be without secure funding to cover the cost of their planned MDA campaign. The funding gap for monitoring and evaluation activities was even more pronounced, ranging from 11% to 46%. Moving into 2024, these challenges are expected to persist, with significant shortfalls reported in countries like Chad, Equatorial Guinea, Eritrea, Gabon, Gambia, Guinea-Bissau, Mozambique, Niger, South Sudan and Uganda, thus jeopardizing the delivery of MDA and the effectiveness of M&E, which are vital for disease control and elimination progress.

Data allowing for tracking expenditure made by NTD-endemic countries on NTD programmes mainly come from WHO's global health expenditure database (GHED).

¹ Defined as the number of implementation units that require preventive chemotherapy interventions (MDA) in 2024 and that, at the time of conducting the enquiry, had not yet secured funding to cover the cost.

The number of countries reporting on NTD expenditure increased annually since 2013 and reached its peak in 2018. Data from 29 low and lower-middle-income countries in 2018 were used to illustrate national investment in NTD programmes in the *Global report on neglected tropical diseases 2023* (34).

However, since 2018, the number of countries reporting fully disaggregated health expenditure data by disease (including NTDs) has been decreasing quickly. In 2020, only six countries reported expenditure on NTDs, including zero expenditure, in the GHED, which is not sufficient to constitute a representative sample for global analysis.

Lack of economic data has become a key obstacle to effective advocacy for investing in NTD interventions. One way to address this, without overburdening countries, is to support countries in recording their national expenditure on NTD programmes through a health account exercise with full disease disaggregation; that is, an accounting framework for systematically tracking health spending.

There is a general consensus that increased mobilization of resources from both partners and donors, as well as from domestic national budgets are key factors to enable the achievement of the 2030 road map targets, amidst the turmoil generated by the COVID-19 pandemic and the competing priorities generated by a volatile international situation.

To support more efficient resource mobilization, WHO has been increasing efforts to generate information on the resource needs of different initiatives. At global level,

as mentioned, the development of the Global Action Plan 2025–2030 is meant to provide key information.

In parallel, at regional and country level, WHO has also intensified work towards generating economic information for resource mobilization. In 2023, WHO promoted the creation of an initiative aimed at eliminating visceral leishmaniasis in eastern Africa. This initiative was accompanied by a financial resource requirement plan encompassing nine countries.¹ The plan included estimates of the cost for implementing priority interventions recommended by WHO in the target countries during the period 2023–2030.²

To evaluate the feasibility, added value and impact of integrating interventions directed against different NTDs, WHO also supported a pilot activity in Côte d'Ivoire aimed at integrating screening for skin NTDs into a planned MDA campaign against schistosomiasis. The integrated intervention was successfully conducted in June 2023 in two districts in Côte d'Ivoire. The data on the cost and impact of such integration have been collected and are currently being analysed in view of their dissemination.

3.3.3 Additional action

The effort to change operating models and culture has also relied on a diverse set of actions.

The facilitation of the development of national NTD master plans has aimed at ensuring that countries

have up-to-date documents aligned with the road map, its companion documents and other relevant WHO guidance. As of December 2023, more than 50 NTD-endemic countries have a master plan; some plans have now reached the third generation. NTD master plans are essential strategic documents for governments to effectively plan and implement sustainable NTD programmes in concertation with all relevant stakeholders. They are expected not only to reinforce national ownership but also to establish programmatic priorities and strengthen the health system and other sectors to deliver NTD services more effectively and efficiently. The translation of master plans into detailed and budgeted annual workplans can represent the first step towards addressing specific challenges in a timely and action-oriented manner and serve as a core subject of discussion in the process of establishing country coordination platforms facilitating exchange of information among all actors.

Other activities aimed at reinforcing coordination, promoting a sense of oneness, and progressing towards a shared purpose included the establishment of a network that brings together the more than 50 WHO Collaborating Centres working on NTDs, which was launched on World NTD Day 2023, through a dedicated webinar convened at the initiative of the WHO Collaborating Center for Tropical Diseases, Institute of Parasitic Diseases (IPD), Chinese Center for Diseases Control and Prevention (China CDC).

¹ Chad, Djibouti, Eritrea, Ethiopia, Kenya, Somalia, South Sudan, Sudan and Uganda.

² The financial resource requirement plan is an unpublished WHO document (2023).

4. Regional and country progress

The inclusion of NTDs into strategic regional frameworks for disease control is an important demonstration of leadership and commitment to combatting NTDs.

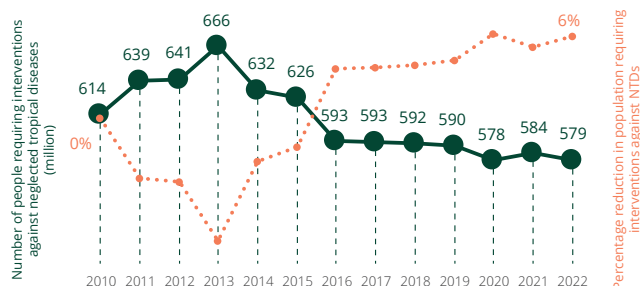
Further contextualization and adoption of the road map approaches has facilitated meaningful engagement by Member States and stakeholders. Key highlights and progress achieved in each region for the current

reporting period are summarized below. The numbers of people and the percentage reductions in the population requiring interventions against NTDs are presented by WHO region in Figs. 4.1–4.6.



4.1 African Region

Fig. 4.1. Number of people and percentage reduction in population requiring interventions against NTDs in the African Region, 2010–2022



- The goal of reducing the burden and threat of tropical and vector-borne diseases that affect human health in the African Region continues under the *Framework for the integrated control, elimination and eradication of tropical and vector-borne diseases in the African Region 2022–2030 (70)*.
- As of December 2023, 19 previously endemic countries have been officially validated or certified for elimination of at least one NTD; in total, 29 processes acknowledging the elimination of an NTD have been successfully completed: 14 for dracunculiasis, seven for human African trypanosomiasis, six for trachoma and two for lymphatic filariasis. Burundi's dossier for elimination of trachoma as a public health

problem and Niger's dossier for elimination of onchocerciasis are under review.

- Of the 47 countries in the Region, 46 have attained the threshold for elimination of leprosy as a public health problem at national level; an informal consultation on the use of assistive technology devices for people with disabilities due to leprosy was organized in Abidjan, Côte d'Ivoire in June 2023.
- Some 12 countries never considered as endemic are suspected free of yaws, but are yet to be certified.



- In 2022, 1775 cases of Buruli ulcer were reported from nine countries, indicating a 70% reduction trend since 2004.
- A total of 8813 new cases of cutaneous leishmaniasis were reported in 2022 from 14 of the 19 endemic countries in the region; 65% of these cases were reported from Algeria which has the highest burden of this disease in the Region.
- In 2022, 4234 new visceral leishmaniasis cases were reported from 12 of the 15 endemic countries in the region, accounting for 32% of the global burden. A strategic framework for the elimination of visceral leishmaniasis as a public health problem in eastern Africa 2023–2030 was developed to foster efforts by the endemic countries in the sub-region.
- Equatorial Guinea and Senegal have stopped MDA for onchocerciasis in all endemic areas, while Uganda has stopped MDA for onchocerciasis for more than 50% of the population that previously

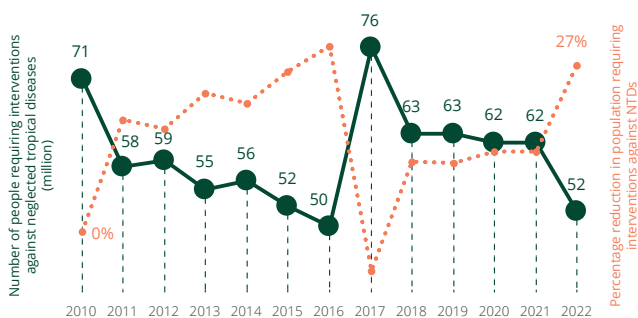
required treatment. Additionally, Ethiopia, Malawi, Mali, Nigeria and the United Republic of Tanzania have stopped treatment for onchocerciasis in some foci.

- Of the 42 countries requiring preventive chemotherapy for soil-transmitted helminthiases, four (Burkina Faso, Mali, Ghana, and Niger) are being investigated to confirm reductions in disease prevalence to below 2%, in which case they would no longer require this intervention.
- In 2022, 80.8 million individuals (SAC and adults) received treatment for schistosomiasis. However, treatment coverage remains low at 15.2% for adults due to limited availability of praziquantel for treatment of this age group.
- The first integrated MDA with praziquantel, niclosamide and albendazole was conducted in Zambia targeting 300 000 individuals against schistosomiasis, soil-transmitted helminthiases and taeniasis.



4.2 Region of the Americas

Fig. 4.2. Number of people and percentage reduction in population requiring interventions against NTDs in the Region of the Americas, 2010–2022



MDA campaigns against human fascioliasis; the results showed that prevalence has been significantly reduced as a result.

- Dengue cases have been consistently increasing in the Region in the past three decades, with more intense epidemics occurring every 3–5 years. In 2022, countries in the Americas reported a total of 2 812 204 cases, increasing to 4 351 722 in 2023, the highest figure ever recorded since 1980 when PAHO started keeping records. However, the dengue case-fatality rate has been reduced (from 0.072% in 2010 to 0.051% in 2023), preventing over 5000 deaths thanks to a strategy

- The majority of countries have met criteria to undergo validation of elimination of rabies as a public health problem (elimination of dog-mediated human rabies), as only three countries reported cases of human rabies transmitted by dogs in the past 2 years; Mexico was successfully validated in 2019.
- Several countries identified areas at risk for taeniasis/cysticercosis and are now working on the confirmation of endemicity and implementing MDA with praziquantel.
- An efficacy study was implemented in Bolivia (Plurinational State of) after 10 years of annual



focused on the early identification of predictors of severe disease.

- With regard to Chagas disease, preliminary estimates as of 2019 indicate that approximately 4.5 million people are infected in the Americas, with 25 000 new acute cases due to vectorial transmission and 8000 new acute congenital cases; approximately 50 million people are at risk, with a prevalence of infection among blood donors of 0.43%. Of the 21 countries considered endemic for Chagas disease in the Americas, 17 have controlled the domiciliary vectorial transmission with different levels of success and at different administrative levels. In 2023, Bolivia (Plurinational State of) and Colombia increased the number of administrative areas where domiciliary vectorial transmission has been interrupted. Universal screening among blood donors is in place in all the 21 endemic countries. Coverage and quality of diagnostic and treatment services are generally improving, although with differences among countries, as are measures aimed at preventing mother-to-child transmission, within the context of the EMTCT PLUS framework (71).
- Thermotherapy treatment for cutaneous leishmaniasis is being introduced and implemented in five countries, based on the recommendations of the 2022 *Guideline for the treatment of leishmaniasis in the Americas, second edition* (72). Support was provided through local training and donated thermotherapy equipment.
- Brazil is finalizing its dossier for the validation of elimination of lymphatic filariasis as a public health problem; Guyana completed an impact survey: results show that additional MDAs are required in Region III and IV, while the other six endemic regions can stop treatment.
- The Regional Office is coordinating the network of public laboratories manufacturing antivenoms and strengthening surveillance at country level to support improvement of Good Manufacturing Practices and the availability of antivenoms.
- An evidence-based treatment guideline for tungiasis is being developed.
- An integrated rapid mapping tool for five skin NTDs to assist in the identification of the diagnosis in priority areas is in preparation.
- Integrated serological surveillance of communicable diseases is being rolled out based on the *Toolkit for integrated serosurveillance of communicable diseases in the Americas* published in 2022 (73).
- Regional, national and local NTD drug safety workshops based on the manual *Safety in administering medicines for neglected tropical diseases* (available in four languages) (74) were implemented.
- National systems for surveillance and management of insecticide resistance among arbovirus, malaria and leishmaniasis vectors have been strengthened through specific in-person training in several countries.
- One Health approach interventions have progressed and been applied in response to outbreaks of visceral leishmaniasis in Bolivia (Plurinational State of) and of tungiasis among indigenous population of Brazil and Colombia.
- Financial support was successfully mobilized from Canada to support the elimination of trachoma as a public health problem in 10 countries in the Americas.
- A new operational methodology for controlling *Aedes* mosquitoes has been developed; 21 countries already have the capacity to use it and five countries have already implemented this new control model.



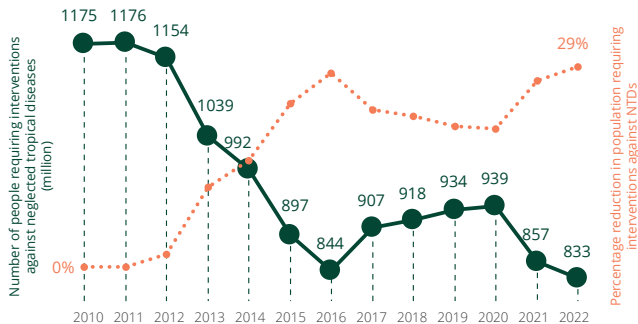
Brazil: Collecting stagnant water to prevent breeding sites for *Aedes* mosquitoes.

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4.3 South-East Asia Region

Fig. 4.3. Number of people and percentage reduction in population requiring interventions against NTDs in the South-East Asia Region, 2010–2022



- By the end of 2023, seven countries have achieved elimination of at least one NTD.
- The *Regional Strategic Framework for sustaining, accelerating and innovating to end NTDs in the South-East Asia Region 2023–2030 (75)* was adopted by the Seventy-sixth Session of the WHO Regional Committee for South-East Asia in October–November 2023.
- To facilitate integration, mainstreaming and intersectoral collaborations (road map Pillar 2):
 - a meeting on cross-border collaboration for elimination of malaria, kala-azar and lymphatic filariasis along the India–Nepal international border was convened on 12–14 September 2023;
 - integrated programme performance assessments are being promoted (e.g. an independent programme review of malaria, visceral leishmaniasis, lymphatic filariasis and dengue took place in Nepal in May 2023);
 - refresher training on integrated vector management and field entomology for prevention and control of vector-borne diseases of public health importance was

facilitated in Nepal in September 2023, following the regional and national workshop on the same subject organized in 2022;

- an Asia-Pacific Tripartite Webinar on prevention and control of neglected parasitic zoonoses was jointly convened on 16 February 2023, to disseminate a series of new Tripartite tools for their control; and
- an Asia-Pacific Tripartite webinar celebrating World Rabies Day in the Asia Pacific Region was convened on 26 September 2023.
- The Dengue Programme Managers meeting and the meeting of the Regional Technical Advisory Group for dengue were convened in June 2023; in response to ongoing outbreak in multiple countries, a 6-day regional webinar series on dengue outbreak control was organized in August–September 2023; multiple experts (epidemiologists, entomologists, clinicians) were deployed to strengthen capacity for outbreak control.
- In the past 10 years, new cases of visceral leishmaniasis (kala-azar) have been reduced by 95% across the Region; currently, 1% of the implementation units in the Indian subcontinent is left to achieve the elimination threshold; in October 2023, Bangladesh became the first country to be validated by WHO for eliminating visceral leishmaniasis as a public health problem, globally.
- Some 69% of districts endemic for lymphatic filariasis across nine endemic countries met the criteria and stopped MDA; four countries are scaling up MDA using triple therapy (ivermectin, diethylcarbamazine, albendazole; IDA) to accelerate elimination. In May 2023, Bangladesh became the fourth country in the Region to be validated by WHO for having eliminated lymphatic filariasis as a public health problem; on 17–21 July 2023, a regional workshop to strengthen lymphatic filariasis



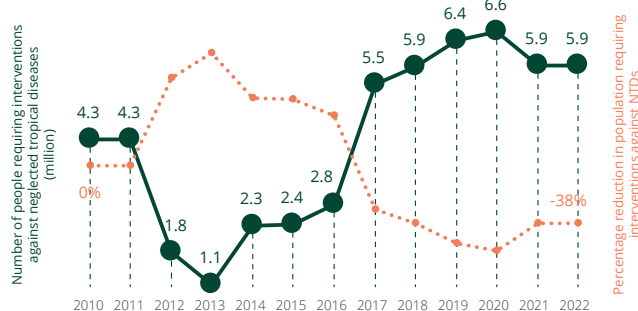
morbidity management and disability prevention in the South-East Asia region was convened.

- A Regional Leprosy Programme Managers meeting was convened on 11–13 April 2023 to revitalize the partnership for leprosy elimination; in October 2023, WHO supported Maldives in sub-national verification of interruption of transmission of leprosy in line with the national framework to achieve zero leprosy; Bangladesh, India and Indonesia launched new national strategic plans for leprosy elimination.
- An independent programme review of the schistosomiasis elimination programme, which is among the Minister's priority agenda, was carried out in Indonesia in May 2023.
- The Regional Technical Advisory Group for rabies elimination was established and convened on 27–28 March 2023, together with the Rabies Programme Managers meeting; Bangladesh is finalizing a new National Strategic Plan for rabies elimination.



4.4 European Region

Fig. 4.4. Number of people and percentage reduction in population requiring interventions against NTDs in the European Region, 2010–2022



- Although 25 and 27 European countries are endemic for cutaneous and visceral leishmaniasis, data for 2022 were reported only by seven and six countries, respectively. In 2022, 60 new autochthonous and 79 imported cases of cutaneous leishmaniasis were reported from the Region; these figures were 48 and 14 for visceral leishmaniasis.
- A total of 55 new cases of leprosy, of which 67% were non-autochthonous, were reported in 2022 from 36 countries and two territories. This represents less than 1% of all new cases detected globally and 0.1 new case detection rate (per million population). Of the new cases, 31 (56.3%) were female and four were children. Additionally, 10 new cases presented with grade 2 disability. Some 36 countries reported zero cases of child leprosy, and several countries are making efforts to eliminate leprosy disease. Strong surveillance systems and partnerships with people affected by leprosy, donors, civil society organizations and WHO remain crucial for achieving zero leprosy. A regional consultation focused on interruption of transmission and elimination of leprosy in Europe took place in Yerevan, Armenia on 28–29 November 2023.
- Various technical and IEC (information, education, communication) documents as well as the OpenWHO course on rabies have been translated into Ukrainian to support disease control activities in that country; a national conference on rabies (Rabies Conference in Ukraine: Collaborate, Educate, Eliminate!) was held in Lviv on 18–19 October 2023 to review epidemiology and strengthen interventions in the context of the crisis currently affecting the country.
- Only three countries in the European region (Kyrgyzstan, Tajikistan and Uzbekistan) require preventive chemotherapy, all of them only for one disease (soil-transmitted helminthiases). In 2022, however, none of these countries reported data on mass treatment with albendazole or mebendazole, leading to a 0% regional coverage.



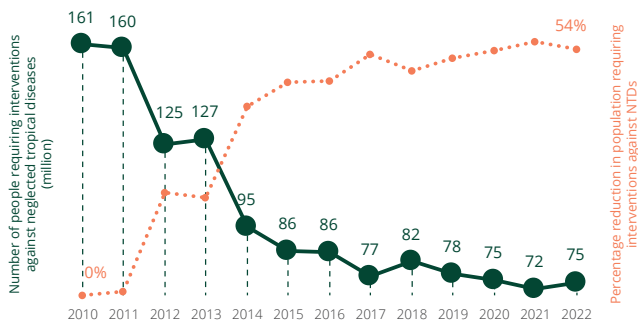
Ukraine: Working to prevent dog-mediated human rabies with vaccines.

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4.5 Eastern Mediterranean Region

Fig. 4.5. Number of people and percentage reduction in population requiring interventions against NTDs in the Eastern Mediterranean Region, 2010–2022



- The Twenty-first meeting of the Regional Programme Review Group and National Neglected Tropical Diseases Programme Managers was convened on 19–21 September 2023, as an in-person event after 3 years of virtual meetings.
- The number of people requiring interventions against NTDs decreased by 54% between 2010 and 2022.
- Of the 22 countries in the Region, 21 have been certified free of dracunculiasis transmission. Only Sudan, which is in the pre-certification stage remains to be certified.
- A total of eight countries have eliminated at least one NTD, the latest being Iraq, which was validated for eliminating trachoma as a public health problem in 2023.
- Leishmaniasis is the NTD with the highest burden in the Region: in 2022, 94% of cutaneous leishmaniasis cases were reported from Afghanistan, Iran (Islamic Republic of), Iraq and the Syrian Arab Republic; 77% of visceral leishmaniasis cases were reported from Sudan; access to treatment has been strengthened in six countries for cutaneous leishmaniasis and 14 countries for visceral leishmaniasis; a reduced case-fatality rate

has been achieved for visceral leishmaniasis in six countries, while access to diagnostics has been increased in Djibouti.

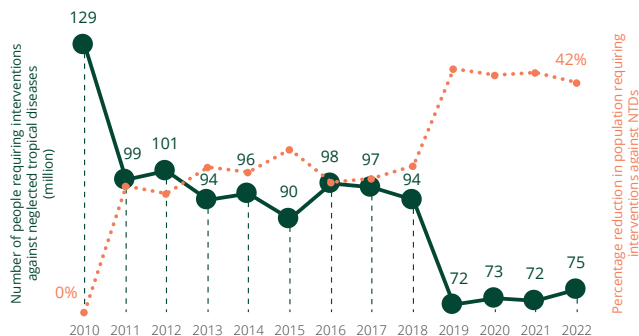
- A 55% increase in the number of new leprosy reported cases has been observed since 2012, with 3770 cases reported in 2022; this is mainly due to the resumption of leprosy services in Somalia, after several years of discontinuation: this country currently accounts for over 60% of the burden of the disease in the Region; 10 countries are no longer reporting autochthonous cases, and there has been a continued steady decline in the proportion of new cases with grade 2 disability and child cases.
- Following major disruptions during the COVID-19 pandemic, a steady recovery in coverage of preventive chemotherapy interventions against lymphatic filariasis, onchocerciasis, schistosomiasis, soil-transmitted helminthiasis and trachoma has been observed in both 2021 (18.7%) and 2022 (44.7%); soil-transmitted helminthiasis are still the second highest-burden NTD in the Region, but in 2022, Sudan moved to the surveillance stage for soil-transmitted helminthiasis, thus no longer requiring mass treatment.
- To date, four OpenWHO courses (on rabies, mycetoma, scabies and NTDs, and COVID-19) have been translated into Arabic, thereby increasing their access and use in the Region.
- Three WHO Collaborating Centres dedicated to NTDs have been established in the Region: on cutaneous leishmaniasis (in Tunisia), on mycetoma and skin NTDs (in Sudan), and on schistosomiasis (in Egypt).





4.6 Western Pacific Region

Fig. 4.6. Number of people and percentage reduction in population requiring interventions against NTDs in the Western Pacific Region, 2010–2022



- As of December 2023, 12 countries in the Region have eliminated at least one NTD. The most recent addition is Lao People's Democratic Republic which was validated for the elimination of lymphatic filariasis as a public health problem in February 2023.
- In 2023, the *Regional framework for reaching the unreached in the Western Pacific 2022–2030* (76) was launched to enable countries to enhance universal health coverage through cross-cutting interventions such as transforming health care services, community empowerment, garnering political commitment and strengthening last mile approaches.
- In July 2023, a global meeting was jointly convened by the Regional Office for South-East Asia and the Regional Office for the Western Pacific in Manila, the Philippines, to accelerate elimination of leprosy disease in countries nearing elimination, while sharpening focus on island countries which carry a disproportionately high burden of leprosy, notably the Philippines, Kiribati and Micronesia (Federated State of); the WHO technical guidance on *Interruption of transmission*

and elimination of leprosy disease (29) along with two accompanying tools – the *Leprosy elimination monitoring tool* (77) and the *Leprosy programme and transmission assessment* (78) – were released during the workshop.

- Two bi-regional meetings to support WHO Member States in the Asia-Pacific to implement the Quadripartite Joint Plan of Action (WHO, UNEP, FAO and WOA) for One Health were jointly held by the Regional Office for South-East Asia and the Regional Office for the Western Pacific in September and December 2023.
- The Region still carries the highest burden of yaws in the world, with Papua New Guinea reporting 96 503 suspected yaws cases in 2022, followed by Solomon Islands which reported 12 397 suspected cases in the same year.
- In 2022, 74.8 million people required preventive chemotherapy against NTDs, of whom nearly 13 million received treatment reflecting a regional coverage of 17.3%.
- All countries implementing preventive chemotherapy against lymphatic filariasis in 2022 used triple therapy (ivermectin, diethylcarbamazine, albendazole; IDA). The Philippines implemented IDA for the first time, reaching 286 941 individuals in two implementation units. New Caledonia introduced IDA in the endemic implementation unit of Ouvéa in the first MDA round conducted in the territory. Samoa did not implement MDA in 2022, but restarted in 2023.
- Mongolia and China carry the highest burden of echinococcosis in the world, and require significant scale-up of interventions.
- Of the 11 endemic countries in the Region, four have eliminated trachoma as a public health problem.



5. Conclusions and way forward

NTD programmes were severely affected by the COVID-19 crisis. During the earliest phases of the pandemic, prevention, treatment and care services for NTDs were the second most frequently disrupted across the entire health system spectrum, after those targeting mental, neurological and substance use disorders, and were the most affected in terms of the proportion of countries reporting severe disruptions.

Community-based interventions, health-facility-based activities and capacity to respond to NTD outbreaks were jeopardized, resulting in lower numbers of people suffering from these diseases being detected and treated, and reduced coverage rates for interventions such as preventive chemotherapy.

Although the *Fourth round of the global pulse survey on the continuity of essential health services during the COVID-19 pandemic: November 2022–January 2023* (79) registered some improvement in the implementation of NTD activities, the impact of service disruption remained significant during the period under study. Much remains to be done to overcome the devastating impact caused by restriction to movement, disruption to the supply of medicines and other health products, and the repurposing of health staff for the COVID-19 response.

The need for resources required to accompany a full post-COVID-19 recovery has increased. While it may have been expected that the progressive decrease in the public health relevance of the COVID-19 pandemic would see a return to “normal” funding levels, this has not happened for NTD programmes, despite several advocacy events being held in 2022 and 2023. As of December 2023, the financial support available to NTD programmes is still far below pre-pandemic levels and is still limited at all levels. This is jeopardizing programme activities, hampering meaningful planning, and preventing effective coordination globally and regionally.

Challenges likewise are not limited to a slow post-COVID-19 recovery: persistent gaps in knowledge and operational tools are preventing the development or production of programme-ready diagnostics and more effective treatments and vaccines. These gaps are also hampering the fully-fledged implementation of surveillance, vector control, veterinary public health

and WASH interventions, as well as the adaptation of strategic approaches to global challenges such as climate change. This may have a significant negative impact on consolidated epidemiological scenarios and jeopardize health gains made to date.

At a country level, challenges include inadequate capacity for surveillance and case detection, resulting in under-diagnosis and under-reporting of NTDs – which in turn affects strategic decision-making. Suboptimal technical and programmatic capacity in some national programmes has been noted, as has a lack of, or weak, cross-sectoral engagement to address the key NTD determinants that require multisectoral collaboration. Lagging government ownership is resulting in insufficient coordination, inefficient use of resources, inadequate funding and slow adoption of new NTD interventions, while conflict and humanitarian crises are affecting programme implementation and progress and heightening the risk of NTDs in affected populations.

Analysis of 2022 and 2023 data has highlighted several hindrances to the timely attainment of the 2030 road map targets, and several indicators are currently off-track. A particular example is the steady but insufficient progress being made in the reduction in the number of people requiring interventions against NTDs. To reduce this indicator sustainably, it would be essential to accelerate progress in high-burden countries. Conversely, good progress has been made for the number of countries acknowledged for having eliminated at least one NTD (50), and for the total number of acknowledgement processes completed (68). Six countries were acknowledged in 2023, including Bangladesh, for two diseases. The fact that 13 countries (as of December 2023) have eliminated more than one NTD is cause for celebration.

There are limitations in tracking some of the indicators included in the M&E framework. DALYs data relating to NTDs are challenging, in terms of both their completeness and their timeliness, and there are difficulties associated with collecting reliable data on a number of NTDs. The quality and quantity of information related to integrated approaches, multisectoral coordination, universal health coverage and country ownership remain challenging.

Nevertheless, countries are clearly motivated to be acknowledged for progress made against NTDs and important efforts continue to be made towards implementing the five key public health interventions presented in the road map.

To support these ambitions and commitments, the global NTD community convened for the Global Partners' Meeting (Geneva, 12–13 June 2023) to reflect on progress and challenges (36). The meeting provided an opportunity to take stock of the status of NTDs globally as well as to identify strategic priorities for the months and years to come. These priorities include:

- maintaining and expanding the partner/donor community, by nurturing existing relationships and creating new ones;
- repositioning NTDs within the global health agenda by building links with other global programmes (e.g. health emergencies, pandemic prevention, preparedness and response, primary health care and universal health coverage), cross-cutting approaches (e.g. One Health, mental health), emerging global priorities (e.g. climate

change, migration, and urbanization), and existing global funding mechanisms;

- developing a workplan for 2025–2030, including a timeline of the activities required to achieve the set targets, along with roles, responsibilities and estimated costs;
- strengthening and streamlining platforms and processes for the coordination of NTD stakeholders at the global and country levels; and
- filling normative and operational gaps to ensure that strategic approaches are constantly refined to meet the challenges faced by programmes; this task covers key areas such as empowering strong data systems to produce reliable surveillance and monitoring and evaluation data; boosting NTD research through a Research & Development blueprint in the service of developing new medicines, diagnostics, health tools and approaches; streamlining the supply and management of NTD health products; and leveraging efficiency gains by integrating interventions across diseases.

These strategic priorities can help NTD programmes thrive during the second half of the NTD road map's remit and can be sustainably implemented. They will act as key enablers leading the way towards ending the neglect of individuals affected by these ancient diseases, achieving the SDGs and meeting the road map targets set for 2030.



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Annex 1. Cross-cutting indicator 6: Share of the population at risk protected against catastrophic out-of-pocket health expenditure due to neglected tropical diseases

Neglected tropical diseases (NTDs) can be very expensive to treat, especially in their late stages. To monitor such financial risk and align with the objectives of universal health coverage, the road map set the target of having 90% of “the population at risk protected against catastrophic out-of-pocket health expenditures due to neglected tropical diseases.”

Monitoring of progress towards this indicator has been facing data challenges. There is no mechanism at country level to collect household expenditure on the costs of treatment for NTDs. As a result, existing data sources were used as proxies to calculate the financial risk faced by the NTD community, with the limitation that calculations focus not on health expenditure due to NTDs but rather on any health expenditure among people at risk of NTDs.

Financial protection against health expenditure is at the core of universal health coverage, and Sustainable Development Goal (SDG) indicator 3.8.2 monitors the health-related financial hardship faced by a population.¹ When household expenditure on health exceeds a certain percentage of the total household expenditure or income, it will be considered catastrophic. Two thresholds for SDG 3.8.2 have been proposed: 10% or 25% (2, 3).

As populations at risk of NTDs often have low capacity to pay, the lower threshold was chosen; “the percentage of population with household expenditures on health greater than 10% of total household expenditure or

income” was therefore used as a proxy of the financial risk faced by the population at risk of NTDs.

The proxy of the population at risk of NTDs is SDG 3.3.5: “Number of people requiring interventions against neglected tropical diseases”.

Equation 1:

$$\text{Share of population at risk} = \frac{\sum_i^N (\text{SDG 3.8.2}_i \times \text{SDG 3.3.5}_i)}{\sum_i^N (\text{SDG 3.3.5}_i)}$$

i – indicates a country

N – indicates the total number of countries

Annual data are available for SDG 3.3.5. When this calculation was made, SDG 3.3.5 data were updated to 2021. Data for SDG 3.8.2, however, are often not available annually across countries. If the time dimension is added, equation 1 would be modified as follows:

Equation 2:

$$\text{Share of population at risk in \%}_{2021} = \frac{\sum_i^N (\text{SDG 3.8.2}_{i, \text{latest year}} \times \text{SDG 3.3.5}_{i, 2021})}{\sum_i^N (\text{SDG 3.3.5}_{i, 2021})}$$

Based on equation 2, in 2021, 12.6% of the global population at risk of NTDs encountered catastrophic health spending: that is, 87.4% of the population at risk of NTDs was protected against catastrophic out-of-pocket expenditure.

The above calculations should be interpreted with caution. For example, SDG 3.8.2 data are often not recent. However, if the 36 countries with SDG 3.8.2 data older than 10 years are removed from the analysis, the

¹ Definition of SDG 3.8.2: Proportion of the population with large household expenditure on health as a share of total household expenditure or income. Two thresholds are used to define “large household expenditure on health”: greater than 10% and greater than 25% of total household expenditure or income (7).

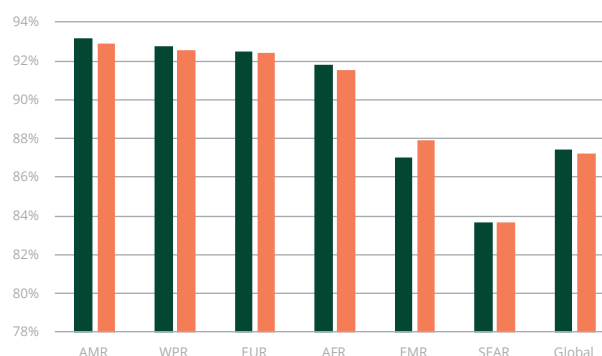
level of financial protection globally and regionally does not change significantly (Fig. A1.1).

Additionally, by using SDG 3.8.2 as a proxy for the financial risk faced by the population at risk of NTDs, it is assumed that such population has the same financial risk as the national average. However, populations living in poverty, such as those affected by NTDs, are often more vulnerable to financial risk, and SDG 3.8.2 could therefore underestimate the financial risk of the population affected by NTDs.

A second approach to estimating the share of the population at risk protected against catastrophic out-of-pocket health expenditure due to NTDs involves using a fixed threshold rather than a proportion of expenditures. The WHO Global Health Observatory provides two categories of additional information: (i) population pushed below the poverty line by household health expenditures (in %); and (ii) population (already below the poverty line) pushed further below the poverty line by household health expenditures (in %). The international poverty line currently used by the World Bank is US\$ 2.15 per person per day.

To apply this approach, SDG 3.8.2 was replaced in equation 2 by the share of the population pushed below the US\$ 2.15 per person per day poverty line due to household health expenditure. Data older than 10 years were deleted, resulting in a database of 114 countries. According to this calculation, in 2021, globally, 17 468 654 people at risk of NTDs were pushed below the poverty line by their health expenditure.

Fig. A1.1. Comparison of financial protection (%) between the full sample (green) and the sample excluding SDG 3.8.2 data that are older than 10 years as of 2021 (orange), by WHO region



AFR: WHO African Region; AMR: WHO Region of the Americas; EUR: WHO European Region; EMR: WHO Eastern Mediterranean Region; SEAR: WHO South-East Asia Region; WPR: WHO Western Pacific Region.

This approach has an additional limitation: since it focuses on the population living close to the poverty line, it can only be used to complement SDG 3.8.2; it cannot replace the first approach detailed above.

The indicator “population pushed further below the poverty line by household health expenditures” needs further refinement, such as more data quality checks, and understanding before it can be used as a proxy for the population at risk of NTDs.

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Annex 2. Status of commitments for donations of medicines as of December 2023

Disease	Manufacturer	Product name	Period of MoU	Donation commitments
Donations managed by WHO				
Chagas disease	Bayer AG (Germany)	Nifurtimox (120 mg tablets)	2007–2025	• Up to a total of 12 500 000 tablets for the treatment of Chagas disease
	Chemo Group (Mundo Sano)	Benznidazole ^a (100 mg tablet; 12.5 mg tablet)	2020–2023	• 3000 tablets (12.5 mg) and 105 000 tablets (100 mg)
Foodborne trematodiasis (fascioliasis and paragonimiasis)	Novartis (Switzerland)	Triclabendazole (250 mg tablets)	2016–2025	• Up to 600 000 tablets for the treatment of fascioliasis and paragonimiasis
Foodborne trematodiasis	Bayer AG (Germany)	Praziquantel (600 mg tablets)	2020–2024	• Within the limits of the donation of praziquantel for taeniasis and cysticercosis
Human African trypanosomiasis	Bayer AG (Germany)	Nifurtimox (120 mg tablets)	2009–2026	• Up to 150 000 tablets for five years, adjustable to needs to treat human African trypanosomiasis
		Suramin (1 g vials)	2002–2026	• Up to 10 000 vials for five years, adjustable to needs to treat human African trypanosomiasis
	Sanofi (France)	<ul style="list-style-type: none"> • Eflornithine (200 mg per mL in 100 mL bottle); • Melarsoprol (3.6% in 5 mL ampoule solution (180 mg of active compound)); • Pentamidine (200 mg powder for injection) 	2001–2026	• Unlimited quantity for the treatment of human African trypanosomiasis
Leprosy		Fexinidazole (600 mg tablets)	2019–2026	
	Novartis (Switzerland)	Clofazimine (100 mg capsule)	2000–2025	• Up to 1 650 000 capsules for the treatment of severe erythema nodosum leprosum reactions
		Clofazimine (50 mg capsule)		
		MDT ^b MB adult and child MDT PB adult and child		• Up to 2 478 000 blister packs annually for the treatment of leprosy and its complications

Disease	Manufacturer	Product name	Period of MoU	Donation commitments
Donations managed by WHO				
Lymphatic filariasis	Eisai (Japan)	Diethylcarbamazine citrate (100 mg tablets)	Since 2012 until elimination	<ul style="list-style-type: none"> Up to 2.2 billion tablets committed for the first 7-year period for use in the preventive chemotherapy of lymphatic filariasis Extended in 2017 until elimination is achieved Current MoU is until 2025
	GlaxoSmithKline (United Kingdom of Great Britain and Northern Ireland)	Albendazole (400 mg tablets)	Since 1997 until elimination	<ul style="list-style-type: none"> Up to 600 million tablets annually for use in the preventive chemotherapy of lymphatic filariasis
Schistosomiasis	Merck (Germany)	Praziquantel (600 mg tablets)	Since 2007 for an unlimited period	<ul style="list-style-type: none"> Up to 200 million tablets annually for the treatment of schistosomiasis in school-aged children (notably in Africa) Since 2017, donation scaled up to 250 million tablets annually for the treatment of schistosomiasis in school-aged children and adults (in specific epidemiological context)
Soil-transmitted helminthiasis	GlaxoSmithKline (United Kingdom of Great Britain and Northern Ireland)	Albendazole (400 mg tablets)	2012–2025	<ul style="list-style-type: none"> Up to 200 million tablets annually for use in the preventive chemotherapy of soil-transmitted helminthiasis
	Johnson & Johnson (United States of America)	Mebendazole (500 mg tablets)	Since 2012; current MoU is until 2025	<ul style="list-style-type: none"> Up to 200 million tablets annually for the treatment of soil-transmitted helminthiasis in school-aged children and women of reproductive age group
Visceral leishmaniasis	Gilead Sciences, Inc. (United States of America)	Liposomal amphotericin B (lyophilized 50 mg formulation in vials) (AmBisome®)	2012–2016 2016–2021 2022–2025	<ul style="list-style-type: none"> Up to 445 000 vials for the treatment of visceral leishmaniasis in South-East Asia and East Africa Up to 380 400 vials for the treatment of visceral leishmaniasis in South-East Asia and East Africa Up to 304 700 vials for the treatment of visceral leishmaniasis in South-East Asia and East Africa
Yaws	EMS SA Pharma (Brazil)	Azithromycin ^a (500 mg tablets)	2017–2022	<ul style="list-style-type: none"> 153 million tablets to support the global eradication of yaws
Taeniasis and cysticercosis	Bayer AG (Germany)	Niclosamide (400 mg tablets) Praziquantel (600 mg tablets)	2020–2024	<ul style="list-style-type: none"> Up to a total of 2 800 000 tablets for the treatment of taeniasis Up to a total of 1 339 000 tablets for the treatment of taeniasis
Cystic echinococcosis	GlaxoSmithKline (United Kingdom of Great Britain and Northern Ireland)	Albendazole (400 mg tablets)	2022–2025	<ul style="list-style-type: none"> Up to 5 million as long as it is within the limit of the overall donation of albendazole from GlaxoSmithKline

Disease	Manufacturer	Product name	Period of MoU	Donation commitments
Donations managed outside WHO				
Onchocerciasis	Merck, Sharpe & Dohme (United States of America)	Ivermectin (3 mg tablets)	Since 1987 until elimination	<ul style="list-style-type: none"> Unlimited supply for the treatment of onchocerciasis
Lymphatic filariasis			Since 1997 until elimination 2018–2025 for IDA strategy	<ul style="list-style-type: none"> Unlimited supply for the treatment of lymphatic filariasis Up to 250 million tablets for use in WHO-recommended triple (IDA) therapy MDA regimen to eliminate lymphatic filariasis in countries not co-endemic for onchocerciasis
Trachoma	Pfizer Inc. (United States of America)	Azithromycin (250 mg tablets or 1200 mg in 30 mL (200 mg/5 mL) powder for oral suspension)	1998–2025	<ul style="list-style-type: none"> Unlimited quantity for the elimination of trachoma as a public health problem

IDA: ivermectin–diethylcarbamazine citrate–albendazole; MB: multibacillary; MDA: mass drug administration; MDT: multidrug therapy; MoU: memorandum of understanding; PB: paucibacillary; WHO: World Health Organization.

^a Renewal of memorandum of understanding in process.

^b MDT with rifampicin (150 mg and 300 mg tablets), clofazimine (300 mg and 50 mg tablets) and dapsone (100 mg tablets) in blister packs depending on age and type of leprosy; loose clofazimine in capsules.

***Annex 3. Weekly Epidemiological Record* articles on neglected tropical diseases published in 2023**

Dracunculiasis eradication: global surveillance summary, 2022. *Wkly Epidemiol Rec.* 98(20):205–224 (<https://iris.who.int/handle/10665/367924>).

Human African trypanosomiasis eliminated as a public health problem in Equatorial Guinea and Ghana. *Wkly Epidemiol Rec.* 98(20):225–226 (<https://iris.who.int/handle/10665/367925>).

Global leishmaniasis surveillance, 2022: assessing trends over the past 10 years. *Wkly Epidemiol Rec.* 98(40):471–487 (<https://iris.who.int/handle/10665/373229>).

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Elimination of human onchocerciasis: progress report, 2022–2023. *Wkly Epidemiol Rec.* 98(45):572–582 (<https://iris.who.int/handle/10665/373991>).

Global update on implementation of preventive chemotherapy against neglected tropical diseases in 2022 and status of donated medicines for NTDs. *Wkly Epidemiol Rec.* 98(52):681–696 (<https://iris.who.int/handle/10665/375359>).

Schistosomiasis and soil-transmitted helminthiasis: progress report, 2022. *Wkly Epidemiol Rec.* 98 (51):667–676 (<https://iris.who.int/handle/10665/375275>).

Interim report on snakebite incidence and case fatality rates in sub-Saharan Africa. *Wkly Epidemiol Rec.* 98(18):185–194 (<https://iris.who.int/handle/10665/367504>).

WHO Alliance for the Global Elimination of Trachoma: progress report on elimination of trachoma, 2022. *Wkly Epidemiol Rec.* 98 (28):297–311 (<https://iris.who.int/handle/10665/371095>).

Annex 4. Diagnostic target product profiles for neglected tropical diseases published by WHO as of December 2023

	Disease	Subject	Web link to publication
1.	Buruli ulcer	TPP for a rapid test for diagnosis of Buruli ulcer at primary health-care level	https://iris.who.int/handle/10665/353982
2.	Human African trypanosomiasis	TPP for a gambiense human African trypanosomiasis test to identify individuals to receive widened treatment	https://iris.who.int/handle/10665/352579
3.	Human African trypanosomiasis	TPP for a test for rhodesiense human African trypanosomiasis diagnosis usable in peripheral health facilities	https://iris.who.int/handle/10665/344165
4.	Human African trypanosomiasis	TPP for an individual test to assess gambiense human African trypanosomiasis infection in low prevalence settings	https://iris.who.int/handle/10665/365383
5.	Human African trypanosomiasis	TPP for a high-throughput test for verification of elimination of gambiense human African trypanosomiasis	https://iris.who.int/handle/10665/365384
6.	Leishmaniases (dermal)	TPP for a point-of-care test for dermal leishmaniases	https://iris.who.int/handle/10665/353980
7.	Leprosy	TPP for a diagnostic test to confirm leprosy in individuals with clinical signs and symptoms	https://iris.who.int/handle/10665/371647
8.	Leprosy	TPP for a diagnostic test to detect <i>Mycobacterium leprae</i> infection among asymptomatic household and familial contacts of leprosy patients	https://iris.who.int/handle/10665/371646
9.	Lymphatic filariasis	TPP for lymphatic filariasis to support decisions for stopping triple-therapy mass drug administration	https://iris.who.int/handle/10665/340080
10.	Lymphatic filariasis	TPP for surveillance of lymphatic filariasis	https://iris.who.int/handle/10665/340081
11.	Mycetoma	TPP for a rapid test for diagnosis of mycetoma at primary health-care level	https://iris.who.int/handle/10665/353979
12.	Onchocerciasis	TPP for mapping onchocerciasis	https://iris.who.int/handle/10665/341719
13.	Onchocerciasis	TPP for stopping mass drug administration	https://iris.who.int/handle/10665/341719
14.	Scabies	TPP for starting mass drug administration	https://iris.who.int/handle/10665/353981
15.	Scabies	TPP for stopping mass drug administration	https://iris.who.int/handle/10665/353981
16.	Schistosomiasis	TPP for monitoring and evaluation	https://iris.who.int/handle/10665/344813
17.	Schistosomiasis	TPP for transmission interruption and subsequent surveillance	https://iris.who.int/handle/10665/344813

	Disease	Subject	Web link to publication
18.	Snakebite envenoming	TPPs for animal plasma-derived antivenoms: antivenoms for treatment of snakebite envenoming in sub-Saharan Africa	https://iris.who.int/handle/10665/369786
19.	Soil-transmitted helminthiases	TPP for monitoring and evaluation of soil-transmitted helminth control programmes	https://iris.who.int/handle/10665/342539
20.	Yaws	TPP for identifying a single case of yaws	https://iris.who.int/handle/10665/353978
21.	Yaws	TPP for detecting azithromycin resistance	https://iris.who.int/handle/10665/353978

Annex 5. Global reports on neglected tropical diseases published by WHO

Global report on neglected tropical diseases 2023. Geneva: World Health Organization; 2023 (<https://iris.who.int/handle/10665/365729>).

Integrating neglected tropical diseases in global health and development: fourth WHO report on neglected tropical diseases. Geneva: World Health Organization; 2017 (<https://iris.who.int/handle/10665/255011>).

Investing to overcome the global impact of neglected tropical diseases: third WHO report on neglected tropical diseases. Geneva: World Health Organization; 2015 (<https://iris.who.int/handle/10665/152781>).

Sustaining the drive to overcome the global impact of neglected tropical diseases: second WHO report on neglected diseases. Geneva: World Health Organization; 2013 (<https://iris.who.int/handle/10665/77950>).

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