



Sixteenth meeting of the Strategic and Technical Advisory Group for Neglected Tropical Diseases

Hybrid meeting, 27–28 September 2022

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Designed by: Imprimerie Centrale

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Abbreviations and acronyms

BU	Buruli ulcer
CBTI	community-based treatment with ivermectin
CL	cutaneous leishmaniasis
DEC	diethylcarbamazine citrate
EPHP	elimination as a public health problem
ESPEN	Expanded Special Project for Elimination of Neglected Diseases
FAO	Food and Agriculture Organization of the United Nations
FCDO	Foreign, Commonwealth and Development Office (United Kingdom of Great Britain and Northern Ireland)
GWD	Guinea-worm disease (dracunculiasis)
HAT	human African trypanosomiasis
IDA	ivermectin, DEC, and albendazole
IU	implementation unit
LF	lymphatic filariasis
MDA	mass drug administration
NTD	neglected tropical disease
STAG	Strategic and Technical Advisory Group
STH	soil-transmitted helminthiases
PC	preventive chemotherapy
PHC	primary health care
PHP	public health problem
PKDL	post-kala-azar dermal leishmaniasis
PZQ	praziquantel
TPP	target product profile

USAID	United States Agency for International Development
VL	visceral leishmaniasis
WASH	water, sanitation and hygiene
WHO	World Health Organization
WOAH	World Organisation for Animal Health (founded as OIE)

Session

I

Introduction and reports

The sixteenth meeting of the Strategic and Technical Advisory Group for Neglected Tropical Diseases (STAG-NTD) was held in person and virtually on 27–28 September 2022. The agenda is attached as **Annex 1** and the list of participants as **Annex 2**.

Opening remarks

Dr Ren Minghui, Assistant Director-General, Universal Health Coverage/Communicable and Noncommunicable Diseases, welcomed participants to the meeting. He said the World Health Organization's Department of Control of Neglected Tropical Diseases (WHO/NTD) was in a state of transition. Following the death of the late esteemed Director Dr Mwelecele Ntuli Malecela earlier in the year, Dr Gautam Biswas had taken over as Acting Director but would soon retire; the appointment of a new Director was under way. Owing to rotation of STAG-NTD members, this would be the last meeting for some and the first meeting for several new participants. The work however would continue with the same commitment. Discussions over the next two days would focus on critical issues regarding recovery of NTD services following the disruptions caused by coronavirus disease (COVID-19), which had impacted many health services worldwide. He looked forward to receiving the advice and guidance of STAG-NTD.

Administrative matters, including appointment of rapporteurs

Professor David Mabey, Chairperson of STAG-NTD, said that the main purpose of the meeting was to understand the impact of COVID-19 on NTD programmes and the recovery process. The status of global financial support to NTD programmes would also be discussed.

Professor Lucille Blumberg, Centre for Emerging, Zoonotic and Parasitic Diseases, South Africa, agreed to continue as rapporteur.

Introduction of new members

Dr Gautam Biswas introduced the new STAG-NTD members. The Group had shrunk to 8 members but, following a call for new participants, 130 responses had been received. Ensuring regional and gender balance, as well as excellence and expertise, 12 new members had been selected, and so today the total was 22; however, rotation of members meant that this would be the last meeting for some, and 17 members would remain.

The new members introduced themselves, followed by the existing members. STAG-NTD members include experts in the entire range of NTDs, in diverse subjects such as vector-borne diseases, medical entomology, parasitology, dermatology, fungal diseases and enteric infections, as well as in cross-cutting areas such as public health, nutrition, social protection, medical anthropology and health systems.

Year in review: Director's report

Dr Gautam Biswas presented the report.

Progress and achievements

The number of people requiring interventions against NTDs has been reduced by 24% between 2010 and 2021; the target is for a 90% reduction by 2030.

The disease burden has also decreased, as evidenced by the reduction in disability-adjusted life years (DALYs) of 11% between 2005 and 2019, allowing that only 14 diseases currently have a DALY value defined.

An overarching indicator is the elimination of NTDs at country level. By September 2022, 46 countries had eliminated at least one NTD; the target is for 100 countries, territories and areas to have achieved this by 2030. The diseases eliminated include Guinea-worm disease (GWD), lymphatic filariasis (LF), gambiense human African trypanosomiasis (gHAT), rabies and trachoma.

Significant declines have been seen in GWD, which is targeted for eradication by 2030; this year (2022) has so far seen only six cases, and 199 countries, territories and areas are now certified free of *Dracunculus medinensis* transmission. Significant declines have also occurred in: visceral leishmaniasis (VL) – a 78% reduction in number of cases during 2010–2020; trachoma – a 68% reduction in the number of cases of late, blinding stage trachoma during 2002–2019; Buruli ulcer (BU) – a 66% decrease in the number of cases during 2010–2021; gHAT – an 89% reduction in the number of cases reported during 2010–2020; and leprosy – a 41% reduction in the number of cases during 2010–2021.

BU, leprosy and gHAT, however, have all shown an increase in detected cases after the drop in 2020, due to disruptions to health systems caused by COVID-19.

The pandemic severely affected services for NTDs. The number of treatments for NTDs overall fell by 34% between 2019 and 2020, although by 2021 there had been a partial recovery of 8%. The impact was particularly severe on coverage of preventive chemotherapy (PC) on the target diseases of LF, onchocerciasis, schistosomiasis, soil-transmitted helminthiasis (STH) and trachoma; coverage had clearly decreased in 2020 compared with 2019 for all diseases, though most showed partial recovery in 2021, except for schistosomiasis.

Outbreaks and response

NTDs do not just have an endemic epidemiological pattern; inevitably, there will be outbreaks. Since 2020, outbreaks of chikungunya (Chad), dengue (in 10 countries), scabies (Bangladesh, Namibia) and VL (Chad, Kenya) have occurred. Responses ensued in vector control, for example in ensuring adequate capacity in insecticide and resistance monitoring, new control tools, and the launching of the WHO Global Arbovirus Initiative in 2022.

One Health activities (addressing the links between human, animal and environmental health) included the publication of a One Health road map companion document, guidance on introducing human rabies vaccines into national immunization programmes, developing a target product profile (TPP) for snake antivenom products in sub-Saharan Africa, launching a new Snakebite Information and Data Platform in collaboration with the WHO GIS Centre in 2021, and extending the donation of albendazole for LF and STH to cystic echinococcosis.

Work on skin NTDs involved publishing a strategic framework as a companion document to the road map, conducting advocacy and technical work in several priority areas and countries, and preparing TPPs for diagnostic tools for BU, dermal leishmaniasis, mycetoma, scabies and yaws.

Normative guidance and other products

Technical products (TPs), applicable to many countries and implementable at country level, include norms and standards, data, research and innovation; they must fill a need that is not already met. The process of development is rigorous. Only seven of the planned 11 TP (then called Global Public Health Goods) were completed and published in 2020–2021, and only one TP is in progress in the current biennium 2022–2023 (of 17 agreed and planned). A larger number of related supporting products has been published.

Other tools/guidance that have been developed and published, as per the recommendation of STAG-NTD, include 16 TPPs to address potential hindrances to the achievement of the targets in *Ending the neglect to attain the sustainable development goals: a road map for neglected tropical diseases 2021–2030* (“the road map”) (1).

The offer of online courses on the Open WHO platform significantly increased during the pandemic, and the NTD channel (openwho.org/channels/ntd) was established in 2021. More than 50 000 learners have since enrolled. Currently, NTD courses on 18 different topics are available on this platform in different languages, for a total of 33. Topics range from diseases to cross-cutting themes (e.g. on safety in administering medicines for NTDs, One Health in action against NTDs, onchocerciasis), 10 courses on skin-related diseases (e.g. leprosy, post-kala-azar dermal leishmaniasis [PKDL]); 25 global advocacy and technical webinars with multilingual interpretation were organized by WHO/NTD in 2020–2022, the recordings of which are all available on YouTube.

Considering access to medicines, four major memorandums of understanding for in-kind donations of NTD health products were signed or renewed, including: a 5-year agreement for medicines for treatment of Chagas disease and HAT; a 5-year agreement for 800 million albendazole tablets annually for treatment of cystic echinococcosis, LF and STH; a 4-year agreement for 400 million diethylcarbamazine citrate (DEC) tablets annually for treatment of LF; and a 5-year agreement for 200 million mebendazole tablets annually for treatment of STH.

To ensure the quality and safety of NTD medicines, 10 of these are currently in the WHO prequalified list (three were added in 2021, and one in 2022). Five new dossiers (three for albendazole and two for praziquantel [PZQ]) were submitted for prequalification in 2021–2022 and are now under review. In addition, two formulations of albendazole that are neither WHO-prequalified nor approved by a stringent regulatory authority have been reviewed by a WHO Expert Review Panel and approved for procurement.

Regarding access to donated medicines in 160 countries, the number of NTD medicines supplied by WHO during 2011–2021 peaked in 2019, when there were 800 shipments. As a reflection of disruptions caused by COVID-19, there were 600 shipments in 2020.

Working Group updates

A new STAG-NTD Working Group on Access to Safe, Efficacious and Quality-assured Health Products for NTDs was set up. Among other things, this Group will investigate market shaping and a coordination mechanism for procurement of medicines.

Guided by the STAG-NTD Working Group on Monitoring, Evaluation and Research, WHO integrated all reported NTD programme data into a common database, with improved access, for use at country level, and is developing a routine health facility data toolkit to mainstream all NTD information into national health information systems. WHO will also publish a compendium of NTD indicators.

The Technical Working Group on Capacity Building carried out an online survey focused on online resources in conjunction with the onset of the COVID-19 pandemic, to guide which areas to cover by online courses, and which formats and languages are appropriate.

Previous STAG-NTD recommendations and progress

All recommendations made by STAG-NTD at its 14th (22–24 June 2021) and 15th (7–8 February 2022) meetings are being followed up. For instance, the focus on VL in Africa and the Americas in 2022, on rabies in the African and Eastern Mediterranean regions, on measures to mitigate expiry of medicines, on intensified efforts to finalize dossiers for GWD, and on activities in diagnostics such as quality assurance, laboratory strengthening, new donors and advocacy. Regarding adding diseases to the NTD portfolio, much remains to be done on diseases included in the portfolio, but there is a need to consider noma; it is anticipated that in 2023 a dossier by Member States will be submitted to STAG-NTD for their review. Some clarification is needed on some of the disease groups – the ectoparasitoses, scabies and other deep mycoses; this should be reviewed at a future STAG-NTD meeting.

NTD events

Advocacy: World Neglected Tropical Diseases Day on 30 January was first observed by the global partners community in 2020. Officially recognized by the Seventy-fourth World Health Assembly in 2021 through decision WHA74(18), it is one of the 13 WHO global health days (2). A WHO campaign website was developed in collaboration with WHO's Department of Communications.

Other global NTD events celebrated in 2021–2022 included: the launch of the UN Group of Friends on Defeating Neglected Tropical Diseases (30 November 2021), the Abu Dhabi Declaration on the Eradication of Guinea Worm Disease (23 March 2022); World Chagas Disease Day (14 April 2022); the Kigali Summit on Malaria and Neglected Tropical Diseases (23 June 2022); World Snakebite Awareness Day (19 September 2022); and World Rabies Day (28 September 2022).

Major challenges

COVID-19 severely disrupted NTD services. Other challenges include the unpredictability and relative lack of funding to support NTD activities. As an example, there is lack of funding for the two NTDs targeted for eradication: dracunculiasis and yaws. Scaling-up implementation of yaws eradication activities is hampered by lack of resources, and, beyond 2023, there is no secured funding for dracunculiasis eradication activities. Many of the NTDs are still not adequately supported and many of the gaps identified in the road map have yet to be filled.

Progress reports from WHO regions

African Region

Dr Andrew Seidu Korkor of the NTD programme at the WHO Regional Office for Africa, said that of the 20 NTDs in the global portfolio, all except Chagas disease are present in Africa.

Two diseases are scheduled for eradication – dracunculiasis and yaws. Animal infection remains a major challenge for dracunculiasis, and 6 countries remain to be certified. At least nine countries remain endemic for yaws; three countries are implementing total community treatment with azithromycin for yaws eradication.

Scheduled for elimination are BU, HAT, leprosy and VL. Six Member States have been validated for elimination of HAT as a PHP; five countries are building their dossiers. In VL, there remain five high-burden and three low-burden countries.

Rabies and dengue are issues of challenge as no funds are available.

Newly added NTDs include mycetoma, scabies and snakebite envenoming. An additional disease would be noma; regular meetings and discussions have been held with noncommunicable diseases colleagues on collaborating for implementation, pending a future decision from STAG-NTD on adding noma to the NTD portfolio.

Geographical coverage of mass drug administration (MDA) has increased in all Member States endemic for the five PC-NTDs (LF, onchocerciasis, schistosomiasis, STH, trachoma), under the support of the Expanded Special Project for Elimination of Neglected Diseases (ESPEN); 38 of the 47 endemic countries reached 100% geographical coverage for at least one PC-NTD for at least one year in 2016–2020. The number of people requiring PC in the Region decreased from 592 million in 2016 to 578 million in 2020, although coverage of treatment delivered decreased in 2021, likely caused by late lockdown measures due to COVID-19 and interruption of funding.

All Member States have completed mapping of three PC-NTDs. Four Member States are validated as having eliminated trachoma as a PHP, while two Member States are validated as having eliminated LF as a PHP. One country (Togo) has already eliminated four NTDs.

Key challenges include pinpointing of government funding, low levels of programme implementation, underfunding of programmes and inadequate staffing at country level. Following the recent restructuring of UCN (Universal Health Coverage/Communicable and Noncommunicable Diseases) in the Regional Office, NTDs now fall under TVD (Tropical and Vector-borne Disease).

Region of the Americas

Dr Santiago Nicholls, WHO Regional Office for the Americas/Pan American Health Organization, presented an overview of the impact of the pandemic in the Americas. COVID-19 negatively impacted the allocation of financial and human resources to NTD programmes, which were reallocated to the pandemic response; major efforts are required to return NTD resourcing to pre-pandemic levels. Some supply chain constraints continue in 2022.

In 2020, MDA for LF, onchocerciasis and STH elimination was mostly cancelled, but in 2022 most countries restarted MDA campaigns and some countries resumed population-based surveys for monitoring and evaluating impact.

The pandemic had a clear impact on detection of new leprosy cases, which fell by 25%; detection rates have now slightly recovered.

Documentation of LF is moving ahead, and elimination of this disease as a PHP is advancing in Guyana. Documentation of interruption of *Schistosoma* transmission in the Caribbean is moving forward. Several countries that had identified areas at risk for taeniasis/cysticercosis before the pandemic are now planning the confirmation of transmission and/or MDA strategy in the human population.

In Chagas disease, antivectorial control of household triatomines was maintained by countries during the pandemic. Remaining challenges include incorporating the care of patients with the disease within the health care services and detecting congenital Chagas disease.

Important advances are seen in the diagnosis and integrated surveillance of arboviruses (chikungunya, dengue, Zika), in improving automation, analytical capacity, and countries' decision-making for prevention and control. The diagnosis and clinical management of arboviral infections continue to be reinforced with four strategic lines of work – national networks, continued education, new guidelines, and strengthening of diagnostic laboratories.

There has also been some progress in public health entomology, but there is need to strengthen the different components in integrated vector management for control of vector-borne diseases. Public health surveillance actions as well as inter-programmatic and intersectoral interventions (e.g. water, sanitation, and hygiene [WASH] interventions, interventions on animal reservoirs) were affected by the pandemic.

Eastern Mediterranean Region

Dr Supriya Warusavithana, Regional Adviser for Tropical Diseases, WHO Regional Office for the Eastern Mediterranean, presented an update on progress in the Region. Of the total population of nearly 745 million, 75 million require interventions against NTDs; the Region bears 78% of the global burden of cutaneous leishmaniasis (CL) and 29% of the global burden of VL, as reported in 2020. All Member States are affected by at least one NTD, and NTDs have re-emerged in some countries due to natural or man-made emergencies. Weakened health systems in many countries are one of the key obstacles to combatting NTDs.

PC diseases (LF, onchocerciasis, schistosomiasis, STH, trachoma) are present in nine countries; LF is validated as having been eliminated in two countries, and trachoma in four countries. NTDs under case management include CL, VL and leprosy; peaks in the numbers of cases reported were seen in CL in 2019, in VL in 2003 and 2011, and in leprosy in 2018. However, a 47% increase in the number of new reported cases of leprosy has occurred since 2012, with 3588 new cases detected in 2021, including 2030 cases reported from Somalia. The paediatric case detection rate peaked in 2017, declined in 2019, but is now increasing again. The number of new cases with grade-2 disability has been mostly decreasing since 2012.

Regarding progress towards Sustainable Development Goal 3 indicator 3.3.5 (number of people requiring interventions against NTDs), a 53% decrease occurred between 2010 and 2020, and 6 countries in the Region have eliminated at least one NTD.

South-East Asia Region

Dr Aya Yajima, Regional Adviser for NTDs, presented the update for the WHO South-East Asia Region:

- LF: of nine endemic countries, three have already eliminated this disease, Bangladesh is preparing its dossier for validation, and Timor-Leste is under post-MDA surveillance. In the remaining four countries, 48% of implementation units (IUs) have already stopped MDA, while the remainder are rolling out or preparing for IDA (triple therapy with ivermectin, DEC, and albendazole).
- VL: the number of cases has fallen by 96% in the past 15 years. By the end of 2021, 99% of IUs had achieved the elimination target, with only 10 IUs remaining above the elimination threshold. A new regional strategy is being launched for accelerating and sustaining VL elimination 2022–2026. Challenges include continuing the reporting of PKDL, relapse and CL cases, the spreading endemicity, and a lack of tools for diagnosis and management of PKDL.
- Leprosy: in the past 5 years, three countries have reported < 25 new cases annually. However, the number of new cases has remained around 150 000 per year for the past 15 years, with India accounting for 80% of this burden.
- Yaws: India is the first country in the Region to be certified for elimination (2016). Timor-Leste detected no cases in 2021.
- Trachoma: two of three countries are validated for elimination as a PHP. India is undertaking a pre-validation nationwide survey.
- Schistosomiasis: prevalent only in 20 villages in central Sulawesi. A programme evaluation will be undertaken with the Philippines.
- STH: eight countries require regular school deworming (> 590 million school and preschool-aged children); five countries have sustained > 80% deworming coverage for school-aged children; India sustained 100% coverage in 2015–2017, but now coverage has been reduced.
- Snakebite envenoming: the Region has the highest incidence and the highest number of snakebite deaths in the world (70% of the global burden), but only three of 11 countries in the Region have national programmes, and only two have national strategies, so there is underreporting of burden data.
- Rabies: the Region has the highest incidence of and deaths due to rabies in the world; nine of 11 Member States are endemic. Rabies reviews are ongoing in all countries. A Regional Technical Advisory Group on rabies was established in 2022.
- Neglected parasitic zoonoses: the WHO Regional Office for South-East Asia co-organized the Tripartite Bi-Regional Meeting to Accelerate Control of Neglected Foodborne Parasitic Zoonoses in Asia in 2018, with the Food and Agriculture Organization of the United Nations (FAO), the World Organisation for Animal Health (WOAH) and the WHO Regional Office for the Western Pacific, and worked with FAO and WOAH to develop a series of tools for control of neglected parasitic zoonoses.
- Dengue: 1.3 billion people live in dengue endemic areas in 10 countries of the Region, five of which are among the most highly endemic in the world. A Regional Technical Advisory Group on dengue and other arboviruses was established in 2021 to review the situation and determine priorities. Integrated field entomology training began at regional and national levels to enhance vector management capacity.
- Skin NTDs: there are occasional scabies outbreaks, for which mapping is under way.

Western Pacific Region

Dr Sung Hye Kim, NTD focal point, WHO Regional Office for the Western Pacific, described the status of NTDs in the Region.

At least one of 15 NTDs is endemic in 28 countries and areas in the Region. Significant progress has been made in the elimination of LF, schistosomiasis, STH and trachoma through PC, and the focus is now expanded to a more comprehensive approach through veterinary PH, WASH, vector control, care and rehabilitation.

The goal of the Regional Action Framework for Control and Elimination of Neglected Tropical Diseases in the Western Pacific is to: eliminate six diseases (leprosy, LF, rabies, schistosomiasis, trachoma, yaws), control nine other diseases, and to alleviate suffering from NTD-associated morbidity and disabilities. Through multiple consultations, the Regional Action Framework was endorsed by the Sixty-ninth session of the WHO Regional Committee meeting in 2018.

Elimination of LF: by 2022, 10 of 22 endemic countries had achieved validation of elimination, and the Lao People's Democratic Republic had submitted its elimination dossier. Brunei was under surveillance and New Caledonia had completed LF assessment and was adapting IDA for a first MDA in 2022.

Elimination of trachoma: four of 10 endemic countries (Cambodia, China, Lao People's Democratic Republic, Vanuatu) have achieved validation of elimination; other countries are considering dossier development or ancillary surveys to substantiate a dossier.

Elimination of yaws: in Vanuatu, the road map for 2021–2022 is for enhanced MDA in three provinces with persistent transmission, integrated with STH deworming and scabies MDA, while in the Solomon Islands, the plan is to conduct combined MDA for yaws and scabies in Western Province in late 2022 and, from 2023 onwards, to carry out intensified case investigation, surveillance and integrated community/school hygiene and health education.

Elimination of schistosomiasis: a few decades of MDA covering school-aged children and adults in all endemic communities with > 75% coverage means that all 4 endemic countries are aiming to interrupt transmission by 2025. In Cambodia and Lao People's Democratic Republic, there will be continued expansion of a community-led WASH initiative to eliminate schistosomiasis (CL-SWASH) and, in the Philippines, operational research for zoonotic transmission control.

Regarding dog-mediated rabies, there is WHO–FAO–WAOAH support for a stakeholders' meeting and strategic planning in Cambodia, Lao People's Democratic Republic and the Philippines, and for revision of the Asian Rabies Elimination Strategy.

STH: advocating for deworming and hygiene education in school health across the Pacific is ongoing.

Other zoonotic NTDs: there is WHO–FAO–WAOAH support for multisectoral interventions for echinococcosis in Mongolia, for taeniasis in Cambodia and Lao People's Democratic Republic, and for pilot MDA against taeniasis and foodborne trematodiasis in Cambodia.

Presentations from partners

SCI Foundation

Dr Wendy Harrison, Chief Executive Officer, Schistosomiasis Control Initiative Foundation (3), said that the aim of the Foundation, which is currently celebrating 20 years of existence, is to eliminate schistosomiasis as a PHP (< 1% proportion of heavy intensity *Schistosoma* spp. infections), increasing the number of countries validated from zero in 2020, to, ultimately, 78 (100%) in 2030.

There are three pillars of work.

The first pillar is the MORBID project. A key finding from this project is that the prevalence of microhaematuria (blood in urine) in urogenital schistosomiasis could be a feasible indicator to assess elimination of urogenital schistosomiasis as a public health problem (EHP), rather than using the current indicator of < 1% prevalence of heavy intensity infections, thus helping programmes to determine (among other things) when the target is achieved.

Pillar 2 is to use interventions beyond PC to reach the road map targets. In Uganda, a pilot project is ongoing to identify cross-cutting approaches, and to build community participation and integration with WASH initiatives.

Pillar 3 is to change the operating model to facilitate country ownership. Burundi, for example, where the Ministry of Health increased its capacity and regularly achieves > 80% coverage across all endemic areas, reached the EHP target for 2021 some 2 years before projected, implying that country ownership, leadership and technical capacity, along with consistent access to medicines and funding, are essential to reaching the road map targets.

In 2023–2028, the Foundation will be shifting its focus from disease control to elimination, by expanding access to interventions, intensifying cross-cutting approaches including strengthening of health systems, and promoting country ownership and leadership of elimination programmes.

The End Fund

Dr Carol Karutu, Vice President, Programs, The END Fund (4), said that the aim of the Accelerate Resilient, Innovative and Sustainable Elimination of NTDs (ARISE) Fund is to fill intervention gaps and optimize NTD programmes to be country-led, efficient, impactful and sustainable. ARISE is a consortium of funders led by the Bill & Melinda Gates Foundation and the Children's Investment Fund Foundation who have jointly committed US\$ 100 million over 3 years, in response to the withdrawal of funds from the United Kingdom's Foreign, Commonwealth and Development Office (FCDO).

ARISE works in selected countries (Burkina Faso, Ethiopia, Kenya, Senegal, South Sudan) on identified gaps and initial recommendations by the selected countries. The Fund works on LF, onchocerciasis, schistosomiasis, STH, trachoma and priority strengthening in, for example, post-validation surveillance strategy and advocacy. Potential 3-year achievements include stopping MDA and EHP.

Phase 1 is to sustain momentum towards the 2030 goals by avoiding wastage of resources and stopping surveys in areas close to elimination (MDA areas for LF, schistosomiasis, trachoma).

Phase 2 is to optimize and sustain: to optimize delivery, empower data-driven decision-making, and encourage country co-funding and accountability through, for instance, improved tracking and verification of coverage and drug inventory, coadministration and integration, and advocacy to increase local funding.

The role of The END Fund in ARISE is to manage the funds by providing grants to implementing partners, and acting as overseer of technical activities (ensure implementation in accordance with approved workplans), reporting and communications.

The Carter Center

Dr Kashef Ijaz, of The Carter Center, gave an update on work supported by The Center on GWD, blindness and trachoma. In 2021, there were 15 cases of GWD; so far this year (2022), only 6 cases have been reported. Animal infections are also reduced by 50%. The Center will continue to support work on diagnostics, environmental testing to interrupt transmission, and research at every step of the parasite's life cycle, to advance GWD to zero incidence.

Regarding onchocerciasis, whereas originally The Carter Center worked in 17 foci, for three of these foci the process of elimination is now complete. Uganda is approaching the last milestone, and two states in Nigeria are being reclassified and MDA is being stopped. In the Americas, four countries have been verified for onchocerciasis elimination.

For trachoma, after 22 years of work in Mali, this country is moving to submit its validation dossier; despite the insecurity in this country, the team were able to quickly mobilize and survey the area. Work on trachoma elimination is continuing in other countries too, in Ethiopia, Niger, South Sudan and Sudan.

Uniting to Combat NTDs

Ms Thoko Elphick-Pooley, Executive Director, Uniting to Combat NTDs, talked about the Kigali Declaration on Neglected Tropical Diseases, which was officially launched in June 2022 and subsequently endorsed by the 54 member countries in the Commonwealth of Nations at the Commonwealth Heads of Government Meeting in Kigali, Rwanda. The Declaration is a political instrument that aims to mobilize political will and secure commitments to deliver Sustainable Development Goal 3 and the road map targets for 2030. It focuses on country ownership of NTD programmes, integration and cross-sectoral collaboration to ensure long-term sustainability.

Uniting to Combat NTDs is developing a commitment tracker of all financial, pharmaceutical and other pledges. Currently, it is waiting for partners to input their data; the next phase will focus on national governments to input their data. Partners will be able to use the tracker to see how the commitment is broken down. It is hoped the tracker will be a useful resource in ensuring that the Declaration is implementable and will help to deliver on the road map.

Every Kigali Declaration endorsement must be followed by a tangible commitment, expressed in financial, health product (e.g. medicines, diagnostics, policy) or in-kind (e.g. technical assistance) terms, and will be entered into the commitment tracker. Commitments will be updated and reported against by organization on an annual basis, up until 2030.

Partners will be able to view commitment totals, and breakdown of commitments by stakeholder type, themes, geography and more. The tracker will shortly be live on the Uniting to Combat NTDs website (5).

Discussion and recommendations

STAG-NTD members discussed the following topics.

On diagnostics

Are there any donations for diagnostics? So far there are none, although WHO does support their procurement; moreover, there is support for their development, and this is an area where countries might step in. The first need is to make sure a diagnostic with appropriate performance is available, then look for support. NTD is trying to facilitate development and the regulatory pathway, and is discussing with manufacturers the possibility of a tiered price system.

Does WHO/NTD provide training in how to use and apply diagnostics? There are various capacity-building activities, in line with developing the TPPs. Bench aids and online courses are prepared to enable basic diagnosis; the practice is to translate the guidelines into training materials so people can access them anywhere. Centres of excellence cannot be built for all diseases, but a centre of excellence for networking of them all might be a possibility.

Most developing countries cannot afford sophisticated tests, but simple strategies may provide adequate information for programmatic decision-making, for example adapted microscopy for STHs. Is there an accreditation system so that countries can continue with their current practices, and easily adapt them? Currently this topic is under discussion with an NTD subgroup on clinical diagnosis, on how to support microscopy through artificial intelligence and develop external quality assurance.

On One Health

Puzzlement was expressed about the One Health approach. Some felt there had been a lot of talking but the approach had not taken root, and there was need for more information to understand this line of attack. The approach however is not new, in that it addresses the links between human and animal health and the environment. If rabies was addressed only by using prophylaxis in humans, this would not break the transmission cycle. The One Health approach for NTDs could encompass WASH for instance, for sustainable impact, to confront open defaecation, bad sanitation etc., so in fact it is beyond the health sector. There is need for policy change, to push the agenda forward. The crucial thing is to attack the sources of the problem of NTDs, and the new label has been attached – One Health.

On country reporting

What is making it difficult for countries to report? We know that countries collect data, and we need them to report. However, it is necessary to ensure that before the data come to WHO they are in the national system and that the country is actually using them; the data are not just for WHO, but they are to be used by the country. Any system the country is comfortable using for collecting data can be used. There are to be country portals where countries can input their data. WHO does not just want just to collect a lot of information that is not being used.

On online courses

Although 50 000 people have enrolled in the online NTD courses, STAG-NTD members wondered how many people had in fact participated and completed the course. This information is available and will be shared accordingly during future STAG-NTD meetings.

On schistosomiasis

Missing from the Director's progress report, although very good in itself, was mention of female genital schistosomiasis. This however features prominently elsewhere in WHO. There have been several publications, and a working group on gender equity and rights is to be formulated.

Regarding medicine donations for schistosomiasis, there has been a change in WHO guidance to expand the population eligible for treatment to adults of all ages. PZQ should be available in health facilities so that health workers can administer the medicine to those who present for treatment. In addition, WHO now recommends that children aged ≥ 2 years should also be treated. However, additional quantities of PZQ will be required to treat adults, while the paediatric formulation (when available) will not be donated and thus have to be procured. Merck, the pharmaceutical company, has pledged to donate 250 million PZQ tablets (600 mg) annually for an unlimited period. However, because the annual amount of donated medicine has not reached this level, some of this amount can be used to fill the treatment gap in adults. WHO/NTD is seeking to negotiate with existing and new donors to facilitate access to the new paediatric formulation.

On leprosy and integration with skin NTDs

For leprosy, it was suggested to bring back actions from the past, including focusing on areas of high transmission, on areas of difficult access, and on self-screening because disabilities are on the increase, as well as active case-finding and an integration approach (e.g. using STH campaigns to include leprosy screening also). A skin NTD framework is now launched (6), which identifies opportunities to integrate approaches for control and management, and so far, around 6 countries have implemented this. There is the possibility of integrating screening also.

Modelling for skin NTDs has not yet been specifically performed, and models for leprosy are difficult because transmission is not well characterized. How might we best do this? To focus on areas with high transmission would be good, but how might this usefully be undertaken?

There are 14 nongovernmental organizations for leprosy and their members have embraced the road map, with significant implications for post-exposure prophylaxis (although most countries have yet to adopt this), and diagnostic tests for leprosy infection and for leprosy disease. But how to integrate services? Integration has potential advantages for active case detection, but also carries risks – the risk of degradation of expertise, the risk that leprosy is *only* regarded as a skin disease, and for loss of focus for partners and donors. The effect of COVID-19 has not been modelled, but as diagnosis only picked up by 5% in 2021, it is estimated that 140 000 people with incident leprosy in the past 2 years have not been detected. No wonder disability is on the rise.

On STH

The reported decrease in people receiving the intervention is only 2%, but the prevalence of STH infections is increasing. Almost no country has eliminated STH and looking at the number of people requiring the intervention, in Africa there is not much change. Might a new strategy be needed?

On scabies

One of the challenges is securing medicines for treatment of scabies – is there a donation for scabies, or a programme for shifting medicines? The current donor of ivermectin for onchocerciasis has not agreed to extend the donation to scabies. As a result, WHO/NTD is looking for alternative suppliers that could make ivermectin available to countries at no or subsidized cost. In the meanwhile, two low-cost formulations of ivermectin have been prequalified by WHO in 2020 and 2021 with the aim of facilitating procurement and increasing access.

Session

III

**Impact of COVID-19
on NTD programmes**

Part 1. Programmatic impact: disruption, adaptation and recovery

Disruptions caused by COVID-19 to NTD programmes: overview

Ms Farah-Joy Agua, WHO/NTD, gave an overview of the disruptions to NTD services, as captured by the WHO global pulse surveys (7).¹ Among other things, these surveys looked at the percentage of services for NTDs disrupted during the pandemic, as well as at the severity of such disruptions. There were three survey rounds, by questionnaire, to which all of the respondents were from health ministries.

In countries that responded to all three survey rounds, comparisons indicated that, in Q3 2020 (Round 1), Q1 2021 (Round 2) and Q4 2021 (Round 3), NTDs along with mental health, neurological and substance use disorders were some of the more frequently and severely disrupted of all services.

In Q4 2021 (8),² most disrupted of the services for NTDs were large-scale PC campaigns and community awareness programmes.

In Q4 2021 however, while service disruptions persisted across all tracer NTD services, 1/3 countries reported partial service recovery in the extent of disruption compared with disruption levels seen in Q1 2021.

Impact on preventive chemotherapy interventions

Mr Alexei Mikhailov, WHO/NTD, talked about the impact on PC interventions in MDA campaigns in 2020–2021.

Many countries faced major disruptions, though some were able to implement PC interventions partially. Whereas in 2019, 83 countries reported on implementation of 250 campaigns, in 2020 there was a reduction of 28%, to 180 campaigns in 72 countries, as also (so far as results are currently available) in 2021 (180 campaigns in 65 countries).

The global number of treatments delivered also decreased from 1.805 billion in 2019 to 1.137 billion in 2020 (–37%). In 2021, the number increased somewhat compared to 2020, to 1.311 billion (+15.4%; mainly due to increase in distribution of single albendazole and IDA for lymphatic filariasis, and of azithromycin for trachoma). The positive trend in number of treatments distributed was seen in most regions during 2021.

Due to closure of schools in 2020–2021 in many countries, the most affected types of PC were school-based deworming campaigns for distribution of albendazole or mebendazole against STH but again this was less severe in 2021. Only two countries in the WHO African Region were able to reach all endemic areas with effective MDA coverage for lymphatic filariasis for all years of the pandemic. Also, a few countries achieved the criteria to stop MDA and move to surveillance.

¹ Pulse surveys have limitations such as reporting bias and representativeness, but they are comprehensive and deliver information rapidly.

² The third round of the global pulse survey on continuity of essential health services during the COVID-19 pandemic: November–December 2021 reflects on the 6 months prior to survey completion.

Impact on supply chain management of NTD medicines and health products

Dr Afework Tekle, WHO/NTD, talked about the supply chain cycle.

During COVID-19, most steps of the supply chain cycle were severely affected: at the manufacturing stage, human resources were affected; at the transportation stage, offices were closed, and flights were grounded; after arrival of shipments, reduced labour availability meant shipments were not unloaded, and there was delayed clearance at customs; at health facility level, there was postponement of MDA and risk of expiry of NTD medicines. Even if implemented, MDA may have been partial. This has resulted in reduced demand for medicines from health ministries, and this has in turn affected the pharmaceutical industry because they had planned for a greater output. So now there are cost implications, and shortage of storage space, particularly for manufacturers that are producing millions of medicines. Countries have been asked if they are able and willing to store medicines for the future, and some are responding positively.

WHO response: published guidance

Dr Albis Gabrielli, WHO/NTD, explained the three types of WHO response: normative (technical guidance), leadership (advocacy and information sharing), and operational (tailored support to Member States and follow-up with all relevant actors and partners).

During COVID-19, WHO published several sets of guidance that had a bearing on NTDs.

The first set of guidance, published on 1 April 2020, was general preliminary advice. Recommendations were not part of a formal WHO publication; they were posted on the WHO website and communicated to WHO regional offices for further dissemination. They included to:

- postpone community-based surveys, active case-finding activities, and mass treatment campaigns for NTDs
- continue critical interventions: diagnosis, treatment, and care of NTDs for patients presenting to healthcare facilities, and essential vector control measures
- use existing NTD platforms, surveillance mechanisms and WASH/health education opportunities to support implementation of COVID-19-related measures.

Next came guidance on community-based interventions (9): detailed recommendations on NTD interventions directed countries to monitor and re-evaluate regularly the necessity for delaying community-based surveys, mass treatment and active case-finding.

The next guidance was on maintenance of essential health services (10): detailed recommendations on adapting health facility-based NTD interventions and case-management of patients included maintenance of diagnostic and management services for the most critical conditions (e.g. BU, Chagas disease, dengue, HAT, leprosy, rabies, snakebite envenoming, VL, neurocysticercosis) and for severe complications of all other NTDs.

The fourth guidance was on resumption of selected NTD community-based interventions (11): this detailed a risk-based approach for safe implementation of mass treatment, active case-finding, and population-based surveys for NTDs. The two-step approach comprised a risk-benefit assessment in order to decide on whether to restart the intervention, and a list of precautionary measures to decrease risk of transmission of SARS-CoV-2 associated with the intervention.

The fifth guidance was on the use of medical and non-medical/fabric masks for community outreach activities (12), based on current WHO guidance. This comprised comprehensive recommendations on what type of mask should be worn by the different types of health worker involved in different types of community outreach activities.

Derivative tools (13–15) adapted from WHO guidance were developed by WHO regional offices and NTD partners, who actively promoted and disseminated them. Their use was reportedly wide and confirmed by surveys (e.g. ESPEN). They contributed to the overall resumption of NTD services observed from late 2020 onwards.

Part 2. Impact on transmission: update on modelling and remedial strategies

Professor Deirdre Hollingsworth, of the NTD Modelling Consortium, spoke about the modelling work that had focused on seven NTDs (16). The Consortium had worked closely with WHO to agree estimates of prevalence, and the short- and long-term impacts of programmatic interruption to make the predictions more realistic.

Among the potential impacts of COVID-19 on diseases for which MDA is a critical part of the current programme, any missed round might lead to a delay. With schistosomiasis, for example, and assuming two missed rounds of MDA in a low-transmission environment, there is a short-term impact, but this reduces over time. For LF, a missed round might not have much of an impact. For trachoma, programmatic interruption might be remediable (e.g. if multiple rounds of MDA are delivered per year once it is possible to resume community-based interventions).

The impact of interruptions in case-finding for VL and gHAT are more difficult to estimate; they are likely to lead to fewer cases being detected, while the true underlying rate of new infections will likely increase because of the accompanying increase in onward transmission from untreated case. Delays to reaching the goal will depend on the phase of the programme and the transmission setting. Maintaining passive surveillance followed by treatment can help to prevent (temporarily) increases in mortality. Potential mitigation strategies include extending the duration of or reimplementing active case detection and vector control. With leprosy though, we do not know how good our case-finding is, or what the implications might be.

Key messages include:

- delays in MDA or interruptions to interventions will lead to increases in infection and morbidity and increased time and resources needed to reach agreed road map targets;
- the underlying dynamics of each NTD, local transmission dynamics, duration of delay, chance, and implementation of recovery, will influence the ultimate impact; and
- among the 7 diseases considered, impact is likely to be greatest for schistosomiasis and trachoma, and for VL on the Indian subcontinent, especially in high transmission areas.

The models are useful but not necessarily predictive. The good news is that if a programme resumes, over time it will regain the progress that has been lost. There will be variation among settings in response to MDA delay, response to MDA rounds, response to proposed remedial actions and impact on progress. But in some populations, there is opportunity to accelerate progress towards the 2030 targets.

The NTD Modelling Consortium is working with ESPEN to provide analysis to support sub-national decisions. An NTD prevalence simulator for Africa (17) models the impact of treatments on NTDs based on frequency, length in time, coverage and country, so that the potential impact of MDA delays can be seen. The modelling can be adapted to specific locations to investigate where MDA needs to be reinstated most urgently. Development of the simulator is ongoing; a Beta version and first update was launched in 2021.

A number of issues were raised after the presentation.

On alternatives to school-based programmes

The guidance provided by WHO during the pandemic had been useful, but school-based programmes were profoundly affected. In the next pandemic, given that schools will be disrupted, can we make plans for dealing with these disruptions? What alternatives to school-based programmes might be useful? Can community-based programmes take over?

On helping policy-makers to make decisions

Are there any data which give an indication of what programmes may be damaged? So a policy-maker can identify what we should improve after the outbreak, to help them make decisions, especially in countries with limited resources. This is where we can use the models, to see what progress has been lost compared with pre-pandemic. How can we translate all this information into something useable for the countries, and help the programme manager? One way would be to take the 2030 targets and see what delay might be expected for a given disease.

On the never-treated

The proportion of never-treated people was another issue, and whether they are included in the models. For most programmes we do not really know about coverage, whether the reported coverage is a fair reflection of what is actually happening, and what the proportion of never-treated is. If there is a large proportion of never-treated – if, for example, there is 65% coverage and the rest are never-treated – then even with an increase to 80% coverage, will you ever reach the never-treated?

On maintaining services at a low level

Delaying targets is one thing, but should we not maintain services, even if at a low level, to prevent resurgence? Or perhaps only focus on hot spots? STAG-NTD could request that WHO includes “continuity of health services” in any future policy document aimed at preparing the world for the next pandemic.

On when we can expect to see progress again

From the modelling, if COVID-19 has had an impact, when can we start to see a return to progress again? For example, VL cases in India are continuing to decrease, even during and after the pandemic. Active case detection continued more or less throughout the pandemic. However, this was at the expense of delay in detecting patients following the onset of symptoms, so now a more active assessment needs to be made to ensure that more cases were not actually missed. But there is no similar case detection in Africa, where VL services have definitely been impacted by the pandemic.

Part 3. Voices from the field: country experiences regarding use of WHO interim guidance, innovative approaches and field assessments, and lessons learnt

Africa experience

Dr Andrew Korkor said that 30 of 47 countries in Africa responded to the questionnaire about the impact of COVID-19. Overall, the major impact in the Region was on MDA, which was cancelled or postponed in 24 countries. Other impacts were seen in the reduction or stopping of health education, surveillance, and hydrocoele surgery. However, there was an increase in personal hygiene, on hand and face washing.

Looking more closely at Guinea, at the initiative for integration in the fight against NTDs, at the combining of PC and case management, and at leprosy, the coverage was over 80% in locally based treatment centres in > 3000 villages. No active cases of leprosy were found, but some complications due to LF were detected.

There are 38 health districts in the country; every district is endemic for at least one NTD. To fight against these NTDs, the country has developed a partnership between communities and health services through the community-based treatment with ivermectin (CBTI) strategy implemented by the onchocerciasis programme or through the MDA programme in the case of co-endemicity of PC-NTDs. The objective is to contribute to leprosy elimination and BU control in CBTI and MDA areas based on the experiences of community distributors.

The methodology consists of two phases: preparatory and implementation. First, increasing awareness and training, and then screening for BU, leprosy and LF complications.

Technical and financial partners were at first resistant to integrating material resources at the local level, and to involving local authorities in the activities. Other difficulties encountered included access to health areas and villages in the rainy season, and the distances between households, which slows down documenting, which must precede MDA and active screening.

Coupling of active case management-NTD screening activities and PC-NTD MDA was shown to be effective and efficient, but it is essential to involve local authorities in the activities. Picture cards are key tools for community suspicion of BU, leprosy and LF complications; and pre-sensitization and orientation supported by social mobilization are important. This strategy for community-based identification of BU and leprosy cases through CBTI or MDA encouraged technical and financial partners to engage in the plan.

Americas experience

Dr Santiago Nicholls talked about LF elimination in Guyana. Before the pandemic, in 2016–2018, there were three MDA campaigns using DEC + albendazole in the highest endemic regions. The first round of IDA took place in 2019 in eight regions, and 2021 saw the second round of IDA, during COVID-19.

In 2020, the guidance issued about community-based health care was presented in seminars and webinars. After considering the risk–benefit and precautionary measures to take, the second MDA was postponed to Q1 2021, and was undertaken with adaptations to ensure the safety of community and health care workers (e.g. use of personal protective equipment, training sessions for health workers and distributing of MDA house-to-house rather than from a fixed base).

In all endemic regions, in 2019 and similarly in 2021, coverage by combination MDA was slightly above 75% of the total population. At the end of 2021, a pre-IDA impact survey that included 7761 participants across six regions was carried out. Milestones had been reached, and IDA was planned for the last quarter of 2022, though this may need to be postponed until 2023 due to issues with supply of medicines.

Similar activities were carried out in other countries in the Region of the Americas, but this was an example of how activities can be carried out even during a pandemic. Results are generally positive. Transmission is likely to have been interrupted in Guyana; the protocol is complete, and everything is in place. Although some supplies are missing, things are looking very positive.

Eastern Mediterranean experience

Dr Supriya Warusavithana spoke about how rapid assessment had been conducted in nine high-burden countries in 2020 to determine, among other things: the immediate needs for guidelines and funding, the availability of medicines and diagnostics and access to these, what laboratory services were available, and the number of cases. The assessment was mainly by questionnaire to NTD country office focal points. Most of the countries responded positively and said the WHO COVID-19 guidance was easy to adapt.

Most impacted were, in order of effect: additional training; surveillance and reporting; community-based interventions; availability of medicines; resources; and staffing. Staff were not affected too badly because they were already multitasking, so engagement in COVID-19 did not impact them too much, and funds could not be diverted because countries did not have permission to do this.

Barriers to accessing NTD services included: lockdowns imposed by the country; travel restrictions; patients' fear of contracting COVID-19 from health facilities; and public health messaging, which discouraged people from accessing health care for non-COVID-19-related symptoms, including for NTDs.

There were two success stories. In Yemen, owing to worries that funds would be diverted, the NTD programme continued with their MDA programmes, using gloves and masks. This also helped the community to adhere. Pre-COVID-19 coverage for onchocerciasis (2019) was 90%; this reached 92% in 2020 and 91% in 2021, despite COVID-19. Also in 2020, MDA was deployed for schistosomiasis (coverage of 85%), trachoma (coverage of 78%) and STH (coverage of 85%). So, if community and health workers have a good understanding, they can bring about a good result, despite a pandemic.

A second success story comes from work against STH in Pakistan. In 2019, MDA reached nearly 3 million children, but in 2021 reached only about 300 000 children. So, in 2021, when medicines were beginning to expire, different methods were used for messaging to mobilize support. This included messages to governmental structures (national steering and coordination committees, provincial steering committees, technical working groups, district management committees), schools, communities and health facilities (including flexible delivery

models and platforms targeting schoolchildren and out-of-school children), as well as to communities (using digital communications (e.g. to local media, social media, radio, health workers, teachers)), religious leaders, TV programmes and celebrities, and by using social media campaigns (e.g. Facebook). In this way, awareness was created about deworming, and 8.3 million schoolchildren were reached.

South-East Asia experience

Dr Aya Yajima spoke about some of the regional NTD activities undertaken during the pandemic.

In Indonesia, following the government decree on IDA implementation while reducing COVID-19 risk, and the WHO Director-General's recommendation on continuation of dengue control programmes, activities continued as far as possible, in a hybrid manner. There was a hybrid programme evaluation meeting, LF training of stakeholders and programme sensitization for world leprosy days.

In India, female community health volunteers, known as accredited social health activists, were involved in NTD community interventions; one volunteer is available for every 1000 population at village level. These volunteers conducted case searches, and distributed LF MDA house-to-house, holding themselves at a distance from the community members when doing so. Innovations in India included employing local medical school students as external monitors for MDA and monitoring and evaluation (2022) in priority states and districts, to check/monitor MDA compliance.

In Timor-Leste, in 2021, LF and STH transmission assessment surveys were integrated with skin examinations for yaws and scabies. STH prevalence was assessed by species. Of 16 828 registered students in 234 schools, 67% were tested using filariasis test strips and *Brugia* rapid tests, and 70% underwent stool examinations. STH prevalence was mapped by species. Prevalence of any helminth (*Trichuris*, hookworm or *Ascaris*) varied between 2% and 50%. Of the 75% of students who underwent skin examinations, 1.7% had suspected yaws (all negative on testing with Combo card) and 0.5% had scabies.

In Nepal, innovations included enhancing coverage in IDA rollout (2022) through: holding strategic planning meetings at national level, and microplanning meetings at IU level; producing an advocacy video in local languages; intense monitoring and supervision; and adopting a height-based dose pole. In 2022, vector control officers, public health officers and laboratory technicians from the provinces were trained in basic field entomology to enable integrated vector control and surveillance.

Western Pacific experience

Dr Thipphavanh Chanthapaseuth, Technical Officer for NTDs in the WHO country office in Lao People's Democratic Republic, spoke about the implementation of NTD activities during the COVID-19 pandemic.

The NTD situation in the country is as follows:

- dengue – nationwide endemicity;
- foodborne parasitic diseases – nationwide endemicity, *Opisthorchis viverrini* prevalence 0.1–77% in 2022, and *Taenia saginata* prevalence 48% in one pilot province in 2019;
- LF – one endemic province; elimination dossier submitted in 2022;

- rabies – antibody prevalence among dogs: 68% from research 2010–2016;
- schistosomiasis – two endemic districts; < 1% prevalence in sentinel sites in 2021; and
- STH – nationwide endemicity, < 20% prevalence in sentinel sites in 2020.

The situation before COVID-19 was: for schistosomiasis MDA, people gathered in each village at specific points for health education and for medicine (PZQ) to be administered; for STH, deworming activity was conducted school-by-school across the country in April and October, preceded before each MDA by training for all health centre staff (50 or 60 people at each session); for rabies, World Rabies Day was celebrated at temples with village heads and large gatherings of > 200 people.

During COVID-19 however, the situation changed. For schistosomiasis MDA, distributors visited community members household-by-household, and health education was provided family-by-family. For STH, training for school deworming was conducted with small groups of people, < 50 at a time, and with social distancing. For World Rabies Day celebrations, information was posted on Facebook and conducted at small meetings rather than large gatherings.

Many other activities were postponed, including some training on the implementation of school-based deworming, and integration of rabies information into the teaching curriculum. School-aged children did not receive medicines for more than 2 years, and there was no funding for STH training. However, some activities were implemented which did not involve gatherings of large numbers of people (e.g. stool examination for schistosomiasis), which took place at sentinel sites, and other opportunities arose such as for schistosomiasis MDA and World Rabies Day celebrations, as mentioned above.

Discussion and recommendations

STAG-NTD members discussed the following matters.

On preparedness

During COVID-19, as well as challenges to the conduct of NTD programmes, other emergencies, such as flooding and earthquakes, also interrupted NTD activities. As part of preparedness, an emergency response for NTDs is called for, and the putting in place of rapid response teams may be an additional initiative for NTD to take forward. An example was given of the floods in Pakistan which, ongoing at the time of the meeting, were giving rise to outbreaks of fevers, 50% of which were diagnosed as dengue; NTDs occur regularly in conflict settings.

On lessons learnt from the COVID-19 experience

What can we learn from COVID-19? Some successful things happened.

- The FCDO cuts, which coincided with multiple other challenges facing NTD programmes, led to other donors becoming involved in the response to NTDs.
- NTD actors were invited to cross-sectoral discussions and so were able to contribute to other programmes.
- Guinea is a great story, but it is also based on what the country learnt from Ebola, so we need to look at a deeper level, country by country.
- In many of the country examples there was high coverage even during, as well as after, COVID-19. For interventions carried out by health workers who reside in participating communities, there seemed to be no decline in output.
- What is WHO doing in terms of community empowerment? Working with the communities, and having their trust, is something which paid off in the case of GWD. In dengue, the situation was improved by the community, by removing mosquito breeding sites around their houses.

COVID-19 has provided some opportunities, which NTD can exploit.

- The WASH programme brought with it a lot of changes, so this lesson can now be taken into the schools.
- Everyone knows what a lateral flow assay is now, and experience abounds in polymerase chain reaction. Infrastructure and networks and data collection systems have been set up, so a lot of new capacity is available. This experience and capacity could potentially be used for NTDs.
- COVID-19 led to a robust increase in serosurveys through multiplexing. WHO has set up an NTD Diagnostic Technical Advisory Group, and other donors are investing in multiplexing tools. NTD programmes may be able to collaborate at reduced overall cost.

In addition, in some contexts, changes in human behaviour due to COVID-19 led to reductions in the incidence of infection and disease (e.g. a lower incidence of dengue associated with lockdowns).

On doing better next time

Incorporating some costing and financial modelling on top of the transmission modelling would be helpful – what was the actual expenditure versus what happened in different settings, and what was the result of not putting finances into that situation, and what does it cost to re-implement?

On the matter of WHO guidelines, in the next pandemic these could perhaps be more tailored to the different countries, more tailored to different places, taking into consideration the different responses in the different contexts.

Information technology showed it could play a major role. How can we maximize information technology for tracking and following up in the next pandemic? We did see applications being used, and they can be used for monitoring.

On what to look at in the next 2 years

- How much voice does the NTD community have in health ministries? People began to do things differently during COVID-19: they worked across sectors and with different ministries, and this contact, this leverage, could now be used for NTDs, such as dengue, which calls for a multisectoral approach.
- How prepared is a country for the supply of medicines? A huge amount of space is required to accommodate shipments of medicines, and when this space was all taken up by COVID-19, there was no place to store NTD medicines. We need to help countries to optimally manage the supply of medicines.
- Is there local production of reagents? Delivery of reagents is costly. If a country has some capacity to make them locally, that could be built on.
- Reflect on the already recognized clear indicators in the road map and framework (18) and use them to make things more comparable.
- Use of social media: we were forced to do this during COVID-19, but we can use it for NTD outreach?
- How does the NTD programme work with country offices? In humanitarian disasters some populations might be at risk for NTDs, so we need to look at continuity of care for populations that are displaced.
- Can WHO play a role in acknowledging the work of volunteers? Volunteers do an enormous amount of work for NTDs.

Session

III

**Global support to NTD
programmes**

Celebrating World Rabies Day: 28 September 2022

On World Rabies Day, Dr Bernadette Abela-Ridder, WHO/NTD, mentioned that worldwide there was one death from rabies every 9 minutes (19, 20), 40% of which are in children, but that these deaths are 100% preventable. Our tools are powerful. There are three key pillars: awareness and community engagement; the need to follow a One Health approach, coordinating work on dog vaccination and dog population management; and timely care (after someone has been bitten). With increased access to human and dog vaccines, these deaths can be brought to zero by 2030.

Support by partners, donors and pharmaceutical companies: situation analysis

Global overview on NTD financing trends

Dr Daniel Argaw Dagne, WHO/NTD, gave a global overview of financing for NTDs.

There are three forms of support for NTDs: cash, in-kind, and supplies (medicines, diagnostics, and other medical/non-medical supplies). Major areas supported include PC; intensified case management; vector control and veterinary public health interventions; validation, verification and certification of elimination and eradication; capacity-building; and research and development (R&D). Governments of NTD-endemic countries contribute hugely to programmes through human resources and domestic funding, contributions which often go unrecognized.

Major external donors include: public/government sectors; foundations and philanthropic organizations; the private sector including pharmaceutical companies; United Nations/multilateral agencies; and nongovernmental organizations, international alliances, academia, research institutes.

The pharmaceutical sector is incredibly important to the NTD programme. Some companies have supported NTDs for > 40 years, before even the conception of WHO/NTD. Through providing access to treatment, the contribution of this sector is significant for health systems strengthening. This sector also provides significant financial contributions to support the scale-up of disease control and elimination interventions, and technical collaboration including pharmacovigilance, as well as R&D of new medicines.

Seven NTDs do not receive any dedicated funds. The withdrawal of the FCDO ASCEND programme in 2020 impacted over 2000 IUs in over 20 countries.

Considering R&D, the COVID-19 crisis primarily affected clinical trials; funding for clinical development fell by 10% in 2020, while funding for health products R&D fell by 6% from 2019. Growth in philanthropic funding, however, helped to offset falling public and private sector funding, and innovative financing mechanisms for R&D in NTDs have emerged (e.g. the Global Health Innovative Technology Fund, the European and Developing Countries Clinical Trials Partnership, and the RIGHT Fund).

Key challenges include the unpredictability of external funding, and the current lack of a mechanism for systematically collecting, analysing and tracking NTD financing.

NTD health product and supply chain management programme

Dr Afework Tekle, WHO/NTD, spoke about where additional resources are needed.

WHO/NTD plays a major global role in managing and coordinating the donation of NTD medicines and the distribution of health products, and coordinates its operations with 12 or more pharmaceutical donors and partners, whose donations of medicines contribute considerably to the success of the NTD programme. There are donation commitments for: Chagas disease, foodborne trematodiasis, HAT, leprosy, LF, schistosomiasis,

STH, taeniasis/cysticercosis, VL and yaws. Donations of ivermectin (Mectizan) for LF and onchocerciasis and of azithromycin (Zithromax) for trachoma are managed outside WHO.

However, there remain significant gaps for some diseases. NTDs for which there are no existing donations of medicines include: BU, chromoblastomycosis, CL, mycetoma, rabies, scabies, snakebite envenoming and VL.

For diagnostics, there is no donation for any of the NTDs. WHO does however support the procurement of diagnostics, including for Chagas disease, HAT, leishmaniasis, LF and yaws.

Until COVID-19 struck, for many years quantities of medicines donated had been increasing; they peaked in 2018. To reach the road map goals, concerted efforts are required to meet NTD medicine and diagnostic needs, either through donations or by negotiating reduced prices.

Areas of investment needs

Dr Xiaoxian Huang, WHO/NTD, spoke about the investment recommendations to accelerate progress towards the 2030 goals. These recommendations are also summarized in the recently released companion advocacy document to the road map entitled *Ending the neglect to attain the Sustainable Development Goals: a rationale for continued investment in tackling neglected tropical diseases 2021–2030 (21)*.

Maintaining momentum is critical for eradication and elimination of the targeted NTDs by 2030. The COVID-19 pandemic induced reflection about the consequences of interrupting interventions against NTDs. For example, based on the modelling of a hypothetical population with high baseline transmission intensity but low adult burden of infection, it was predicted that if MDA for schistosomiasis in school-aged children is delayed for 12 months, it will cause a 2-year delay in achieving EPHP.

The priority areas that require concerted efforts and investment attention, as highlighted in the investment rationale, are: (i) programme dimensions that can substantially increase the efficiency of NTD interventions, such as diagnostics, monitoring and evaluation, access and logistics, and advocacy and funding; (ii) innovation in financing approaches that can promote and support implementing cross-cutting approaches; and (iii) investments in building country ownership.

Spending on NTDs by governments in developing countries faces fierce competition from that for other infectious diseases, which are prioritized. In these countries, the fiscal space for incremental investment in NTD programmes is limited. The best way to sustain NTD programmes is to build healthcare for NTDs under the primary health care (PHC) framework.

NTD programmes reflects the spirit of PHC. The philosophy of community-based interventions recommended by PHC is fully taken on board by the NTD programme; improving PHC goes hand in hand with improving NTD services. A stronger PHC system will provide higher quality services to populations affected by NTDs. Meanwhile, improved NTD services can extend PHC coverage to the most disadvantaged populations.

The NTD community can proactively participate in the political discussions on the design and financing of PHC systems at global and country levels. This is how we can raise our voice, using an investment rationale: increase domestic and international funding to accelerate progress, and support greater integration and investment in shared gaps. The main message is to Act Now, Act Together (21).

Country experiences on sustainability

Ms Emily Wainwright spoke about the experience of the Neglected Tropical Diseases Program of the United States Agency for International Development (USAID), which addresses sustainability and gap assessment. USAID has been working with NTD programmes for 16 years and now supports 26 countries, but in the past has supported 33 countries in the Americas, Africa and Asia; with USAID support, 3 billion treatments have been delivered to 1.5 billion people, and 10 countries have eliminated at least one NTD.

USAID is developing a strategy with governments on how to create sustainability plans. Countries bring together relevant sectors to reflect on priorities, then undertake bilateral conversations on how to support and advance sustainable NTD services. USAID uses a four-pillar strategy related to the road map: controlling and eliminating diseases; strengthening the scientific and programme evidence base; supporting sustainable country-led programmes; and strengthening and expanding partnerships.

It was thought that COVID-19 would end funding for sustainability, but countries are working to create sustainability plans. On average, these plans, which reflect priorities, take 8–15 months to create. Governments work on issues related to sustainability and actively engage in the plans; many are looking at, for example, how to insert NTDs more routinely into the budget, or at specific strategies such as hydrocele surgery.

Six collaborating countries in Africa are currently developing sustainability plans, and seven countries have completed their strategies. Simultaneously they are working on issues to advance sustainability and strengthen their health systems to deliver NTD services. Collaborating countries in Asia are Indonesia, Nepal and the Philippines.

It is important that other donors work with individual governments according to the government-led sustainability plan, so as not to undermine that plan.

Supporting the road map in a changing scenario: statements by partners and donors

Dr Jordan Tappero, Deputy Director for Global Health, Bill & Melinda Gates Foundation, said that the Foundation had given thought to implementation, diagnostics, drug development and surveillance, and was helping fill the gap in funds left following the departure of FCDO. Still a gap remained; however, he was hopeful that other donors would deliver, and that the gap left by FCDO could be fully closed. The Foundation supports activities against GWD and LF and recently provided support to Nepal and Bangladesh as they were hit hard by funding cuts. In sub-Saharan Africa, specific activities included re-engaging in GWD in the Democratic Republic of the Congo, where 85% of cases are, and supporting drug delivery for gHAT elimination. In diagnostics, the Foundation was continuing to support TPP development, especially for diagnostics to support surveillance. They work with USAID, and he was enthusiastic about the sustainability framework.

Dr Kashef Ijaz, of The Carter Center, said that The Center supports programmatic research (e.g. diagnostics research), and continues to work on GWD, schistosomiasis and STH, and on transmission of river blindness in Nigeria. The Center also works on LF in southern Venezuela, northern Brazil and the Dominican Republic; the latter would soon eliminate LF as a PHP. Haiti has already eliminated LF. The Center was now expanding its work on morbidity management in LF to other countries, including Nigeria. A lot of work has been done in terms of implementation. And, on the research side, there is GWD, river blindness and trachoma. Mali is a great story, and Niger is also close to elimination of trachoma, while the Amhara region in Ethiopia is moving towards this.

Dr Julie Jacobson, of Bridges to Development, said that her organization is motivated to end the neglect in NTDs, and works on the programme side. In the Western Pacific Region, they have a focus on skin diseases, scabies, yaws, and on LF in Vanuatu, and on getting the needed medicines into endemic countries. Also, they focus on strengthening elimination efforts, across intersectoral platforms, and work with AIDS and with female genital schistosomiasis. They support access to programmes and strategies and new technologies. The challenge to STAG-NTD is how to move past the donation model where donations are not in place, such as in the case in which a company develops a new product, which they cannot then give away for free.

Dr Fabiana Alves, NTD Cluster Director, Drugs for Neglected Diseases *initiative* (DNDi), said that DNDi works on developing new tools and operates in and with endemic countries. For kinetoplastid diseases, a new drug – acoziborole – is coming soon. DNDi has helped to develop new guidelines for VL, and a new combination treatment (sodium stibogluconate and paromomycin) for VL in Africa, and will begin a first phase of oral treatments – integrating new medicines and faster access to therapy. In Chagas disease, they are putting more investment into new products. For mycetoma, which is very neglected, they are running a first mycetoma clinical trial and partnering with a virtual drug-discovery community to identify new treatments; and in partnership with EISAI and Sudan, a strategy was developed to register fosravuconazole in Sudan, initially on a compassionate or conditional basis in advance of full registration.

Dr Taka Hida, CEO Eisai Co. Ltd (EISAI), Tokyo, spoke about the changing scenario. EISAI works in 29 countries. His company is committed to work on LF until its elimination. EISAI has developed a treatment for eumycetoma, and in 2015 began collaboration with DNDi. There was a recent phase 2 study meeting in India, on safety and efficacy, on a randomized double-blind trial of fosravuconazole for mycetoma. EISAI will continue to develop the drug and deliver it to the patient. But this is the beginning of new challenges. Discussions on the road map have so far been based on using new drugs; there is no place to discuss strategy and regulation to make new drugs available as soon as possible. New drugs cannot always be provided free. To receive funding to develop a new gHAT treatment should be inspiring, but the road to launching a drug is quite bumpy. New innovative drugs

have the potential to change the scenario, but there is need for collective discussion on seamless collaboration from R&D to delivery, regulatory harmonization and global treatment guidelines for new NTD medicines.

Dr Philippe Neau, Head, NTD Programme, Sanofi, said that the elimination of sleeping sickness is the Sanofi flagship, and that we could succeed altogether, confirming what NTD has been doing for years regarding elimination of HAT. Sanofi will continue to donate the four drugs and will continue to develop new drugs in partnership. They have great hopes for acoziborole; hopefully there will soon be another fifth drug for treating HAT. The company is committed for the long term.

Ms Elodie Yard, Director, Oriole Global Health, based in Nairobi, said that they had worked in Bangladesh and Nepal following the FCDO cuts. There was a lot of resilience in the field after the cuts; many partners were able to mobilize resources to support critical gaps, but still many crucial gaps remained. In a move away from vertical programming, Oriole tackles five NTDs, has contributed to the distribution of 70 million treatments, and is working on sustainability plans with USAID. The WHO building blocks such as leadership were defined based on a sustainability framework, centred on tailoring to the needs of specific countries, and Oriole work includes data management for health workers. Many fora in the NTD world allow the sharing of experiences but the resources to NTDs are not infinite, so in a holistic approach, Oriole finances strengthening of health systems and sustainability.

Dr Lynn Leonard, STH Global Programme Leader, Johnson & Johnson (J&J), emphasized her company's commitment to NTDs, especially to intestinal worms, dengue and leprosy. J&J will continue its support to STH and expand its R&D efforts in dengue and leprosy. It has developed a paediatric formulation of mebendazole for use against STH, as part of its donation. J&J fully supports the road map but emphasizes the need for a more integrated approach to donations and, in the context of STH, improved strategy for minimizing manufacturing costs and medicine expiry, and sustaining coverage by mapping. Once these data are generated, this would allow medicines to reach those in greatest need. There is a need to act now and to act together.

Dr Johannes Waltz, Head, Schistosomiasis Elimination Programme, Merck, said that Merck is committed to delivering 250 million PZQ tablets a year until schistosomiasis is eliminated, and to delivering additional funds for schistosomiasis R&D. Merck is engaged in developing a new formulation of PZQ, and operates in accordance with the road map, which defines the ultimate objective of their schistosomiasis work. The FCDO cuts had presented a "double whammy" along with COVID-19, and though gaps were still there, together with WHO they had managed to prevent large-scale PZQ loss. PZQ continues to be a cornerstone of efforts against schistosomiasis. New treatment guidelines published earlier in 2022 have given way to an emerging problem as now the guidelines recommend treatment of adults and preschool-aged children in addition to school-aged children. He was looking forward to working with partners, and to ensuring that sustainability is taken up with countries and funders.

Dr Carol Karutu, Vice President, Programs, The END Fund, said that the Fund continues its support for 26 countries in Africa and Asia and is committed to meeting the elimination targets, including the elimination of LF and onchocerciasis in six countries of the Sahel. The Fund also works towards deworming and supports work against leishmaniasis in five countries of Africa. She looked forward to the time when, by 2030, millions of people would no longer need treatment. Related to the FCDO cuts, the END Fund is mandated to "leave no one behind", and they can raise money from philanthropists for the delivery of diagnostics and medicines. At meetings on sustainability and country ownership in 26 countries, she had found a lot of appetite for local ownership. With regard to integration, there is advocacy work that needs to facilitate integration: it is politicians rather than technical staff who generally decide the budget.

Dr Ingrid Elmroth, from the Global Health Unit of Novartis Pharma AG, emphasized their continued support to the road map. To tackle some of the biggest global health challenges is something that Novartis owes their

patients and lies at the core of their sustainability as an organization. The Novartis Institute for Tropical Diseases looks for new solutions to NTDs, and their vision includes malaria, cryptosporidiosis and kinetoplastid diseases. Earlier this year Novartis endorsed the Kigali Declaration and financial commitments, and she looked forward to continued collaboration, accelerated action towards elimination, and unlocking the potential of countries to build healthier and safer worlds.

Dr Anna Gine-March confirmed the Anesvad Foundation's commitment to the fight against NTDs, particularly to skin NTDs, and to intersectoral action for health, in alignment with the road map. The Foundation acts on the social determinants of health, including NTDs and other health conditions, and their plan has four ways of action, to work with: ministers of health; civil society; the private sector; and operational and implementational research including on diagnostics and treatment. She emphasized the cross-cutting nature of their plan and said there was a need to create an alliance on synergic work.

Financial support to WHO for the road map: situation analysis

Dr Xiaoxian Huang presented an overview of WHO funding for implementing the road map. During the 2020–2021 biennium, the requirement approved by the World Health Assembly was US\$ 86 million, and the actual funding was US\$ 81 million; and for 2022–2023, the requirement is US\$ 107 million, but so far only about US\$ 66 million is available. There are no additional funding sources, but a higher risk of funding cuts. Do we need a mitigation strategy for a more long-term funding decrease?

WHO/NTD is highly dependent on donors. More than 80% of funding is on a voluntary basis, and fundraising efforts are scattered and vertical. There are several big donors and many small donors, making it difficult to fund an integrated strategy. Pharmaceutical companies have the biggest share of voluntary funding (more than half), so might there be some conflict of interest?

Some difficulties are inherent with the present funding situation.

- All grants, regardless of amount, need separate reporting, management and monitoring. Managing so many donors is time-consuming. Might an integrated management platform be possible?
- When there is discrepancy between the NTD workplan and donors' interests and priorities, WHO will often need to adjust.
- It is difficult to base a long-term work plan on financing that is short-term and unpredictable. External funding is highly unstable, and substantial funding cuts could happen at any time; since 2017, there has been a general decreasing trend in donor funds.
- Not all NTDs receive the necessary investment attention: 65% of funds are targeted on single diseases, while 7 NTDs do not have any dedicated funds; so, funding distribution across NTDs is unequal, and all funds are earmarked, including those for multiple diseases.

In 2020–2021, out of grants worth US\$ 36 million distributed to WHO/NTD, 40% was redistributed to the regions, with more than half going to the African Region. ESPEN is also a key funding source for the Region, but mainly targets the five PC-NTDs. Both funding from HQ and from ESPEN dropped quickly between the two biennia. Another key regional funding source is the Global Leprosy Programme, which directly targets regions and countries.

In general, WHO funding for NTD programmes at regional and country levels is decreasing rapidly, mainly due to the cut of donor support. The HQ transfer represents the biggest share of regional funding source for NTDs. How can we better support regions and countries to effectively raise funding to pursuit regional NTDs targets?

Tracking funding flow for the NTD programmes at the three levels or the Organization (HQ, regional and country levels) is also problematic. At HQ, funding for NTD programmes is easily identified through the budget to the NTD department, but at region and country levels, the awards for NTDs may be included within a budget envelope for a more general category, such as communicable diseases. Without a reliable information on funding needs and gaps, it will be difficult to develop efficient arguments for resource mobilization.

Raising and allocating funds for WHO's NTD activities: mechanism and outcomes

Dr Janna Riisager, WHO Planning Resource Coordination and Performance Monitoring in the Business Operations division (BOS/PRP), described how WHO is financed. The WHO Programme Budget has four segments and three functional levels (HQ, regions, country). There are two types of contribution: the assessed (AC) and core voluntary contributions, which are flexible funds, and the specified voluntary contributions, which are designated/earmarked funds. The progressively larger share of the Programme budget is funded by specified voluntary contributions. The only predictable source of funding is the assessed/core voluntary contributions, but these funds are progressively decreasing in relative terms (AC compared to the total budget decreased from 46% in 1990 to 14% in 2022–2023).

As a result of WHO's funding modality, all WHO major offices and most programme budget results are highly dependent on voluntary contributions. The consequent uneven funding of major offices by mostly earmarked contributions means also that programme budget outcomes (e.g. of population benefitting from universal health coverage, or better protected from health emergencies) by major office are unevenly funded.

Challenges of how WHO is financed include:

- Financing patterns are not necessarily aligned with the approval of strategic priorities as part of the Programme Budget during the World Health Assembly.
- Priority programme areas (e.g. mental health, nutrition) continue to be underfunded.
- Sustainable funding is critical to respond to the changing public health environment and to address areas (e.g. emergency preparedness, noncommunicable diseases), which traditionally do not appeal to a broad spectrum of voluntary contributors.
- The large number of short-term contracts/consultants makes it difficult to plan the workforce.
- The top five donors of voluntary contributions provide 30–60% of the financing of Programme Budget outcomes, creating vulnerability through a heavy reliance on top donors.
- The Secretariat manages thousands of awards across hundreds of budget centres, which represents a significant administrative burden.
- WHO is a norm-setting agency; ensuring neutrality/independence is vital.

To help build a more sustainable and predictable financing pattern for WHO across the three levels, a Working Group on Sustainable Financing was established by decision EB148(12) "in order to enable WHO to have the robust structures and capacities needed to fulfil its core functions as defined in the Constitution". The Working Group had seven meetings in 2021–2022, culminating with a report and set of recommendations for a World Health Assembly decision. The Seventy-fifth Assembly in May 2022 adopted the recommendations, which included:

- the base segment of the programme budget should be fully flexibly funded;
- a gradual increase of AC by 2029–2030 to reach 50% of the 2022–2023 base budget; and
- to explore the feasibility of a replenishment mechanism to broaden further the financing base.

WHO resource mobilization and allocation mechanisms

Dr Brian Tisdall, WHO Coordinated Resource Mobilization/Engagement with Established Government Contributors in the External Relations and Governance division (EXT/CRM), said that the task of the resource mobilization team is to raise resources at a bigger level, and to encourage fully flexible financing. He outlined WHO's financial situation.

Presently there are 10 or 11 top voluntary contributors to WHO; this donor base needs to be broadened through outreach and making the investment case – for every US\$ invested in WHO, the return on investment is US\$ 35.

Member States and the European Union are the main contributors (US\$ 1.385 billion in voluntary contributions in 2022). Next are philanthropic organizations (US\$ 313 million in 2022), and funding from sister organizations of the United Nations and multilateral banks etc. (US\$ 345.5 million in voluntary contributions in 2022). There are pledges and funds in the pipeline too.

Financial highlights for emergencies include the Contingency Fund for Emergencies (CFE), which totals around US\$ 120 million. A Global Health Emergency Appeal, in which all emergency plans are compiled into one document, will be launched on 11–12 January 2023, based on inputs from all regions. Some emergencies are relatively well resourced (e.g. Ukraine), but other contexts (e.g. Sahel, Sudan) are much less in the public mind and therefore attract less funding. Emergencies in 2022 included COVID-19 (66% funded against an ask of US\$ 1.59 billion), Ukraine (56% funded as of July 2022 against an ask of US\$ 147.5 million) and Afghanistan (US\$ 57 million received against the total appeal of US\$ 147.6 million; additional funds under negotiation).

The way forward in 2022–2023 is to improve WHO financing by increasing the amount of funding and the quality; 86% is voluntary, and much of it is highly targeted. To try to increase this and bring the Organization into sustainable financing, WHO has held strategic dialogues with contributors of flexible voluntary funding.

For equitable allocation of resources across the three levels of WHO, there is the Resource Allocation Committee (RAC) Output Delivery Teams (ODTs) (RAC-ODT) mechanism. The RAC has high-level representation at regional and HQ levels, and the ODT has technical experts appointed by their respective regional offices. The teams prepare and rank plans and propose their distribution at the different levels; the plans are discussed jointly and transparently. This RAC-ODT mechanism is a good concept with proven results in improving allocations across the three levels but has very limited scope (US\$ 50 million for 2022–2023).

So that coordinated country-focused proposals can be given to donors, some of the ways in which WHO is trying to strengthen its financial and operational collaboration across the three levels are: strategic discussions during regional days, prioritization at country level, operational planning at country level, and the RAC-ODT mechanism to improve joint work and resource allocations.

Building more predictable and sustainable funding for NTDs depends on sustainability of the overall WHO financing pattern. A case needs to be made in terms of the return on investment for achievements in NTDs, on WHO's added value and the impact of these achievements in terms of equity. Donors like and support clear proposals with clear results and clear beneficiaries, so impact oriented and country focused proposals are needed. The global NTD network needs to actively participate and advocate within the institution regarding allocation of internal resources, using clear deliverables and specific beneficiary countries. Global high-level advocacy is needed. There are opportunities with the regional offices, and with locally available funding in countries; the WHO Regional Office for Africa has invested heavily in this at country level.

Discussion and recommendations

The discussions following the presentations ranged around the need for both internal and external advocacy, and how flexible and voluntary funding can be channelled to NTDs to accelerate the eradication of two NTDs and the elimination of several others, as mandated by Member States.

On internal advocacy

To argue for resources within WHO, it is necessary to look to the core road map pillars rather than disease-specific platforms; WHO/NTD is not the only programme within the Organization that is short of funds and there is need to ensure that once resources are within WHO they are allocated to WHO/NTD. We could do a much better job of advocating for why NTDs really matter, internally at WHO; the argument is apparently not yet compelling enough.

In the road map, the emphasis is on integration. But if the donors are still trying to push for individual diseases, it is difficult to integrate. In integrating MDA for multiple diseases, opportunities may be missed because not all the medicines are available in the country when they are needed. Are there clear guidelines from WHO as to when a medicine can be shifted and used in a different context?

It seems that a fair amount of budget is coming from HQ to the regions. Are the regions comparatively allocating their budgets to NTDs? Regional Directors decide how the flexible funds are allocated, so we should make sure that NTDs are clearly visible. There is not much fundraising happening at regional level except by ESPEN. A clear message is needed that NTDs are threatened by withdrawal of donors.

And at country level, there could be mechanisms to encourage WHO country offices to work with local donors.

On external advocacy

An economic case can be made for NTDs. It is necessary to look at non-conventional funders, to look at a bigger picture, and to go out with compelling stories.

Leprosy has a budget higher than other diseases but has a strong social movement behind it. The disease has been closely linked to human rights. Might NTDs need to have an ambassador? To have strong representation in human rights, in order to have strong representation in social movements? It might be good to have some punch in the direction of human rights for NTDs.

Other non-conventional funders might come from the environmental sector. NTDs are directly related to environmental change, for example in the Amazon basin. So maybe this type of foundation could be approached?

NTDs are linked with poverty, so can funding come from inroads into poverty and gender funding associations?

On advocacy messages

A clear advocacy message is that there are “x” million tablets donated but no funds to deliver them. We should not only make efforts to sustain funding but also aim for more funding, to set our targets a little bit higher. And for those communities that have achieved incidence or prevalence targets, there should be some provision for them to sustain this. The countries will have the capability – so there is need to sustain this, and these can be role models for the others.

In summing up, Professor Blumberg referred to the funding crisis, and the need to look at specific areas, such as data production, and ensure that interventions are strategic. Funding opportunities have clearly been missed, and NTDs need some ambassadors. The road map has been highlighted as perhaps being too rigid, and specific diseases possibly need a more explicit focus to highlight the gaps. And we need to empower country offices to work with donors, and to raise the profile of advocacy for NTDs.

Session

IV

Wrapping up

Presentation of recommendations

Professor David Mabey presented the draft conclusions and recommendations. STAG-NTD appreciated that noma is neglected, but, despite the pressure, the moratorium on adding new diseases would hold until next year, when STAG would reconsider this decision; the disease could also be managed by the Oral Health programme in WHO's Department of Noncommunicable Diseases. He proposed that yaws eradication is a main topic of the next meeting, to bring it to the forefront, and that a One Health lens be used to consider NTDs at the next meeting.

The draft recommendations were subsequently circulated to STAG members for their review and comments.

Consolidated conclusions and recommendations

Conclusions

Having reviewed progress against NTDs during the period of the COVID-19 pandemic, throughout which NTD programmes were significantly disrupted at all levels in most countries, the STAG-NTD concludes that:

- despite the enormous challenges that national programmes have faced, progress has been made against NTDs in a number of countries, particularly in the implementation of community-based work when school-based work could not be done;
- there is a need to consider ways of concretely recognizing the many inspiring contributions of community health workers to progress against NTDs, particularly during this period of heightened risk;
- the NTD Modelling Consortium has done excellent work in predicting the impact of COVID-19-related programmatic disruptions on seven NTDs in limited geographies;
- pathogen sequencing has been a useful approach to the epidemiological monitoring of SARS-CoV-2 infection and the diagnostic infrastructure built for SARS-CoV-2 holds potential value for analogous use in NTDs, particularly as eradication and elimination targets are approached;
- interest in, and understanding of, the use of repeated serosurveys for revealing the intensity of infectious disease transmission has increased globally as a result of the COVID-19 pandemic, and this could prove a useful strategy for monitoring the impact of NTD control and elimination programmes;
- the series of online NTD training courses that has been created on Open WHO is commendable;
- the reliability of data on coverage of preventive chemotherapy and on NTDs for which active case-finding is required is sometimes questionable; the data need improving as they are important for comprehensive assessment of the current trajectory towards some of the targets set out in the road map;
- accurate, reliable diagnostic tests are a prerequisite for disease prevention, control, elimination and eradication, and STAG reaffirms that diagnostic tests must meet the ASSURED criteria;
- the work of the NTD Diagnostic Technical Advisory Group in advancing work on diagnostics and developing target product profiles is commendable;
- the widespread expansion in national capacity for undertaking polymerase chain reaction, for the purposes of detection of SARS-CoV-2, might be assumed to have created in its wake new opportunities for nucleic acid amplification-based detection of NTD-associated pathogens.

In relation to specific NTDs the STAG-NTD concludes that:

- progress has been made on VL in Africa and South America following the focus on this topic at the 15th meeting of STAG-NTD (7–8 February 2022);

- dengue is unusual among NTDs in terms of the size of its geographical footprint, its large (and increasing) global incidence, its epidemic potential, its association with climate change and urbanization, and the lack of specific treatment options;
- success in the rabies programme relies on a One Health approach based on three key pillars (awareness, dog vaccination, timely post-bite care), and consideration by GAVI, the Vaccine Alliance, of future investment in rabies is welcome; all partners are called upon to continue to help build momentum.

In relation to financing, the STAG-NTD:

- recognizes with gratitude, and on behalf of WHO Member States, the many ongoing generous contributions from all donors and partners to the fight against NTDs, while acknowledging the donors' calls for better data, more strategic and efficient use of health products to increase impact and reduce wastage, and for closer collaboration among organizations, and recognizes that WHO needs to ensure resources are allocated in the best way possible, including through considering which are the most efficient delivery platforms;
- notes with concern that funding for NTD programmes from some major donors has been reduced over the past 2 years, despite the fact that work against NTDs represents a best-buy in global public health;
- concludes that approaches to potential new donors may be needed, including the private sector within NTD-endemic countries; these should be coherent with the road map, and consistent and coordinated within a comprehensive resource mobilization strategy;
- concludes that greater domestic funding from government, nongovernmental development organizations and private partners is to be encouraged;
- applauds current work to support implementation of the road map companion document *Ending the neglect to attain the sustainable development goals: a sustainability framework for action against neglected tropical diseases 2021–2030 (22)*; all partners are requested to consider its guiding principles.

Recommendations

The STAG-NTD:

1. Recommends that a compendium of lessons learnt from COVID-19, detailing both things that worked and things that did not work, be created.
2. Recommends an expansion in advocacy for NTDs within and outside of WHO: requests WHO/NTD to develop a comprehensive plan for internal and external resource mobilization and allocation, and urges WHO and other stakeholders to (i) address the current crisis in funding by building sustainable financing for WHO/NTD as well as NTD programmes in WHO's regional and country offices, and (ii) promote evidence-based interventions against NTDs in endemic populations to enhance the efficient use of available resources.
3. Following the progress made against VL after the focus on this topic at the 15th STAG-NTD meeting in 2022, requests (i) an in-depth examination of work to eradicate yaws and (ii) a review of NTDs using a One Health lens, using the published road map companion document, at the next (17th) meeting.
4. Encourages expansion of the work of the NTD Modelling Consortium from seven NTDs to all 20 NTDs and to all endemic contexts where feasible, so that countries can assess the likely impact of COVID-19-related programmatic disruptions and consider potential mitigation strategies; and requests consideration of economic modelling beyond the existing transmission models, given the importance of financial considerations in political decision-making.

5. Noting the greater global interest in repeated serosurveys for revealing the intensity of infectious disease transmission, recommends that the DTAG leverages this interest for the benefit of work against multiple NTDs alongside other diseases of local importance, particularly as eradication and elimination targets are approached.
6. Encourages translation of NTD training courses into relevant local languages and requests that, in future, data on course completions (as well as registrations) be presented in order to allow estimation of impact; and encourages also expansion in the use of social media.
7. Requests an urgent and comprehensive multi-stakeholder assessment of the support provided to national programmes that facilitates quality-assured, quality-controlled data generation, analysis, interpretation, reporting, stewardship and linkage to decision-making, which should include optimal use of modern digital tools according to local capacity.
8. Encourages local production, where possible, of reagents and consumables in relation to NTD diagnostics; recommends that whenever diagnostics are made available within national NTD programmes, local capacity to correctly deploy those diagnostics should be confirmed; and further recommends that where this capacity is insufficient, locally appropriate capacity-building efforts be undertaken.
9. Encourages WHO to support potential new pharmaceutical donors to implement simple low-cost procurement processes.
10. Encourages WHO to prioritize maintenance of essential health services, including those for NTDs, within WHO's initiatives, instruments and mechanisms for pandemic prevention, preparedness and response; encourages collaboration among stakeholders engaged in NTDs and emergency preparedness and response, and in particular requests the WHO Secretariat to develop generic cross-cutting plans for strategic interventions indicating, for example, the essential services that should be maintained to minimize mortality, morbidity or reversal of progress against particular NTDs in the setting of a future pandemic, natural disaster or other complex emergency.
11. Recommends that dengue programmes and other vector-borne control programmes should be encouraged to implement the integrated vector management response and social mobilization strategies, which should be well documented.
12. Emphasizes the existing WHO recommendation for single-dose rifampicin post-exposure prophylaxis for leprosy, and the need for diagnostics for leprosy, without however undermining implementation of the integrated approach to skin-related NTDs.
13. Recommends contributions to capacity-building within WHO country offices to empower them to undertake local resource mobilization, emphasizing the impact at country level of work against NTDs.
14. Reaffirms the recommendation made at the previous (15th) meeting to not add further diseases to the list of NTDs until at least 2023, whilst acknowledging that many other diseases receive insufficient attention in relation to their contribution to human suffering.
15. Recommends that WHO consider appointing one or more goodwill ambassadors for NTDs in order to raise the profile of work against NTDs.
16. Requests all stakeholders to support the forthcoming effort to develop a comprehensive research and development blueprint for NTDs.
17. Requests that future STAG-NTD meetings allow more time for discussion to be included in the agenda.

Appreciation for STAG-NTD members concluding their mandate

Dr Ren Minghui, ADG/UCN, led the appreciation for several individuals who had completed their terms as STAG-NTD members. He passed on thanks from the WHO Director-General, who was unable to be present, but who would be looking to the final report and recommendations of this meeting. Departing members were Dr Marcos Boulos, Dr Rosa Castalia, Dr A.C. Dhariwal and Dr Lee Ching Ng.

Closure

Professor David Mabey thanked everyone for joining the meeting, whether in person or virtually, and for the wonderful presentations. He said it had been a real pleasure and wished there had been more time for the discussions. He thanked Dr Gautam Biswas, for whom this meeting would be the last before he retired.

Dr Gautam Biswas thanked everyone for their guidance. Thanks were due to the partners, many of whom participated online, not only for their donations and support but also for their activities and guidance; they had always been very forthcoming. Lastly, he gave thanks to his colleagues, both at HQ and in the regions.

Finally, Dr Raman Velayudhan took the floor. He thanked everyone and especially gave sincere thanks to Dr Biswas, for his excellent skills, and who had been part of the team for such a long time.

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Annex 1. Agenda

Tuesday 27 September 2022

Session 1. Introduction and reports		
Time	Topic	Lead
09:00–09:10	Opening remarks	Ren Minghui
09:10–09:20	Administrative matters, including appointment of rapporteurs	David Mabey WHO/NTD
09:20–09:35	Introduction of new members	Gautam Biswas
09:35–10:20	Year in review: Director's report	Gautam Biswas
10:20–10:40	Morning break	
10:40–11:10	Discussion and recommendations	STAG-NTD members
11:10–12:00	Progress reports from WHO regions	Regional NTD focal points
12:00–12:30	Presentations from partners	
12:30–13:00	Discussion and recommendations	STAG-NTD members
13:00–14:00	Lunch break	

Session 2. Impact of COVID-19 on NTD programmes		
Time	Topic	Lead
14:00–14:30	Part 1. Programmatic impact: disruption, adaptation and recovery	Farah-Joy Agua Alexei Mikhailov Afewerk Tekle Albis Francesco Gabrielli
14:30–15:00	Part 2. Impact on transmission: update on modelling and remedial strategies	Anthony Solomon NTD Modelling Consortium
15:00–15:20	Afternoon break	
15:20–16:00	Part 3. Voices from the field: country experiences regarding use of WHO interim guidance, innovative approaches and field assessments, and lessons learnt	Regional NTD focal points
16:00–17:00	Discussion and recommendations	STAG-NTD members
17:00–18:30	Reception (B building cafeteria)	

Wednesday 28 September 2022

Session 3. Global support to NTD programmes		
Time	Topic	Lead
09:00–09:05	Celebrating World Rabies Day: 28 September 2022	Bernadette Abela
09:05–09:30	Support by partners, donors and pharmaceutical companies: situation analysis	Daniel Dagne Afewerk Tekle Xiaoxian Huang
09:30–09:37	Country experiences on sustainability	Emily Wainwright
09:37–10:10	Supporting the road map in a changing scenario: statements by partners and donors	Partners and donors
10:10–10:30	Discussion and recommendations	STAG-NTD members
10:30–10:50	Morning break	
10:50–11:20	Financial support to WHO for the road map: situation analysis	Prabha Rajamani Xiaoxian Huang
11:20–12:00	Raising and allocating funds for WHO's NTD activities: mechanism and outcomes	Brian Tisdall, WHO/CRM Janna Riisager, WHO/PRP
12:00–12:30	Discussion and recommendations	STAG-NTD members
12:30–14:00	Lunch break	

Session 4. Wrapping up		
Time	Topic	Lead
14:00–15:30	Consolidated conclusions and recommendations	David Mabey Rapporteurs WHO Secretariat
15:30–15:50	Afternoon break	
15:50–16:20	Presentation of recommendations	David Mabey
16:20–16:40	Appreciation for NTD-STAG members concluding their mandate	Gautam Biswas
16:40–17:00	Closure	David Mabey Gautam Biswas

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