PARTNERSHIP IN THE FIGHT AGAINST NTDS IN THE NEXT DECADE: WHAT KIND OF INNOVATION?

Monday, March 1rst, 2021
02.00 – 03.30 p.m. (Swiss time CET)

Online event

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

SANTD
Swiss Alliance against Neglected Tropical Diseases
Schweizer Allianz gegen vernachlässigte Tropenkrankheiten

Source Pictures: WHO, DNDi, FIND

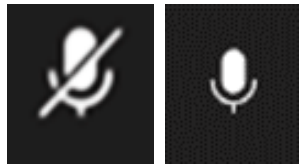
Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

SANTD
Swiss Alliance against Neglected Tropical Diseases
Schweizer Allianz gegen vernachlässigte Tropenkrankheiten

Welcome !

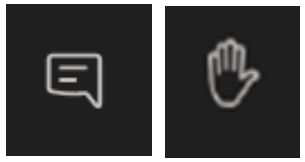
Greetings from Cameroon

Technical reminders

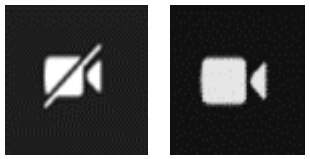


Your microphone

Please keep your mic on mute, and unmute it only when you are talking.



If you have comments or questions during or after a presentation or discussion, post them in the chat in writing, or raise your hand if you wish to speak using your mic.



If you are speaking, you can turn on your camera, internet connection permitting.

If you can’t hear or see: close and rejoin the meeting, and close all other programs.

The webinar is recorded.

Agenda

Segment I – Introduction on NTDs challenges ahead (presentation 20 min)

Speakers:

Dr Dirk Engels: Review of the last WHO Roadmap on NTDs

Dr Mwele Malecela: Introduction to the new WHO Roadmap on NTDs

Dr Anthony Man (Novartis): Challenges in Development of Innovative Therapeutics for NTDs.

Segment II – Deep-dive in two concrete examples from partners (presentation 20 min – 10 min each)

Disease focus 1: Human African trypanosomiasis (sleeping sickness)

DNDi (Dr Olaf Valverde), **FIND** (Dr Joseph Ndungu): Multi-dimensions of access: how to address some of the bottlenecks.

Disease focus 2: Schistosomiasis

Merck Global Health Institute (Dr Jutta Reinhard-Rupp): From donation to sustainable procurement of medical products (Praziquantel): what kind of (fair) partnership are we looking for?

Swiss TPH (Dr Stefanie Knopp) : Novel tools and strategies for breaking schistosomiasis transmission

Agenda

Segment III – Cross-sectorial interventions in the fight against NTD and the COVID – 19 pandemic: what room for innovation? (panel discussion ca. 30-45min.)

Panelists:

SDC (Dr Alexander Schulze)

Pharma (Dr Lutz Hegemann, Novartis)

WHO (Dr Mwele Malecela)

Research (Dr Peter Steinmann, Swiss TPH)

Segment I – Introduction on NTDs challenges ahead (presentation 20 min)

Speakers:

Dr Dirk Engels: Review of the last WHO Roadmap on NTDs

Swiss Alliance against Neglected Tropical Diseases (SANTD)

Swiss Agency for Development and Cooperation (SDC)

Online Conference

March 1st 2021, 2-3.30 pm CET

PARTNERSHIP IN THE FIGHT AGAINST NTDS

IN THE NEXT DECADE

WHAT KIND OF INNOVATION?

Dr Dirk Engels

SENIOR ADVISER, UNITING TO COMBAT NEGLECTED TROPICAL DISEASES

RETIRED DIRECTOR, WHO DEPARTMENT OF CONTROL OF NEGLECTED TROPICAL DISEASES

Neglected Tropical Diseases

A global response to local, poverty-related health priorities - driven by innovation

- Innovation in **thinking**
  - Grouping multiple, very diverse diseases under one banner
  - Branding them as a poverty and development issue
- Innovation in **delivery**
  - Blending of similar disease-specific actions into broad public health interventions (PC-IDM-VC-VPH-WASH)
  - 2012-2020 NTD Roadmap: widespread delivery of those interventions to reach clear, ambitious disease *elimination* targets – among "*best buys in global public health*"
- Innovation in **partnering**
  - Between public and private sector – for large-scale access to medicines, R&D and product development
  - London Declaration on Neglected Tropical Diseases: uniting a diverse network of partners around one perspective - *the first WHO NTD roadmap* – with respective roles and accountability

Where do we stand today?

At the end of WHO's first NTD Roadmap 2012-2020

- Proof of principle that the concept could work: ✓ provided

- Wide-scale delivery of interventions
  - Initial (logical) focus on "medical" interventions and access to essential treatments
  - Large scale preventive treatment >> intensified disease management
  - Prevention of transmission: WASH - Vector Control - Veterinary Public Health (One Health)

- Technological advancements
  - Very successful for some NTDs, but still work in progress
  - Status of programmatic progress imposes need for novel products across NTD spectrum (treatments, diagnostics, vector control and animal products)

- Global health and development perspective
  - NTDs are part of SDG framework and Universal Health Coverage – *we should leave no one behind*
  - Close link established with SDG6 - WASH and NTDs – WHO Global WASH-NTD strategy 2015-2020
  - Also link with all other SDGs (PMID: 28372566; PMCID: PMC5379574), but more complex to build on in practice

Where do we go from here?

Questions that may need further innovative thinking

- Novel tools and access
  - How can we materialize novel product development across the NTD and One Health spectrum?
  - How can we make sure such novel products can easily be used/managed in local settings?
  - How will we transition from donated products to sustained, affordable access to all essential NTD commodities?
- Wide-scale delivery of interventions
  - How can we bring NTDs further into mainstream health care and other *(globally siloed)* health programmes?
  - How can we rapidly bring health workforce up to speed with NTD knowledge and capacity?
- Cross-sectoral collaboration
  - How can we sollicit attention for simultaneous human, animal and environmental health interventions?
  - How can we bridge the gap between central and peripheral levels to translate *One Health* into action?
- Partnering
  - How can we partner with other, well-established health programmes, to catalyze integrated field implementation?
  - How can we bring additional, multisectoral partners into the informal alliance working to eliminate NTDs?

Segment I – Introduction on NTDs challenges ahead (presentation 20 min)

Speakers:

Dr Mwele Malecela: Introduction to the new WHO Roadmap on NTDs

World Health Organization

The New NTD Road Map

World Health Organization

The road map is:

World Health Organization

NTD targets for 2030

Overarching targets

Top-line targets for NTDs, in line with the Sustainable Development Goals and WHO's 13th General Programme of Work

90% Fewer people requiring interventions against NTDs

75% Fewer NTD-related DALYs

100 Countries having eliminated at least one NTD

2 NTDs eradicated

Cross-cutting targets

75% Integrated treatment coverage index for preventive chemotherapy

10x More countries that adopt and implement integrated skin NTD strategies

100% Of the population at risk protected against outof-pocket health payments due to NTDs – to achieve SDG 3.8

100% Access to at least basic water supply, sanitation and hygiene in endemic areas – to achieve SDGs 6.1 and 6.2

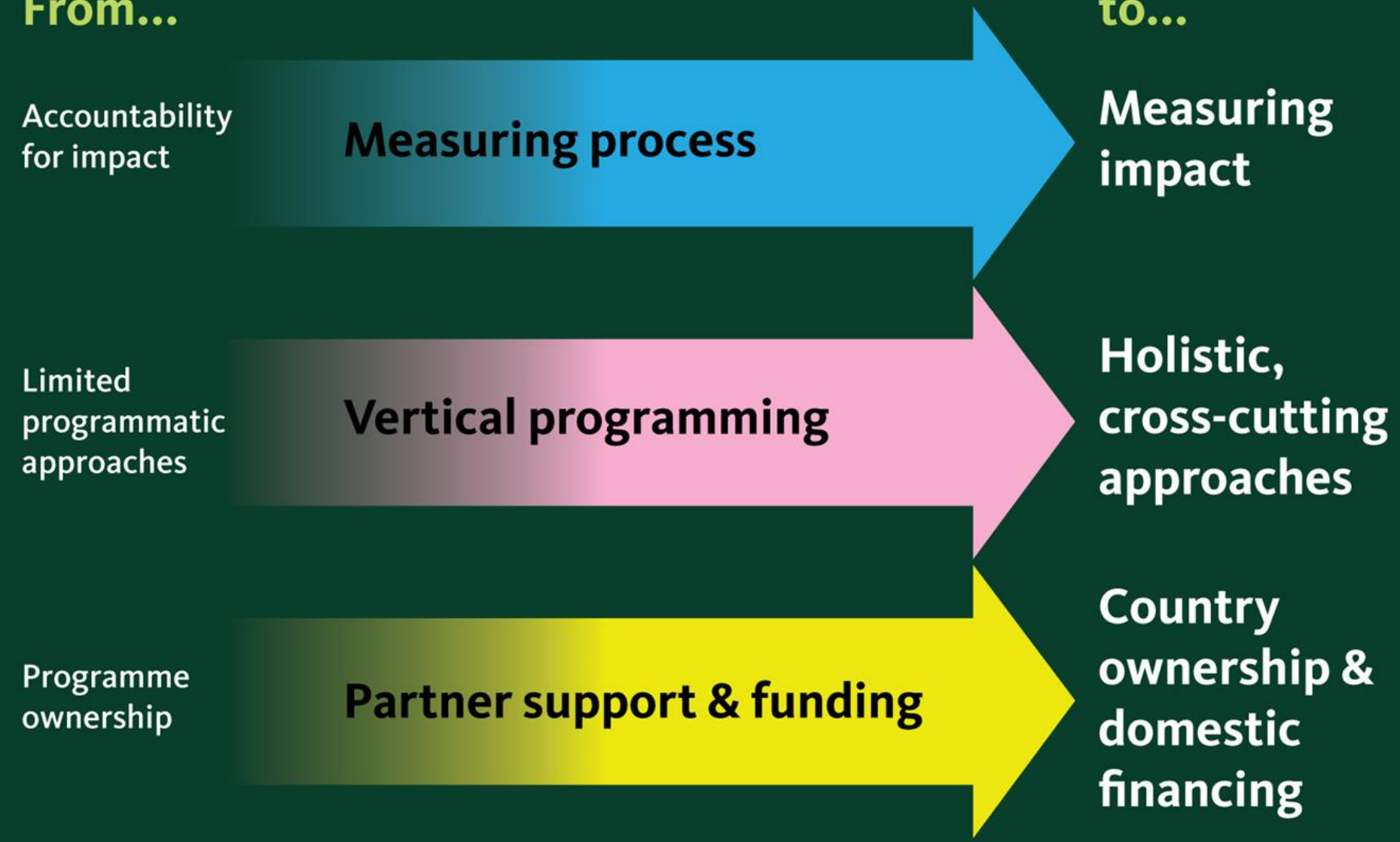
75% Fewer vector-borne NTD deaths (relative to 2016) – to achieve WHO's Global Vector Control Response goal

90% of endemic countries...

* reporting on all relevant endemic NTDs
* with NTDs integrated in national health strategies/plans
* with guidelines for management of NTD-related disabilities within national health systems
* collecting and reporting NTD data disaggregated by gender
* including NTD interventions in their package of essential services and budgeting for them

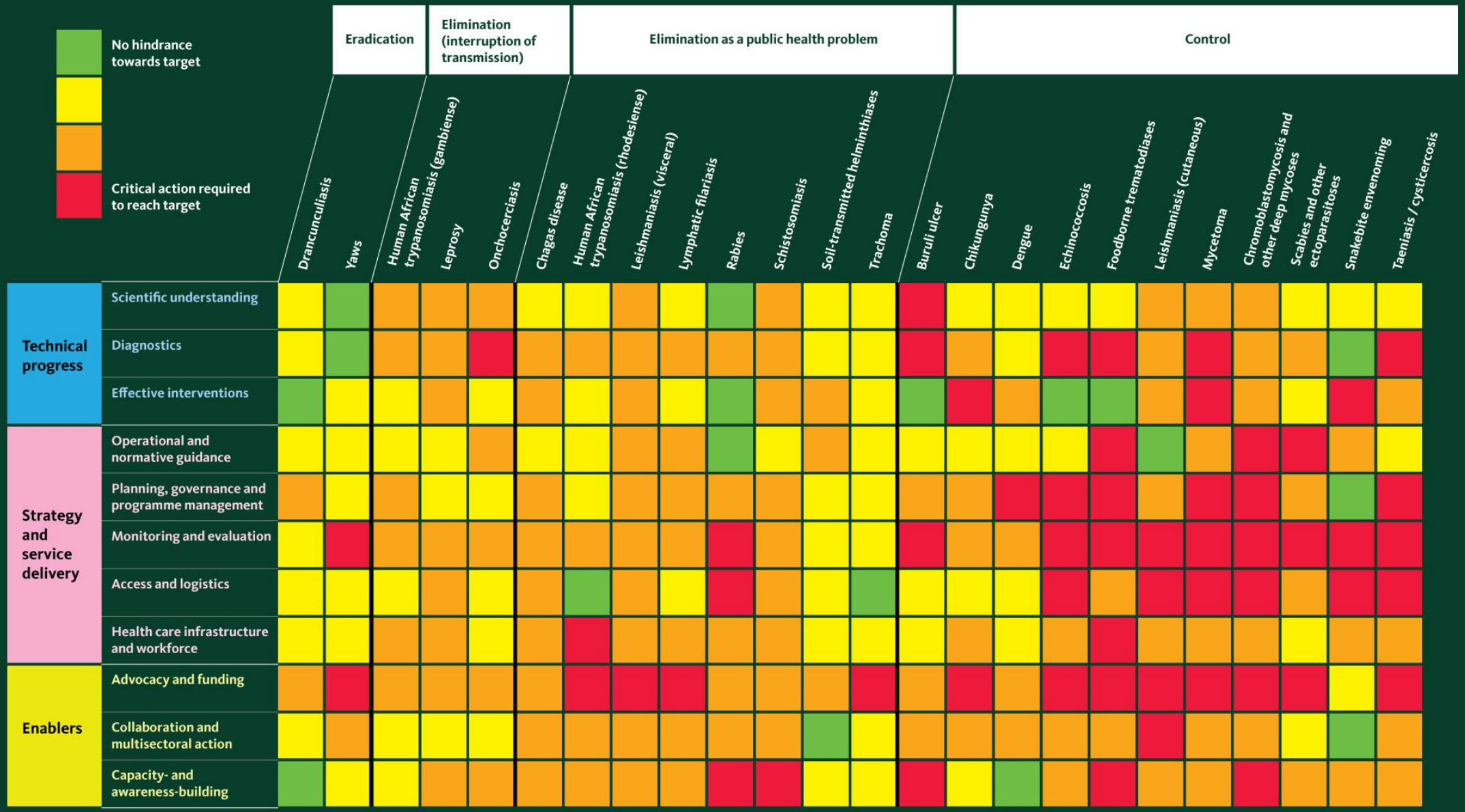
World Health Organization

Facilitates essential shifts



World Health Organization

Gap assessment for each NTD



World Health Organization

Thank you

Segment I – Introduction on NTDs challenges ahead (presentation 20 min)

Speakers:

Dr Anthony Man (Novartis): Challenges in Development of Innovative Therapeutics for NTDs.

Novartis Global Health
Global Drug Development

Challenges in the Development of New Therapeutics for Neglected Tropical Diseases

Anthony Man MD FRCP

Novartis Pharma AG, Basel Switzerland

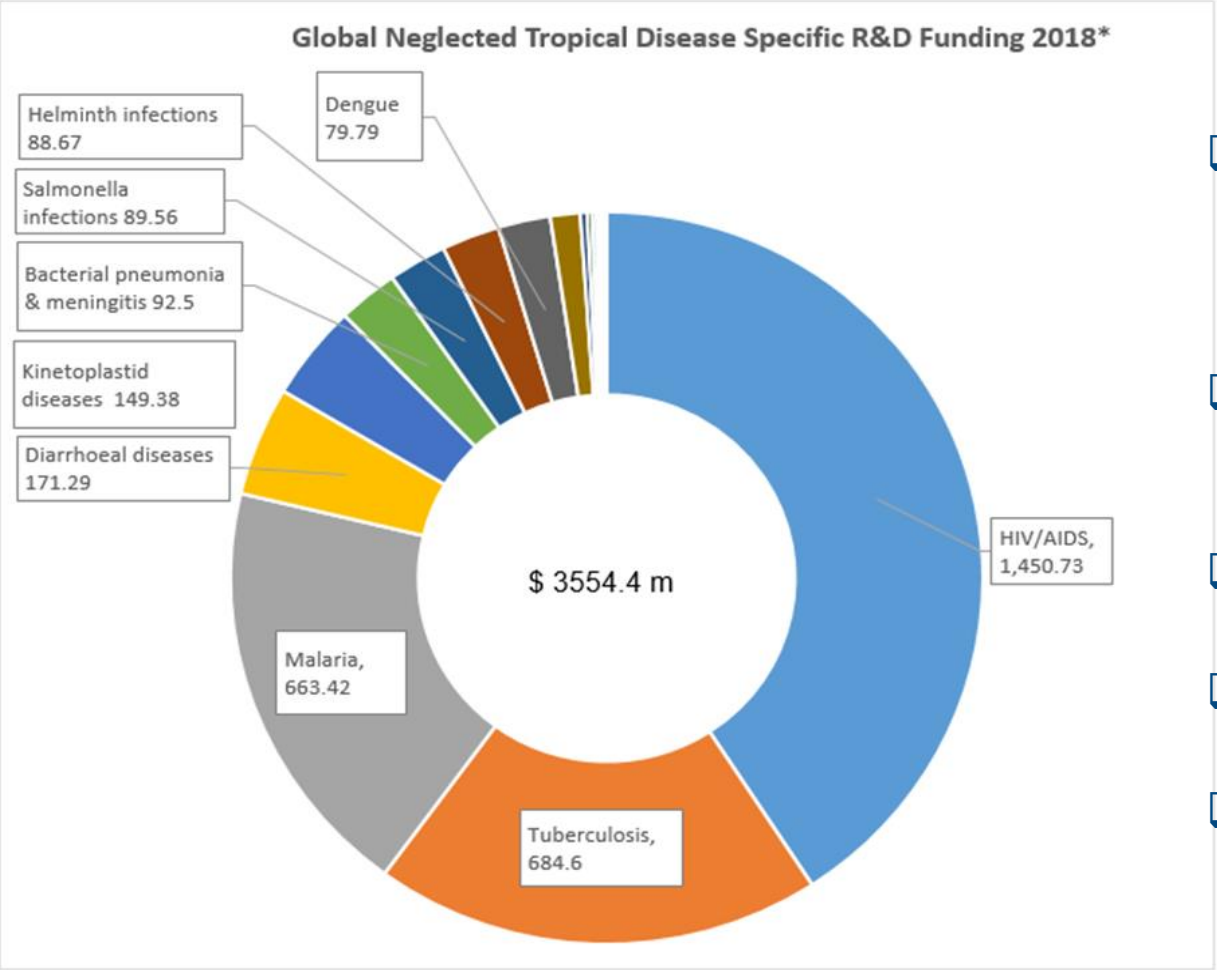
March 2021

NOVARTIS | Reimagining Medicine

Disclaimers

- This material was reviewed by the Global Medical Review team
- This presentation is based on publicly available information (including data relating to non-Novartis products or approaches)
- The views presented are the views of the presenter, not necessarily those of Novartis
- These slides are intended for educational purposes, personal use of the audience and not for the promotion of any Novartis product. These slides are not intended for wider distribution outside the intended purpose without presenter approval
- The content of this slide deck is accurate to the best of the presenter's knowledge at the time of production.

Global R&D Funding 2018* : NTDs underserved

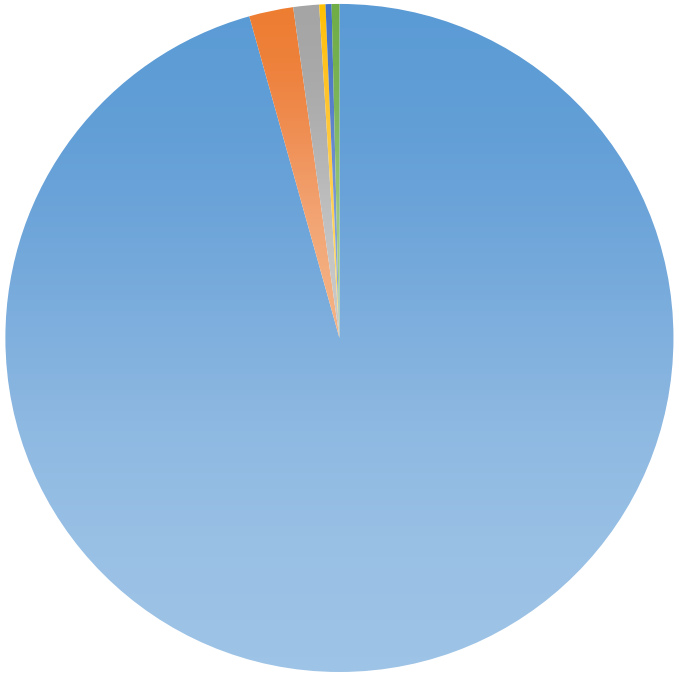


- Funding from Public sector (~64%), Philanthropic (~19%) and Private (~17%) sectors
- Public sector funds mainly (93%) High Income Countries (USA ~70%)
- ~70% HIV/ TB/ Malaria
- ~ 50% Basic and early research
- > 70% private sector funding is registration/post approval programs

*Neglected Disease Research and Development: Uneven Progress G Finder 2019, Policy Cures Research https://gfinder.policycuresresearch.org/

NTDs under represented in Clinical Research

ClinicalTrials.gov * 367,512 trials, 219 countries 2007- 2/2021



- Total Studies 367 512
- HIV 8 208 (2.2%)
- COVID-19 4 778 (1.3%)
- Malaria 1 166 (0.3%)
- TB 1 119 (0.3%)
- 20 NTDs 1 433 (0.38%)

Sample NTD trials

Helminths: 332
Dengue: 247
Leishmaniasis: 167
Chagas: 159

Guinea worm: 0

*Raw data source https://clinicaltrials.gov/ct2/home. Accessed Feb 16th 2021

Operational Challenges in NTD trials

Regulatory & Ethics approval

- Variable national expertise
- Inefficient processes
- Slow approvals
- CTA
- Drug import
- Sample export

Finding Right patients

- Community Engagement
- Awareness
- Patient ID
- Communication
- Screening and Diagnostics
- Co-morbidities

Access to facilities

- Logistics
- Family/ Economic support
- Geopolitical instability

Clinical Site Capabilities

- Local standard of care
- Informed Consent
- Trial expertise
- GxP infrastructure
- Drug supply
- Local Labs
- Patient compliance
- Subject retention
- Study Monitoring

Post Treatment

- Patient follow-up
- Safety reporting

Novartis R&D Programs in Global Health

Preclinical	Early Stage	Late Stage	Post Approval
❑ COVID-19	❑ COVID-19	❑ Chagas disease	❑ Fascioliasis
❑ Cryptosporidiosis	❑ Dengue Fever	❑ Malaria	❑ Leprosy
❑ Chagas Disease	❑ Leishmaniasis		❑ Malaria
❑ Malaria	❑ Malaria		❑ MDR-TB
			❑ Sickle Cell Disease)
			❑ Mature Portfolio
			❑ Generics (Sandoz)

The Role of Private Public Partnerships

Key challenges addressed

- High capital R&D costs
- High technical R&D
- Lengthy R&D times
- Knowledge gaps
- Need for commercial sustainability
- Multi-sector stakeholder engagement
- Geographical & Operational reach

Examples of success

- Novartis & MMV: Coartem Dispersible Tablet for paediatric Malaria
- GSK & PATH MVI: Mosquirix® (RTS,S) Malaria vaccine
- DNDi & Sanofi: Fexinidazole for HAT
- FIND & WHO preQual. TB diagnostics
- International Vaccine Initiative: Oral cholera vaccine (India)

Novartis Partners in Global Health

Segment II – Deep-dive in two concrete examples from partners (presentation 10 min)

Disease focus 1: Human African trypanosomiasis (sleeping sickness)

DNDi (Dr Olaf Valverde), **FIND** (Dr Joseph Ndungu): Multi-dimensions of access: how to address some of the bottlenecks.

Human African trypanosomiasis

The multi-dimensions of access, the case of HAT treatment

Dr. Olaf Valverde

HAT Clinical Project Leader

Rachel Tisseuil

External Relations Manager

March 1st, 2021

DNDi
Drugs for Neglected Diseases *initiative*

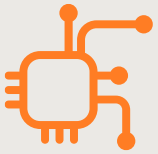
Access challenges

7 Challenges

Research and Development

Patients' Health-Seeking Behaviour and Adherence

Personnel and Healthcare facilities



Technology

Accessibility

Logistic

Ethic and regulatory environment

SLEEPING SICKNESS

1. Research and Development

8.5 MILLION
people live in areas at moderate to very high risk

67.5 %
of the world's sleeping sickness cases in 2018 were reported in the Democratic Republic of Congo

24 COUNTRIES
in West & Central Africa are endemic for the *T.b. gambiense* strain

13 COUNTRIES
in East & Southern Africa are endemic for the *T.b. rhodesiense* strain.

15 years ago
MELARSOPROL

Toxic treatment, 'fire in the veins', killed 1 in 20 patients

2009
NECT

Effective & improved therapy but hospital-based and bulky – complex logistics.

x 14
7 days
2x/day

7 days

10 days

2018
FEXINIDAZOLE

A patient-centered, easy-to-use medicine, once a day for 10 days

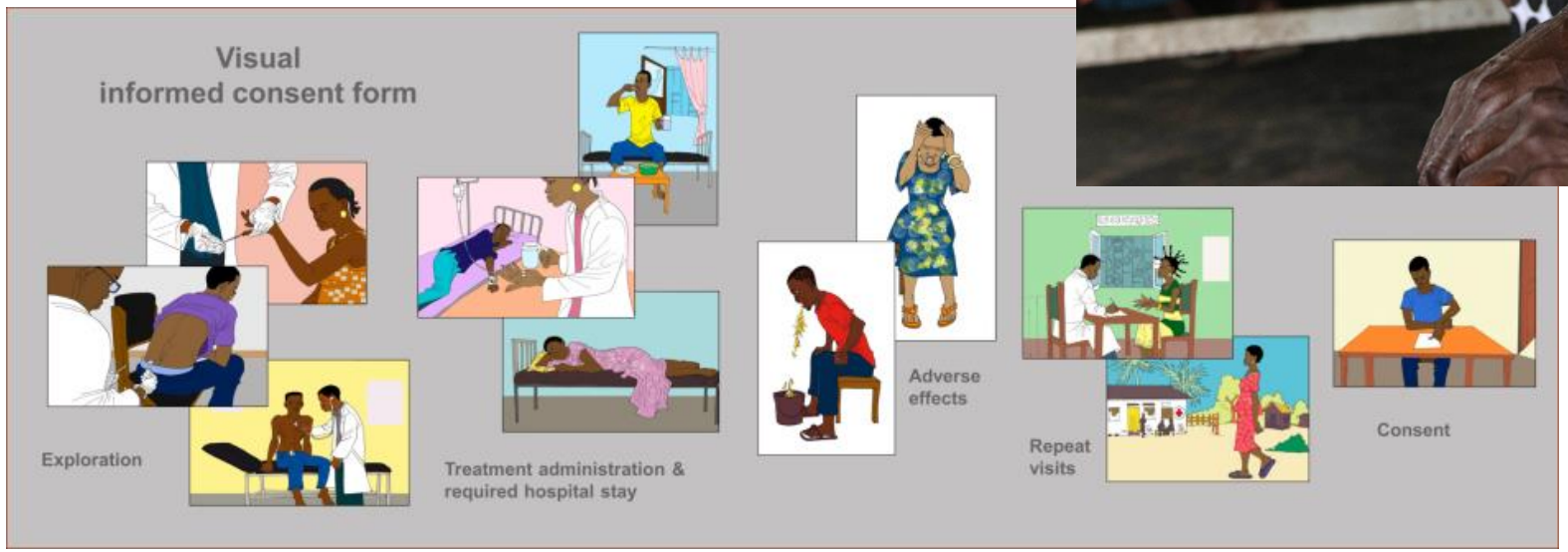
Recommended in November 2018 by the European Medicines Agency, developed in partnership with:

SANOFI

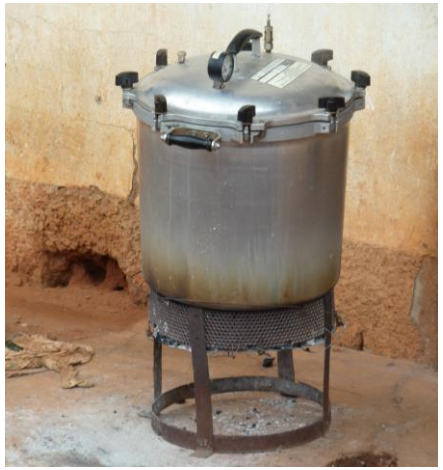
Year 2022
ACOZIBOROLE – ONE DOSE FOR A CURE?

The first DNDi new chemical entity resulting from its own lead optimization programme to enter clinical development.

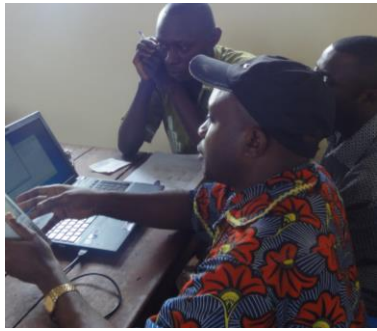
2. Patients

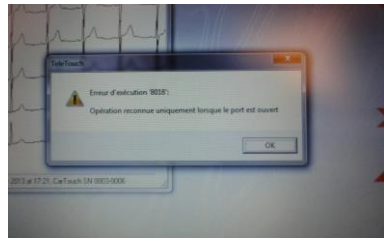

Visual
informed consent form
Exploration
Treatment administration &
required hospital stay
Adverse
effects
Repeat
visits
Consent

3. Personnel and healthcare facilities



4. Technology





5. Accessibility

6. Logistic

From this (4 NECT treatments)

To this

PARTNERS: Aptuit, Italy; BIOTRIAL, France; Bertin Pharma (now AmatsiAquitaine), France; Cardiabase, France; CBCO, DRC; Eurofins-Optimed, France; Institute of Tropical Medicine Antwerp, Belgium; Institut de Recherche pour le Développement, France; Institut National de Recherche Biomédicale, DRC; National Control Programmes of the Democratic Republic of Congo and the Central African Republic; ***Médecins Sans Frontières****; Sanofi, France; SGS, Belgium; SGS, France; Swiss Tropical and Public Health Institute, Switzerland; World Health organization (WHO); and the regional HAT platform.*

7. Ethic and regulatory environment

Recommended by EMA (Art. 58), approved in DRC

EUROPEAN MEDICINES AGENCY
SCIENCE MEDICINES HEALTH

PLATEFORME REGIONALE DE RECHERCHE CLINIQUE
HAT
THA
TRYPANOSOMIASE HUMAINE AFRICAINE
HUMAN AFRICAN TRYPANOSOMIASIS
REGIONAL PLATFORM FOR CLINICAL RESEARCH

Thank you for your attention

DNDi
Drugs for Neglected Diseases *initiative*

Thank you

We believe

Simple, rapid, robust and affordable diagnostic solutions bring game-changing possibilities above and beyond their immediate benefit.

We believe

Our work sparks real progress in the health of lower and middle income countries and their populations.

We believe

With improved health comes greater hope: individuals empowered to support their families, revive businesses, and thrive in school.

Segment II – Deep-dive in two concrete examples from partners (presentation 10 min)

Disease focus 2: Schistosomiasis

Merck Global Health Institute (Dr Jutta Reinhard-Rupp): From donation to sustainable procurement of medical products (Praziquantel): what kind of (fair) partnership are we looking for?

Swiss TPH (Dr Stefanie Knopp) : Novel tools and strategies for breaking schistosomiasis transmission

We are MERCK

Every day, our nearly 52,000 employees work in 66 countries to make a positive difference to millions of people's lives by creating more joyful and sustainable ways to live.

Merck KGaA
Darmstadt, Germany

EMD Serono · MilliporeSigma · EMD Performance Materials

We are known as Merck internationally except for the United States and Canada, where we operate as EMD Serono in the biopharmaceutical business, MilliporeSigma in the life science business, and EMD Performance Materials in the high-tech materials business.

MERCK

FIND

Because diagnosis matters

Partnering to develop diagnostics for HAT, and integration in the primary healthcare system

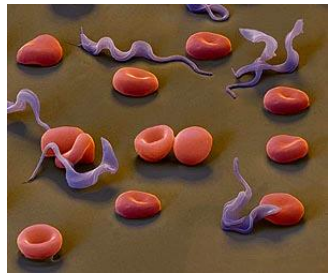
Joseph Ndung'u

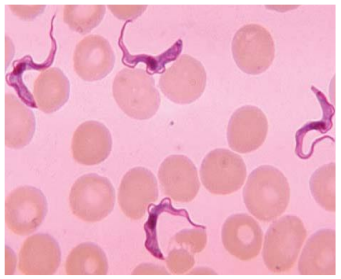
SANTD/SDC Webinar, 1st March 2021

Human African Trypanosomiasis (HAT)

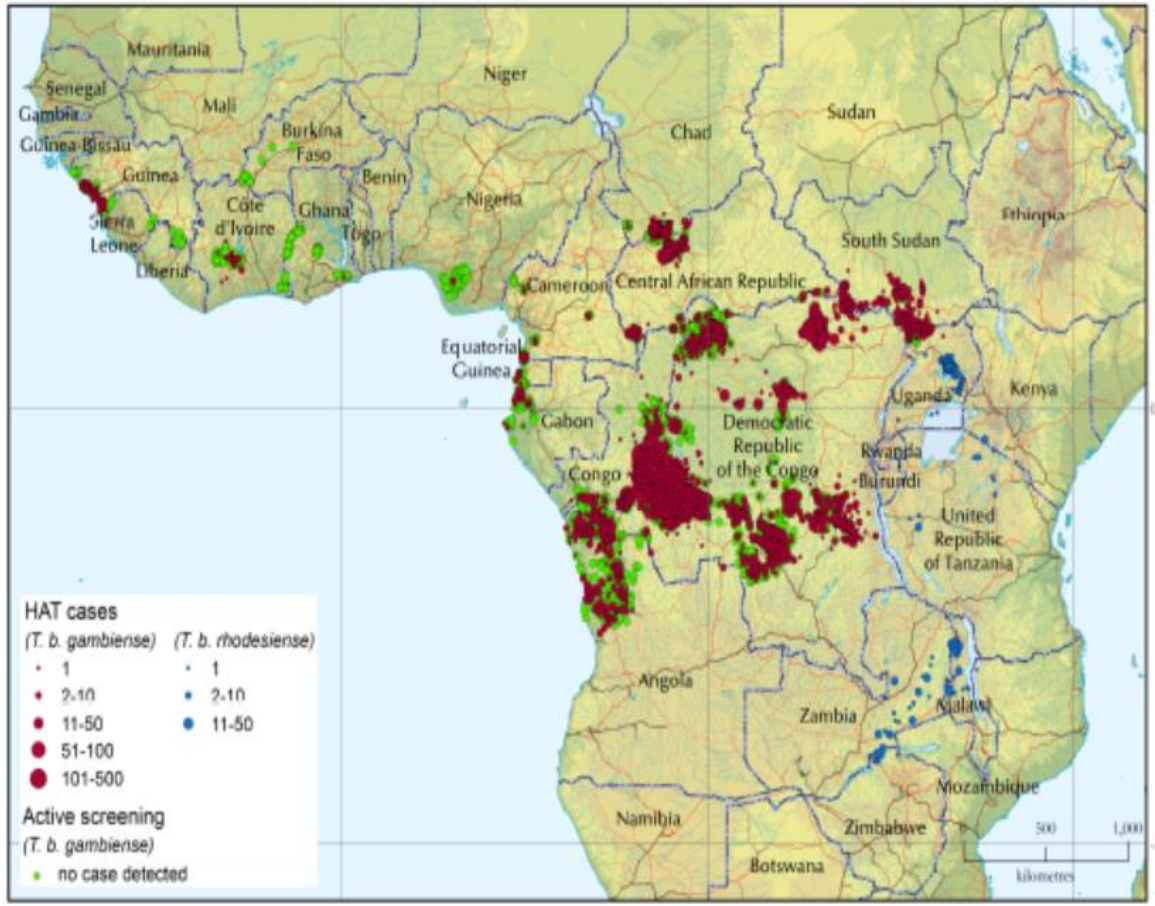
Background

- Caused by protozoan parasites:
  - Chronic: *Trypanosoma brucei gambiense*
  - Acute: *T. brucei rhodesiense*





- Transmitted only by tsetse flies
- Endemic in 36 African countries
- Control – Diagnosis and treatment of infected patients
- Targeted by WHO for elimination



Source: Franco et al., 2017

Partnering to develop diagnostics for HAT

- In 2006 FIND and WHO initiated a partnership to develop diagnostics for HAT.
- In 2007, the partnership was expanded to include academic and industry partners who either had:
  - biomarkers that had shown potential for diagnosis of HAT, or
  - platforms that could be used to evaluate the biomarkers.
    - Goal: to develop a test that would be accurate, easy to use, and cheap
  - By 2010, 6 biomarkers with greatest potential selected.
- Partnership expanded to include a manufacturing company with the expertise and capacity to develop rapid diagnostic tests.
  - Within 6 months, the first prototype RDTs available for testing in clinical trials

Partners providing biomarkers

- Univ of Glasgow – UK
- Cambridge Univ – UK
- Leicester Univ – UK
- Univ of California – USA
- Univ of Texas – USA
- Inst of Cell Path – Belg
- ITM – Belg
- Univ of Geneva – Switz
- ILRI – Ken
- Univ of Bordeaux – Fr

Partnering to develop diagnostics for HAT

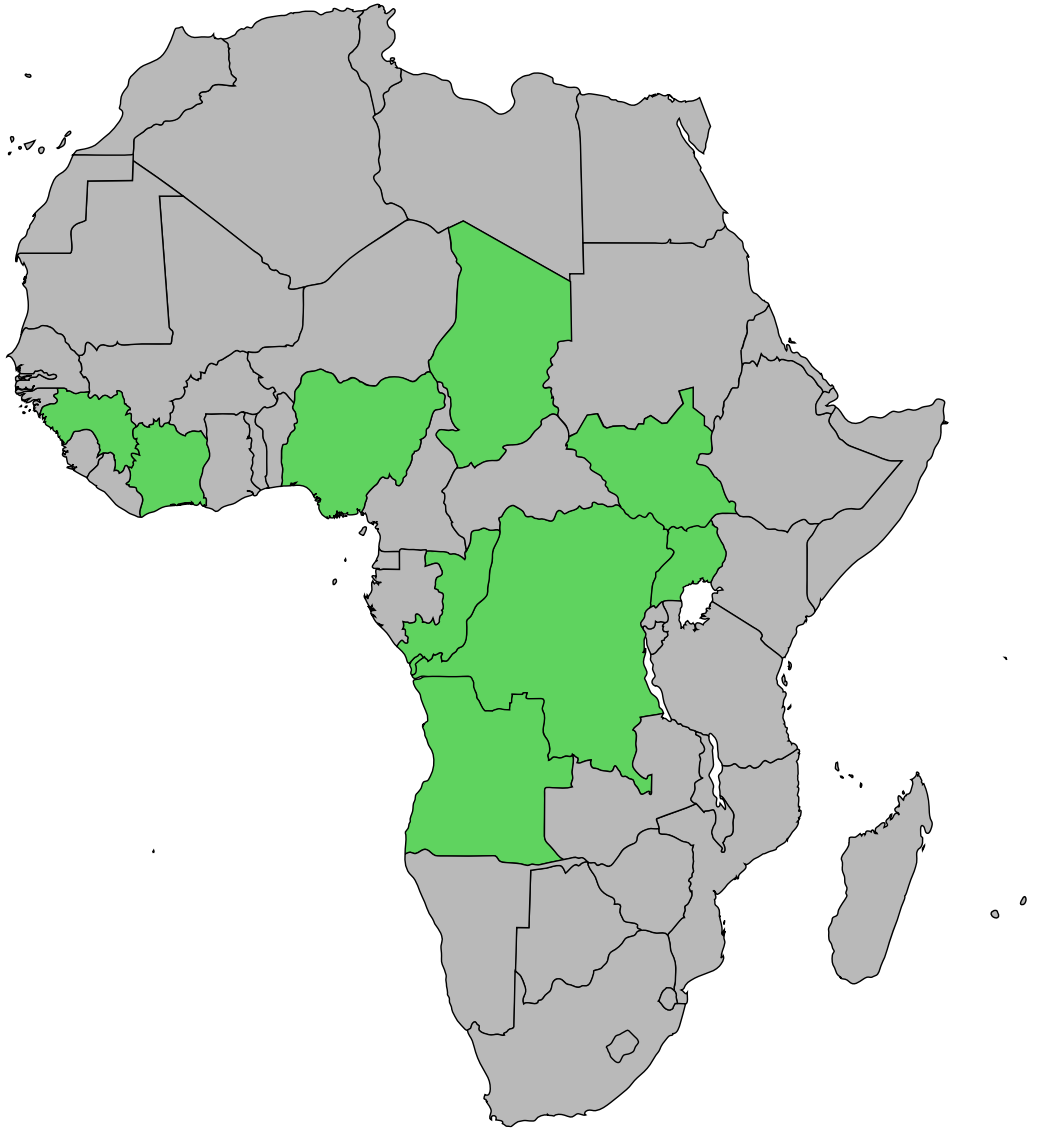
- Expansion of the partnership to include the MOHs and National SSCP of Angola, the DRC and CAR enabled us to conduct multi-country and multicentric clinical trials that generated data that was needed for registration and commercialization of the RDT.
- And in December 2012, the first RDT for HAT was launched in Kinshasa, DRC.
- The partnership therefore delivered the RDT in under 6 years.
- And in 2020, a 2nd Gen of the RDT was made available by the same manufacturing company.

1st generation rapid diagnostic test for HAT

- ✓Easy to use and rapid (15 min)
- ✓Does not need equipment, electricity or cold chain (stable 2 years at 40° C)
- ✓Cheap (50 US cents per test after a subsidy of 25 US cents)
- ✓Easily integrated into the primary healthcare system

Countries that have introduced HAT RDTs in FIND partnerships

- Integration of the test in primary health care was enabled through partnerships with MOHs of multiple African countries
- Surveillance and diagnosis of HAT transformed, from vertical programmes in the past, to horizontal ones
  - ➢ Today, screening for HAT can be done in any health facility where testing for malaria is carried out.

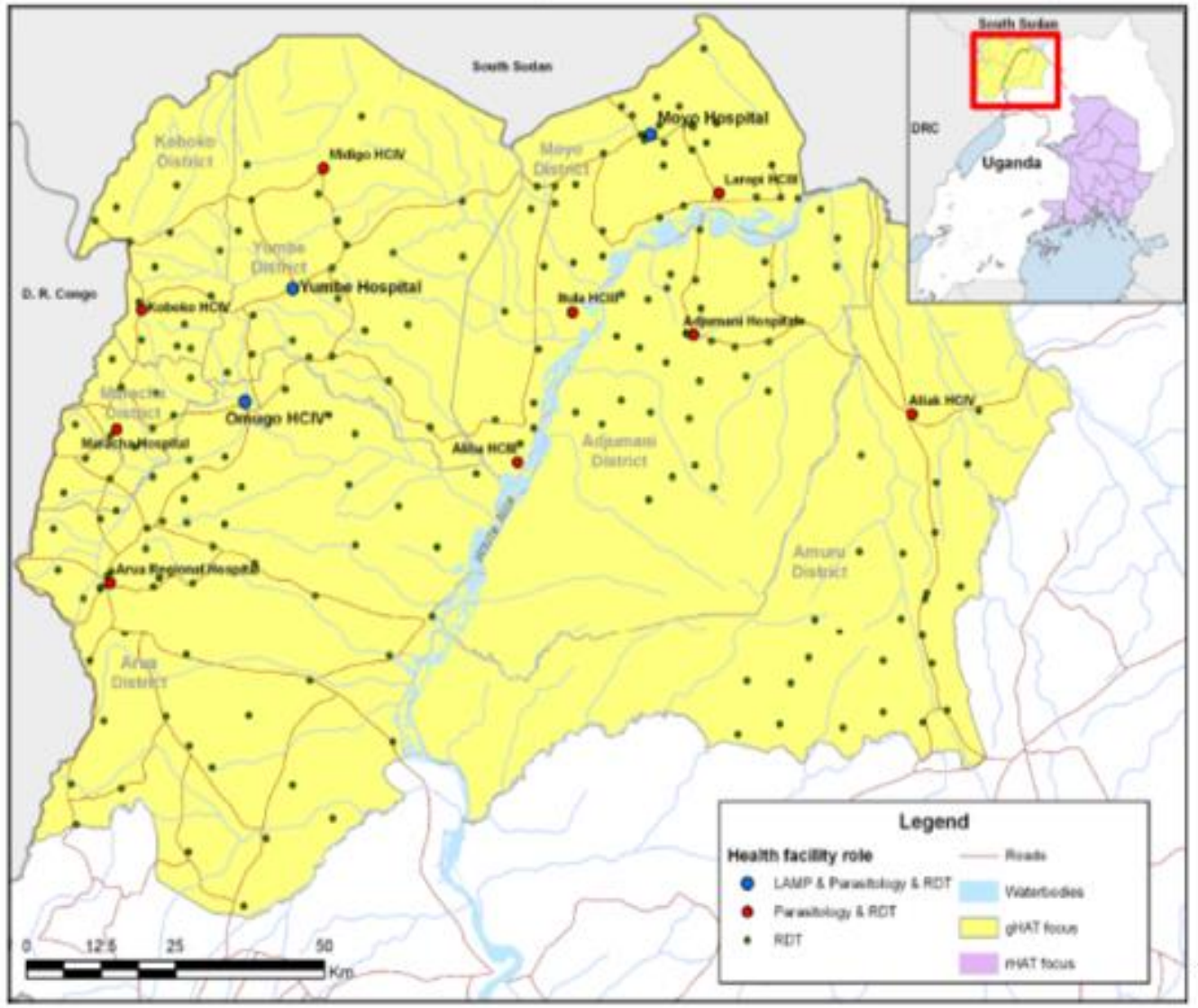


Integration of HAT screening in health facilities

Example of Uganda

Before 2013, diagnosis of HAT was possible in only 4 health facilities.

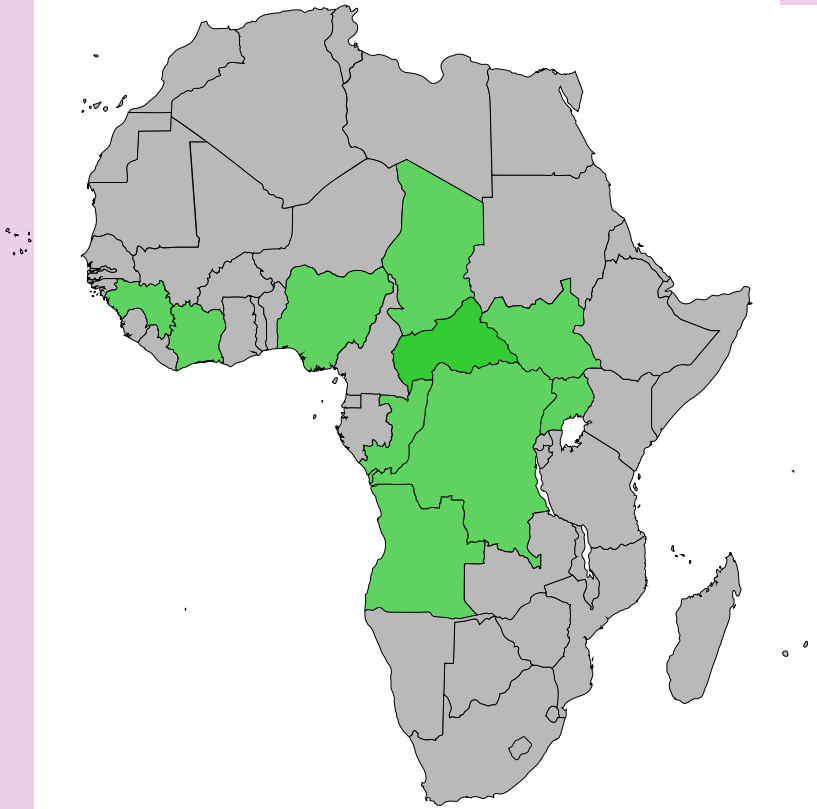
Within one year, the number of health facilities screening for HAT using RDTs increased to 122.



Acknowledgements: Implementing partners

Specimens and test evaluation
- Makerere Univ – Uga
- NaLIRRI – Uga
- INRB – DRC
- UNIKIN – DRC
- CIRDES – Burkina Faso
- ICRA – CAR
- MSF (Spain)
- WHO – Switz
- DNDi – Switz
- VIB – Belg
- ITM – Belg
- Microcoat – Ger
- Univ of Aberdeen – UK
- Univ of Dundee – UK

Governments of endemic countries



Test development
- Standard Diagnostics (Abbott)

Supply of biomarkers
- Univ of Glasgow – UK
- Cambridge Univ – UK
- Leicester Univ – UK
- Univ of California – USA
- Univ of Texas – USA
- Inst of Cell Path – Belg
- ITM – Belg
- Univ of Geneva – Switz
- ILRI – Ken
- Univ of Bordeaux – Fr

Advocacy
- AU-PATTEC

E Health
- Greenmash

Acknowledgements: Funding partners

Bill & Melinda Gates foundation

kfw

German Government

DFID

Department for International Development

UBS

Optimus Foundation

Swiss Development Cooperation

REPUBLIQUE ET CANTON DE GENEVE

POST TENEBRAS LUX

EU-FP7 Programme

In-kind by endemic countries

Global Health

We improve the health of underserved populations in low- and middle-income countries through Merck’s science & technology innovation, and in close collaboration with partners.

Our strategic intent

UN Sustainable Development Goals

Eliminate schistosomiasis as a public health problem

Prevent & control malaria towards elimination

Prevent & control non-communicable diseases in low- and middle-income countries

MERCK

How we fight Schistosomiasis

Our goal: elimination of schistosomiasis as a public health problem through an integrated approach

2007
Begin of the donation program in partnership with WHO

250 Millions
Committed annual donation

1.3 Billion
PZQ tablets provided since the beginning of the program

520 Millions
Treatments of school-aged children enabled

47
African countries supplied

10
R&D projects for innovative products and technologies

Over 30
R&D partnerships

MERCK

Pediatric Praziquantel Consortium

Our **vision** is to reduce the global disease burden of schistosomiasis by addressing the medical need of infected preschool-age children including infants and toddlers.

Our **mission** is to develop, register and provide access to a suitable pediatric praziquantel formulation for treating schistosomiasis in preschool-age children.

Currently in **Phase III** & implemeting **ADOPT**, the access program.

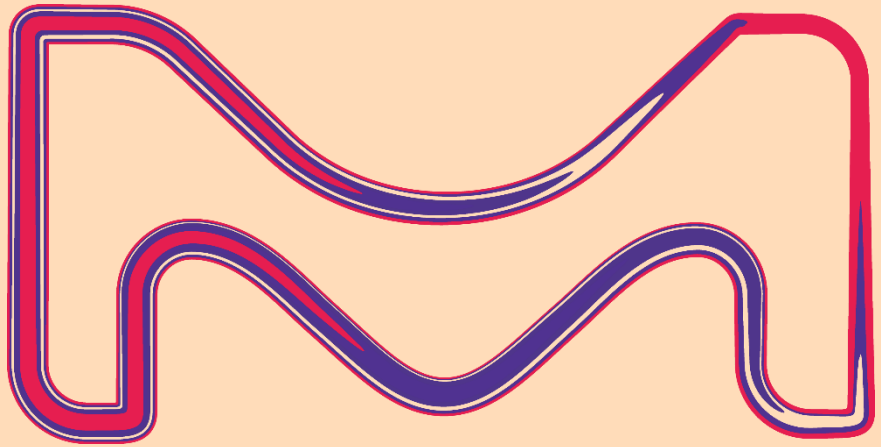
Consortium partners: Merck (Germany); Astellas Pharma Inc. (Japan); the Swiss Tropical and Public Health Institute (Switzerland); Lygature (The Netherlands); Farmanguinhos (Brazil); the Schistosomiasis Control Initiative (SCI) Foundation (United Kingdom); Kenya Medical Research Institute (Kenya); Université Félix Houphouët-Boigny (Ivory Coast); Klinikum rechts der Isar der Technischen Universität München (TUM) (Germany)

The Consortium is financially supported by Merck; in-kind contributions from the Consortium's partners; and grants by the Global Health Innovative Technology (GHIT) Fund, and the European & Developing Countries Clinical Trials Partnership (EDCTP).

MERCK

Achieving more through partnerships

Our operating model is based on public-private partnerships with leading global health institutions and organizations in both developed and low-and-middle-income countries



THANK YOU!

Swiss TPH

Multi-disciplinary intervention strategies for schistosomiasis elimination in Zanzibar

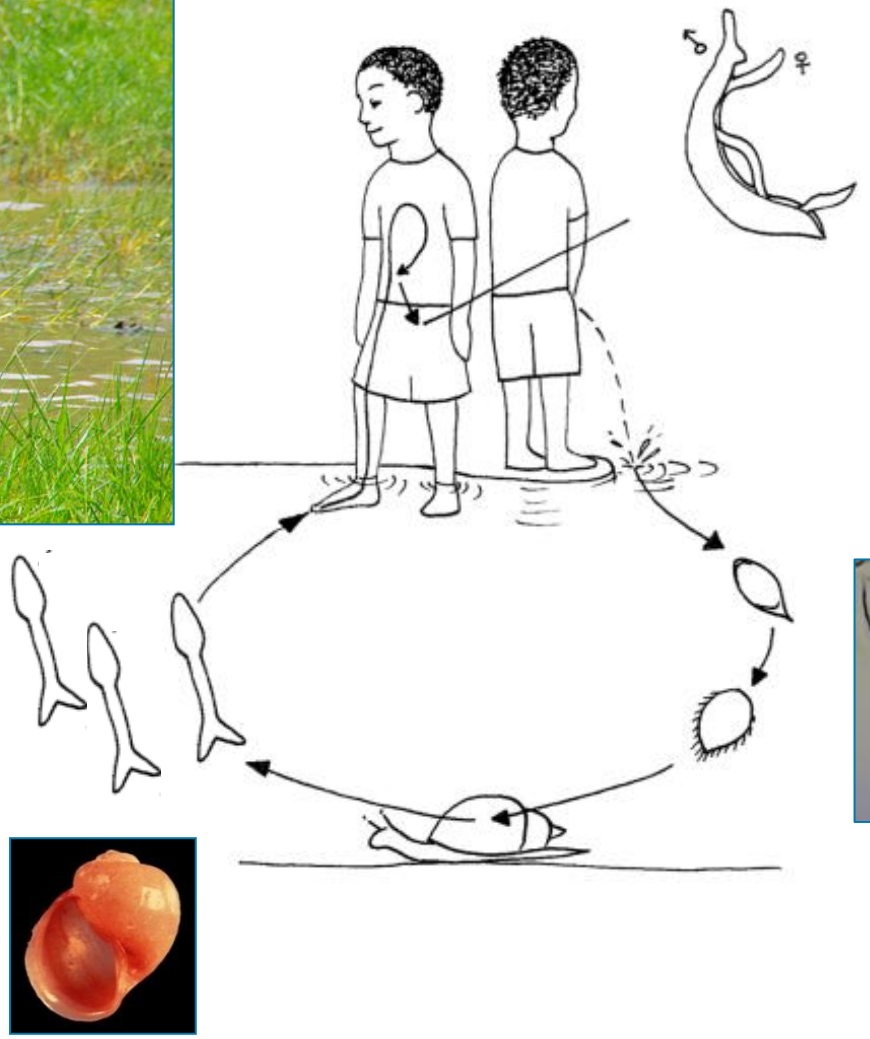
Dr. Stefanie Knopp

NTD Webinar

March 1, 2021

Zanzibar, archipelago of United Republic of Tanzania

Schistosoma haematobium transmission



Zanzibar Elimination of Schistosomiasis Transmission (ZEST) Alliance: 2011-2021

➔ Commitment: eliminate urogenital schistosomiasis

Bi-annual mass drug administration (MDA) with praziquantel

Community-wide treatment

School-based treatment

➔ Aim: Reduce number of *S. haematobium* infected individuals

Snail control with niclosamide

- At places where humans are in contact with natural water bodies
- Molluscicide: only if *Bulinus* snails are found

➔ Aim: Reduce number of infected intermediate host snails

Behaviour change communication

Classroom-based interactive education

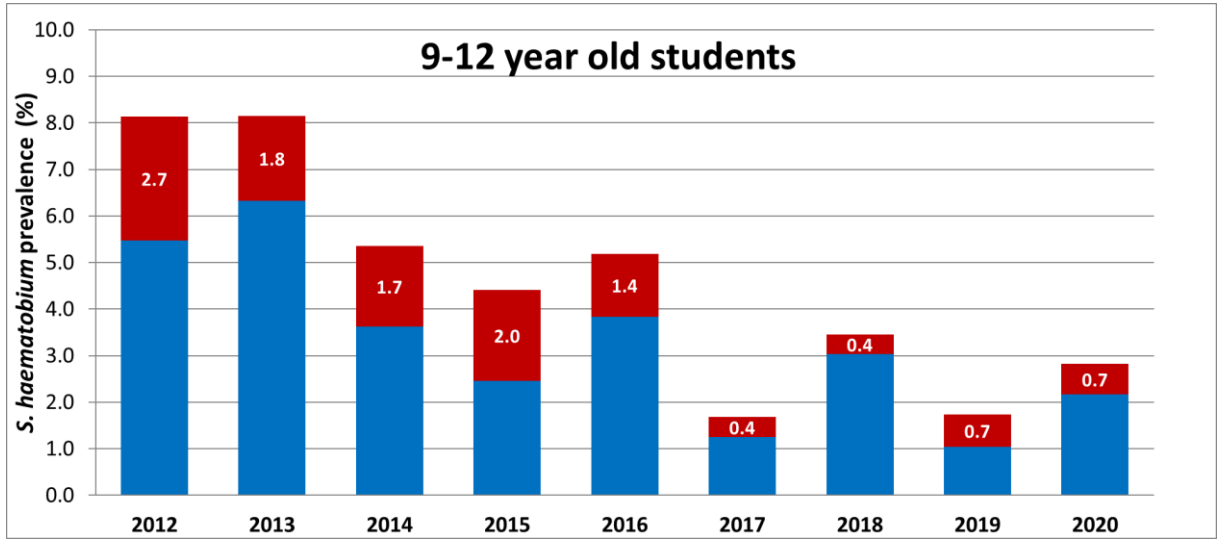
Community laundry platform

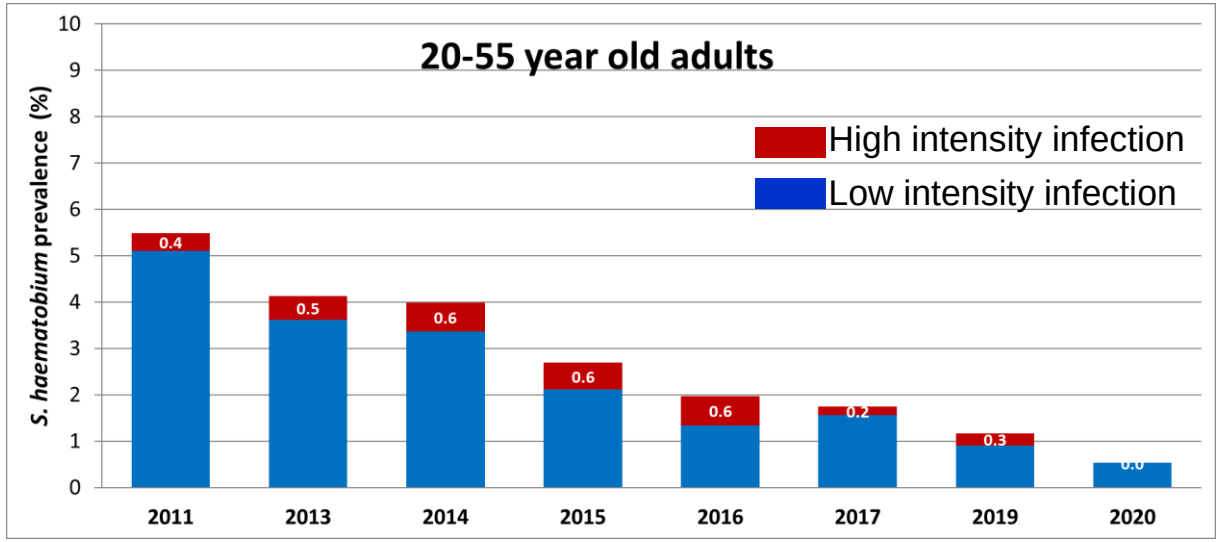
School-based safe play

Community urinals

➔ Aim: Keep people out of water and prevent new infections

S. haematobium prevalence and infection intensity 2012-2020





- Elimination of schistosomiasis as public health problem has been achieved
- Goal: interruption of transmission

Challenges on the way towards elimination

- Heterogeneity increases (many low-prevalence areas, few hotspots)

➔ Micro-targeting of interventions

- Continue intense multi-disciplinary and cross-sectoral interventions in hotspots
- Adapt from mass treatment to individual test-and-treat to avoid overtreatment in low-prevalence areas
- Surveillance-response to prevent resurgence
- Sensitive point-of-care diagnostic tests to identify individuals with light infections

➔ Need for new tools and strategies for sustaining and accelerating progress

Swiss TPH

Thank you for your attention.

Segment III – Cross-sectorial interventions in the fight against NTD and the COVID – 19 pandemic:

what room for innovation? (panel discussion ca. 30-45min.)

Panelists:

SDC (Dr Alexander Schulze)

Novartis (Dr Lutz Hegemann)

WHO (Dr Mwele Malecela)

Swiss TPH (Dr Peter Steinmann)

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

SANTD
Swiss Alliance against Neglected Tropical Diseases
Schweizer Allianz gegen vernachlässigte Tropenkrankheiten

Thank you !

Questions?

info@santd.ch