STH Advisory Committee
Annual Meeting 2018

This document summarizes discussions and presents priority action items from the STH Advisory Committee meeting held in Basel, Switzerland October 15, 2018 and the WHO consultation to identify post-2020 STH targets on October 16, 2018.
The STH Advisory Committee

The STH Advisory Committee (STHAC) is an independent group of experts in the areas of policy, strategy, operational research, and program implementation related to soil-transmitted helminthiiasis (STH) control. Individual STHAC members are specialists in child health, clinical medicine, diagnostic sciences, education, epidemiology, parasitology, public health program implementation, spatial statistics, and water, sanitation, and hygiene (WASH).

As the technical and scientific arm of the STH Coalition, the STHAC holds an annual meeting to address current programmatic and technical issues relevant to the global campaign to control STH. While considering the latest research, the STHAC formulates guidance to support the World Health Organization (WHO), STH Coalition partners, implementers, pharma, and researchers. The 2018 meeting participants included STHAC members, invited presenters, and observers (Appendix A). Children Without Worms serves as the secretariat for the STHAC.

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Publication date: This report was disseminated in March 2019. Please contact Children Without Worms (cww@taskforce.org) with comments or questions.

Disclaimer: Inclusion of information in this report does not constitute ‘publication.’
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Acronyms

CWW  Children Without Worms
DHS  Demographic Health Surveys
ESPEN  Expanded Special Project for Elimination of NTDs, World Health Organization – Africa Regional Office
GMEF  Global Monitoring & Evaluation Framework
HPV  Human Papilloma Virus
ICSPM  Integrated Community-based Survey for Program Monitoring
LF  Lymphatic Filariasis
M&E  Monitoring and Evaluation
MDA  Mass Drug Administration
MHII  Moderate to Heavy Intensity Infection
NNN  Neglected Tropical Disease Non-Government Organization Network
NTDs  Neglected Tropical Diseases
PC  Preventive Chemotherapy
PSAC  Preschool Children
QA/QC  Quality Assurance/Quality Control
qPCR  quantitative Polymerase Chain Reaction
SAC  School-age Children
SDG  Sustainable Development Goals
SOP  Standard Operating Procedures
STHAC  STH Advisory Committee
STAG  Strategic and Technical Advisory Group, World Health Organization
STH  Soil-transmitted Helminthiasis
UHC  Universal Health Coverage
WASH  Water Sanitation, and Hygiene
WHO  World Health Organization
WRA  Women of Reproductive Age

Annual Meeting 2018
The annual meeting of the STH Advisory Committee was held on October 15, 2018, and included official World Health Organization participation. This meeting led into a WHO Consultation on October 16 to identify the priorities and potential STH targets for 2020-2030.

Challenges & Progress
Meeting participants were asked to articulate two areas of recent progress and two challenges that face the STH community in achieving program goals. Two responses each for progress and challenges were received from each of the 34 participants. The frequency of responses corresponding to each theme was documented. The themes identified were subsequently visualized as a word cloud using Wordle™ (www.wordle.net).

Figure 1 represents the word cloud for the progress achieved, while Figure 2 represents the word cloud for challenges still facing the STH community. Stakeholders (n=15) cited increasing drug coverage (n=15) through scale-up of preventive chemotherapy (PC) or mass drug administration (MDA) and improvements in coverage among target populations as the main
achievements of the STH program. Further, they (n=9) cited the expansion of MDA to new target groups (n=9) such as preschool-age children (PSAC) and women of reproductive age (WRA) as another important area of progress. The challenges cited were unclear program target and goals (n=15) and lack of decision-making criteria (n=13) including the lack of evidence-based guidelines, impact metric(s), and stopping treatment criteria.

The challenges identified by the group underpin the perceived need for evidence-based and achievable STH targets and strategies which was the key focus of the meeting.

**Figure 1**: Word cloud based on stakeholder perceptions of STH progress (n=67)

**Figure 2**: Word cloud based on stakeholder perceptions of challenges facing the STH community (n=68)
Meeting Objectives
With 2020 fast approaching, the need for robust, evidence-based guidance is felt more keenly than ever before, especially among countries which have made progress in the years since the 2001 World Health Assembly identified the current goals for global STH control (WHA54.19). By bringing together implementing partners, donors, WHO, and country representatives, the STHAC used its 2018 meeting to identify and address gaps in implementation guidance and operational research for STH control. The objective of the STHAC meeting was to review recent advances in STH research in order to better inform post-2020 planning. The following WHO consultation served to identify STH targets to 2030. Both meetings highlighted once again the importance of partnerships in the NTD community working together to support WHO’s global policy and guidance with respect to STH control and elimination.

Report Layout
A recap of progress on last year’s STHAC recommendations was followed by an overview of key priorities distilled from both days of discussion. Each priority area outlined below includes background discussion, action items, timelines where available, recommendations where indicated, and roles of partners addressing action items.

* The 2018 STHAC meeting agenda can be found in Appendix B.

Progress toward 2017 Recommendations
The 2017 STHAC annual meeting recommendations are summarized below:

1. Publish a comprehensive monitoring and evaluation (M&E) framework tied to defined STH end-points; this is critically needed to guide further country progress on STH.
2. Align with the water, sanitation, and hygiene (WASH) sector by including WASH indicators in STH monitoring as available.
3. WHO is requested to provide further guidance on deworming at-risk women of reproductive age.
4. Develop, standardize, and use improved diagnostics to identify progress toward defined end-points.
5. Define the use-case for combination therapies to enhance drug efficacy.
6. Understand, identify, and quantify potential drug resistance.
7. Develop the Beyond 2020 Vision Document in partnership with WHO.

Progress on each 2017 Recommendation is shared below:

Achieved 2017 Recommendations
- A comprehensive monitoring & evaluation (M&E) framework tied to defined STH end-points is critically needed. The Global Monitoring and Evaluation Framework (GMEF) was drafted by CWW and the STH Coalition. This was shared with the STH Coalition M&E working group for review in 2018. The revised version will be circulated
for endorsement and subsequently piloted in selected tier-representative countries (one Tier-3 country pilot is planned in 2019; others are pending funding approval).

- **Align with water, sanitation, and hygiene (WASH) sector by including WASH indicators in STH monitoring.** As detailed below, the STH Coalition is now working closely with NNN WASH Working Group to incorporate the WASH indicators and tools – produced in collaboration with the broader NNN community and WHO – in the STH tools (including the GMEF). Additionally, a WASH component is already incorporated into an STH survey methodology (ICSPM) used in 2017-2018 in multiple countries.

### 2017 Recommendations in Progress

While acknowledging the progress made in 2017 on guidance for deworming programs targeting women of reproductive age, further clarity is needed to better inform implementation strategies. In September 2017, WHO released [guidelines for PC to control STH in all at-risk groups](#) that evaluated the evidence supporting the intervention. Further specific and detailed guidance is now required to put these guidelines into practice for WRA. This 2017 recommendation was partially addressed through the proposed goal of reduction of morbidity by 50% by 2030 for WRA, at the 2018 meeting (Appendix C, p. 8).

- There is an urgent need to **develop, standardize, and use improved diagnostics (including for tests to determine drug resistance) to identify progress toward defined end-points.** Research partners are conducting studies to develop practical improved STH diagnostics methods and tools. Progress is outlined subsequently in this report. It continues to be a priority for the STH community.

- **Define the use-case for combination therapies to enhance drug efficacy.** WHO has now included ivermectin in the Essential Medicines List for the treatment of STH to enhance efficacy, help prevent resistance and treat strongyloidiasis. A generic ivermectin formulation is currently undergoing evaluation by the WHO prequalification group.

- **Contribute to the WHO Beyond 2020 Vision Document.** This document was originally initiated to address forecasting of future drug needs for global STH programs based upon a tiered approach to programs. National programs are placed in tiers according to indicators of program maturity and treatment coverage (i.e. those countries in an advanced tier may require fewer donated drugs and could transition to self-sustained, targeted programming for the remaining infected areas). This tiered approach can be used in future guidance to document programming progress. It is also integral to GMEF. Both the STHAC meeting and the WHO consultation focused on targets for STH beyond 2020.

### 2018 Priority Outcomes

The key outcome of the 2018 STHAC meeting was the identification of **proposed targets and linked indicators for STH beyond 2020, towards 2030.** The agenda was set up to summarize recent progress made in STH control with information from STH experts, National Program Managers, and WHO. This helped guide discussions on forming draft 2030 targets for the
community. Realized gains and impact, current status, challenges, and priorities for the next decade were shared and discussed. Following a robust discussion during the WHO consultation, 2030 targets were drafted with the understanding that they are supported by empirical evidence. *The current drafted 2030 target document can be found in Appendix C.

**2018 Key Discussion Areas & Actions (including recommendations)**

Following is a list of key discussion areas and related action items including recommendations. Completion of the priority actions in a timely manner is essential to measure progress, inform the post-2020 targets and achieve these in an open collaboration supportive of WHO.

*Priority action area #1*

**Evidence-driven global guidance and targets.**

Discussion centered on the urgent need for evidence-driven STH control interventions. This emphasized the need for clarity in the overall goal of the global program: filling evidence gaps to help determine the decisional thresholds and morbidity targets with relevant indicators (moving beyond process indicators and targets, such as coverage). While there was not much time to discuss if the goal was to eliminate transmission of infections or to eliminating STH morbidity, WHO clarified that its goal is the latter: elimination of STH morbidity for which the indicator is moderate to heavy intensity of STH infections. Specific gaps and opportunities for improvement that were identified by all levels of the STH community participating in Basel are listed below:

**Gaps & opportunities:**

**Guidance & Evidence Gaps**

- Transparency in the process of defining the WHO targets
- Further research into the possibility for recrudescence and how this can be best monitored
- Decision-making guidance based on prevalence and morbidity thresholds
- Data/evidence from countries reducing the frequency or suspending PC treatments
- Guidance on treating hard-to-reach at-risk populations

**Opportunities**

- These gaps are being addressed through the current engagement with the STHAC, the STH Coalition, and their partners.
- Current guidance on using Kato-Katz works in high prevalence areas as it is sensitive in detecting MHII. Newer diagnostics can increase this sensitivity to detect a lower level of infection intensity which is critical to institute effective surveillance for possible recrudescence after successful treatment. At that stage (post-treatment low prevalence), Kato Katz is quite ineffective at detecting early recrudescence and therefore will not help achieve the proposed goals effectively.
- Guidance should address how to respond in areas of persistent high intensity and prevalence.
Responsive monitoring & evaluation guidance is needed for surveillance, to inform frequency of intervention and methodology to map baseline and post-intervention intensity and prevalence in all risk groups.

Training should be created for health workers to include STH/NTD in these areas.

Discussion outcomes:
1. **Outcome**: WHO drafted the 2030 targets based on the Basel discussions. ([Appendix C: WHO draft report on 2030 targets](#))
2. **Follow-up Actions/Recommendation #1**:
   a. The drafted targets, with linked indicators and supportive evidence, were shared with the STH community for its feedback through a survey. Results will be shared with WHO and the STH community
   b. Updated targets will be presented to the WHO Strategic and Technical Advisory Group (STAG) for consideration in its 2019 meeting.

**Priority action area #2**

**Improving coverage and accounting for PC coverage in children**

Platforms to administer preventive chemotherapy to preschool-age children continue to challenge STH programs in most countries. This, combined with the absence of drugs donated for this risk group, has resulted in inconsistent, opportunistic and, ultimately, ineffective coverage.

CWW presented an analysis of the WHO PC coverage data showing that only 36% of endemic countries treated PSAC consistently for three years between 2014 and 2016. CWW plans to continue to monitor the PCT databank and conduct analysis on coverage in PSAC annually to evaluate progress. Treatment platforms for PSAC vary and include child health days, vaccination campaigns, and vitamin A supplementation programs. The global community should define targets for measuring endemicity in this population, as well as reaching children beyond those in schools to achieve the overall WHO target of high PC coverage in all children.

UNICEF, as a key provider of PC for PSAC in tandem with Vitamin A supplementation, shared its preliminary 2017 program data. These data documented a decrease in coverage of 20% in West African countries. Also, less than 1/3 of STH-endemic countries achieve high vitamin A coverage among PSAC consistently (a surrogate for PC coverage among PSAC). The sharp decline in coverage adds to inequity concerns.

Participants agreed that while identifying platforms for PSAC is challenging and resource-intensive, there are effective ways to reach coverage goals by optimizing existing platforms as shared by Kenya and Cambodia. Additional gaps and opportunities are listed below.

**Gaps and opportunities:**

- Lack of an effective approach to deworming at-risk PSAC (including ensuring resource availability): some countries have shown the ability to provide high coverage in a given year, but need support to achieve sufficient coverage over multiple years, in all endemic areas.
• A continuing need for quality generic drugs: additional funds are needed for a PSAC-specific drug formulation for implementing systematic deworming. A WHO prequalification fee exemption for generic benzimidazoles is also needed. This is a complex undertaking, but critical in the long run to actualize high PC coverage in all at-risk persons (including WRA).

• Poor quality and incomplete data for PSAC: these reporting issues reflect the nature of deworming in this risk group. Sub-national data for PSAC treatments are sparse.

The STH Advisory Committee has identified the following priority action items:

• Operational research should be prioritized on costed platforms to deworm hard-to-reach populations such as children out of school, on the streets, and in urban slums.

• Systematic, funded approaches towards scaling PSAC PC coverage in high-burden countries should be immediately sought and initiated (engage NTD donors and implementing partners).

• Data quality should be improved by streamlining reporting from partners treating PSAC. Standardization of reporting and availability of granular coverage data is essential for reaching coverage targets for PSAC.

• Collaboration on sharing granular PSAC data and resources between STHAC and UNICEF will advance common goals in this area.

**Priority action area #3**

**Reaching and achieving morbidity control among women of reproductive age**

Women of reproductive age have recently been re-confirmed as a high-risk group by WHO in its 2017 WHO deworming guidance and in the 2018 Bellagio Declaration. The global community acknowledges the WHO focus on this important risk group but recommends further guidance on the safety of PC drugs in pregnancy, platforms for cost-effectively reaching non-pregnant women (including adolescent girls), and targets to measure coverage and impact. Partners are conducting ongoing studies in Peru, Tanzania, Vietnam, and Niger that validate a practical survey tool to rule out pregnancy, which can be used by program staff to exclude administering deworming treatment to women in the first trimester of pregnancy.

WHO presented unpublished data (from DHS) that shows approximately 15-20% of WRA received PC in 104 endemic countries in 2017 through existing facilities. These results will need close review and follow-up by the STH expert community once published to answer several related questions (e.g. what impact can be expected from different PC treatment strategies targeting this risk group?).

WHO has prioritized treating pregnant and lactating women and adolescent girls. These WRA subgroups constitute 35% of the global at-risk WRA population. Below are the identified targets, gaps, and proposed next steps.
Gaps and opportunities:

- If WRA treatments start in 2020, preparatory work (e.g. guidance, resource mobilization, and cost-effective delivery platforms) needs to start now. It is not clear how many countries/partners are ready for this.

- Gaps in drug availability for WRA (and PSAC) remain a concern among country managers. There is a large global need for drugs to treat WRA starting in 2020 and peaking in 2025 based on WHO estimates of countries progressively taking up this activity.

- Equity, as in PSAC treatment, is also an important consideration for all implementers.

- Concerns on the safety of PC treatment in the first trimester of pregnancy remain and need to be addressed. The new aforementioned WHO survey tool may be helpful in minimizing this risk.

- PC coverage in countries currently treating WRA is unreported so the effectiveness of current platforms is unknown except for those treated through the LF platform or existing health facilities in countries with DHS data. Further research is needed to determine the effectiveness and cost of potential platforms such as:
  - The viability of HPV vaccine platform for adolescent girls (frequency of dosage and vaccine coverage are considerations for this deworming schedule)
  - School-based programs for adolescent girls (equity concerns when treating girls and not boys are addressed in the Bellagio declaration referenced earlier)
  - Antenatal clinics for pregnant women, and infant vaccination platforms for lactating women
  - Additional possible platforms (garment factories, family planning programs, etc.)

The STH Advisory Committee has identified the following priority action items:

- Continue research on ensuring the safe, effective treatment of WRA
- Establish a feasible methodology for assessing baseline morbidity in WRA
- Conduct baseline morbidity mapping in countries with treatment-naïve WRA populations and compare with the baseline morbidity in SAC (if correlated, could provide more efficient decisional data for treating WRA in high SAC-burden areas)
- Provide detailed guidance and an operational manual to be developed by WHO for national programs explaining the strategy for treatments, targets, and measures for controlling STH in WRA
- Continue actions to promote access to quality generic drugs to deworm WRA
Priority action area #4
Aligning with the water, sanitation and hygiene sector by including WASH indicators in STH monitoring

Recognizing that achieving and sustaining morbidity control in STH is critically dependent on improving **water, sanitation, and hygiene** conditions, NTDs and WASH stakeholders facilitated by the NNN WASH Working Group have endeavored to identify shared programmatic indicators that will provide data to inform program delivery and support ongoing collaboration at the national and district level. STHAC recognizes that joint action requires common goals and objectives, as set out by the WHO Global Strategy on WASH and NTDs. Following the 2018 publication of *Guidelines on Sanitation and Health* by WHO and the *WASH and health working together: a ‘how to’ guide for Neglected Tropical Diseases programs* by WHO and NNN, the WHO/WASH Lead advocated for continued coordination to identify WASH targets and indicators that influence STH prevention and control at global and programmatic levels. In preparation for the meeting, several STHAC members and the WHO WASH Unit convened a discussion resulting in a set of proposed WASH targets to be included in the STH beyond 2020 vision, aligned with SDG6 (universal access to water, sanitation, and hygiene by 2030) as well as additional measures around shoe wearing. The inclusion of such targets was proposed by the group as a way of ensuring intersectoral collaboration around shared goals, by encouraging the WASH sector to target services to endemic areas, and by encouraging the STH community to seek out a partnership with the WASH sector for delivery of infrastructure. As such, the WASH targets proposed do not imply that the STH programs are responsible for delivering WASH services, but that they do play an important role in the targeting and effectiveness of WASH programs in achieving disease control outcomes.

Gaps and opportunities:

- Guidance and evidence on targeted risk reduction and related metrics at the program level are provided in the recently-published WASH and Health working together toolkit.
- National-level information on access to water and sanitation in accordance with the WHO/UNICEF Joint Monitoring Program on Water and Sanitation and Hygiene (JMP) is available on a regular basis and can be used by national programs and at global level to monitor progress without introducing new monitoring frameworks; national data on hygiene, as measured by the presence of a handwashing facility with soap, is available for 70 countries. Sub-national data is available for approximately 100 countries for water and sanitation at the global level. National programs can also obtain sub-national data through routine coordination to inform planning.
- Shoe-wearing is important but not currently measured at the national or global level by the WASH sector.
The STH Advisory Committee has identified the following priority action items:

- The WASH community is defining factors influencing STH transmission and needs continued coordination across STH and WASH communities.
- Include feasible elements of the WASH and Health working together toolkit within the STH evaluation plans (e.g. GMEF).

Proposed WHO Targets on WASH:

1. Universal Access to at least basic sanitation and hygiene by 2030 in endemic areas. The indicators are as follows:
   a. % of the population practicing open defecation
   b. % of the population using basic sanitation
   c. % of the population using safely managed sanitation services
   d. % of the population with hand-washing facilities including soap and water

The STH Advisory Committee has the following commentary on the proposed target for WASH:

- The STHAC supports alignment of STH targets with the published SDG 6 targets.
- WASH investment should be targeted to STH-program designated priority areas: STH control program managers should coordinate with WASH programs, share epidemiological information, and help promote safe sanitation and hygiene behaviors.

**Priority action area #5**

a) Sustaining the gains – Universal Health Coverage

With the current focus on universal health coverage (UHC), the STH community needs to assist in the inclusion of NTD/STH within the UHC agenda. While UHC is currently looking at the larger NTD community, some of its measures of success align well with the goals of the global STH control program – e.g. “an increased share of at-risk people having access to quality NTD services and strengthened health systems.” One recommendation for action would be for WHO to include NTD-specific indicators in the UHC monitoring reports going forward (especially because it was seen that some countries performing well in UHC were still poor in NTD indicators, which points to aspects of inequity), and perhaps use an NTD index similar to the UHC index at each country’s level to make these comparable.

**Gaps and Opportunities:**

- Include NTD-related indicators in UHC monitoring reports produced by WHO.
- STH/NTDs should be on the menu WHO is preparing of UHC interventions for countries to choose from and for countries to use for planning.
The STH Advisory Committee endorses the following actions:

- WHO and donor partners: share jointly-defined milestones for self-reliance, with the STH community for input when available.
- Use the NTD index to represent progress toward equitable health coverage for UHC. Aligning the NTD and UHC indices is desirable.

**b) Sustaining the gains – Domestic financing**

Sustainability has moved to the fore in global health strategy discussions, and now, in NTDs. Ensuring continuous capacity for countries to carry on their NTD programs is a priority for both, WHO and donating partners. USAID presented its work in many countries to customize roadmaps to sustainability, helping to identify related needs and define gaps in domestic financing. The shared USAID indicators on self-reliance indicate commitment and capacity: open and accountable governance, inclusive development, government capacity, and economic capacity help provide standard, transparent tools to assess a program’s sustainability potential. Implementers, donors, and other partners should collaborate with national program counterparts in this complex, critical area. Such collaboration could encourage countries to define their strategies and indicators for measuring progress towards sustainability end goals. Engagement with non-health sector partners (Ministries of Finance, Development, Planning, External Assistance, etc.) would be critical.

**Gaps and Opportunities:** There is a need to define financing indicators, and address the introduction of sustainability planning late in the program cycle, usually as donor funding approaches its end. A related goal was proposed for further discussion by WHO and partners: 75% of countries that eliminated STH morbidity in PSAC and SAC are independently supporting (x%) PC activities by 2030.

The STH Advisory Committee endorses the following actions:

- Identify strategies to initiate country level dialogue with partners and donors around the integration of STH into the basic package of care. STH community can advocate for this at multiple levels.

**Priority action area #6**

**Feasibility of including Strongyloides stercoralis in the STH control program**

WHO is considering whether to include infection with *Strongyloides stercoralis*, a neglected soil-transmitted helminth, in the STH control program beyond 2020. Experts presented undergoing work aimed at estimating the global prevalence of strongyloidiasis, using two different approaches (one using hookworm prevalence as a proxy, and the other using mathematical modeling) to show that approximately 300 million people are infected with *S. stercoralis* globally. This disease may lead to severe, life-threatening complications.
(dissemination, hyper-infection) and is treated with single-dose ivermectin (around 85% cure-rate). However, ivermectin is not currently used in STH PC treatment so will need to be added in strongyloidiasis-endemic areas. There are many challenges with diagnosing strongyloidiasis, especially at the community level, but WHO partners proposed including it in the WHO STH control program before 2030. This was premised on current advances in diagnostic techniques (serology, qPCR), ongoing morbidity research, the inclusion of ivermectin in the Essential Medicines List by WHO in 2017, and the opportunistic benefit the drug would provide for other conditions such as trichuriasis and scabies. All agreed to prioritize defining the epidemiology of strongyloidiasis (populations and areas at high risk) before including this within the STH control program.

Gaps and Opportunities:

- Unknown endemicity
- Undefined thresholds for treatment
- Unknown disease burden
- Lack of availability of generic ivermectin

The STH Advisory Committee has the following commentary on the proposed target for *Strongyloides stercoralis* infection (or strongyloidiasis):

- Agrees with a need to address the epidemiologic gaps listed above by 2025 through further research and a proposal on combination therapy, drug forecast needs, etc. before a control strategy can be designed.
- Addition of ivermectin to the current STH treatment regimen will be beneficial to many STH species and is welcomed by the STHAC. Estimation of drug required to treat at-risk populations and its availability are gaps that will be addressed when epidemiology is defined.
- STHAC members can support WHO with related research to address the identified gap areas as part of a recommended working group and/or through WHO.

**Priority action area #7**

**Updates on diagnostics & resistance testing (R&D and OR)**

According to a recent study presented by Ghent University comparing Kato-Katz, Mini-FLOTAC, FECPAK, and qPCR, the Kato-Katz technique remains the most practical in field studies even though it only fails to detect the very low levels of infection intensity. The qPCR has the highest diagnostic sensitivity for all STH parasites making it especially relevant at lower prevalence ranges of infection. Moreover, it has the advantage that it allows for simultaneous detection of other pathogens (e.g. Strongyloides). Additional funding is needed to support this ongoing research. The DeWorm3 study is establishing a network of regional referral laboratories (with an apex lab in Europe), to conduct qPCR on thousands of its study-related samples. The STARWORMS project (a Bill & Melinda Gates Foundation-funded project coordinated by...
Ghent University that aims to strengthen the monitoring of drug efficacy and surveillance of anthelmintic resistance) employs the same technology, and the operational investment could be very useful to find opportunities to use qPCR in a program setting or to pilot the technology, in order to verify whether it meets the recently developed use cases.

The STARWORMS project focuses on comparing diagnostic tools for both assessments of drug efficacy and drug resistance. Research on detecting drug resistance is yet to become a priority. One paper had indicated drug resistance in Rwanda, but a re-analysis of the data refuted that. Considering the large-scale, single-dose medicine use over the past 20-25 years, resistance should be expected. Further research into this topic and possible collaboration with other NTD treatment strategies is advisable.

**Gaps and Opportunities:**

- Develop guidelines on a systematic drug efficacy monitoring system and approach by countries.
- Establish systematic monitoring and surveillance of drug efficacy in STH programs.

The STH Advisory Committee supports and welcomes WHO actions in:

- the development of a network of laboratories to coordinate drug efficacy monitoring
- providing the network of laboratories with manuals and guidance to clarify SOPs and reports, etc. towards their role in assessing drug efficacy
2018 Annual STH Advisory Committee and WHO representatives, Basel, Switzerland
Front left to right: Ana Lucianez (WHO), Pauline Mwinzi (WHO), Theresa Gyorkos (STHAC), Sultani Hadley Matendechero (STHAC), Antonio Montresor (WHO), Alejandro Krolewiecki (STHAC), Rachel Pullan (STHAC), Seung Lee (STHAC),
Back left to right: Vicente Belizario (STHAC), Denise Mupfasoni (WHO), Rubina Imtiaz (STHAC), and Juerg Utzinger (STHAC)
Not pictured: Matthew Freeman & Ajay Khera, STHAC members who were unable to attend

Appendix A – Participants List
Appendix B – Meeting Agenda
Appendix C – WHO Drafted 2030 Targets Report