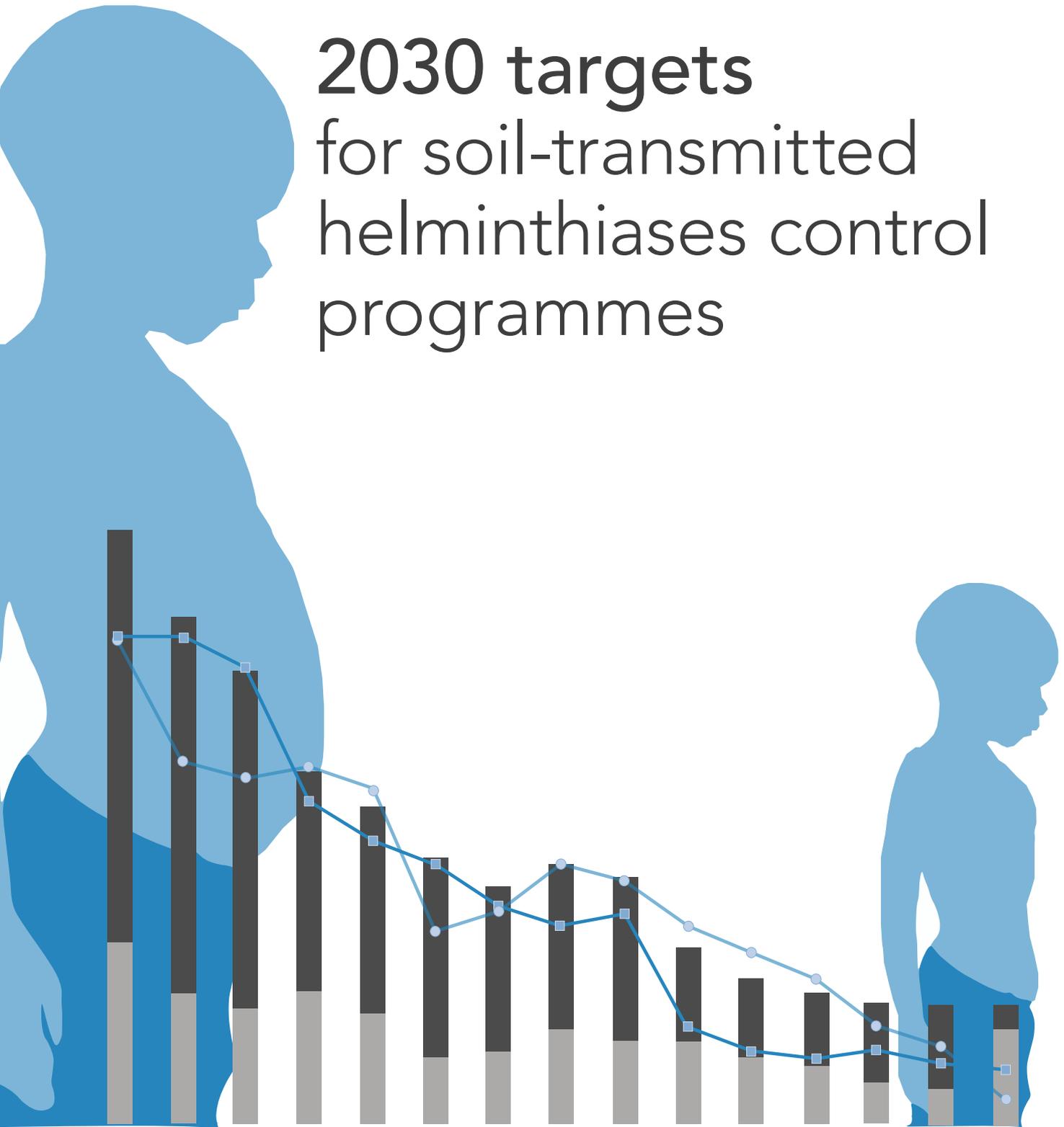


2030 targets for soil-transmitted helminthiases control programmes



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Contents

Abbreviations and acronyms	2
1 Introduction	3
2 Expected PC situation in STH risk groups in 2020 [and real situation in 2018]	7
2.1 Coverage	7
2.2 Drug availability	7
2.3 Morbidity	8
2.4 Ownership/self-financing	8
2.5 Drug resistance assessment	8
3. List of STH targets and indicators to be achieved by 2030	9
3.1 Achieve and maintain elimination of STH morbidity in pre-SAC and SAC	10
3.2 Reduce the number of tablets needed in PC for STH	11
3.3 Increase domestic financial support to PC for STH	12
3.4 Eliminate STH morbidity in adolescent, pregnant and lactating WRA	13
3.5 Control morbidity due to strongyloidiasis	14
3.6 Ensure universal access to at least basic sanitation and hygiene in STH-endemic areas	15
4 Conclusions	16
Annex. List of participants	17

Abbreviations and acronyms

DALY	disability-adjusted life year
DHS	demographic health survey
GPELF	Global Programme to Eliminate Lymphatic Filariasis
HPV	human papillomavirus
JAP	Joint Application Package
LF	lymphatic filariasis
MCH	maternal and child health
M&E	monitoring and evaluation
M&HI	moderate and heavy intensity
NTDs	neglected tropical diseases
SAC	school-age children
PC	preventive chemotherapy
pre-SAC	preschool-age children
SDGs	Sustainable Development Goals
STH	soil-transmitted helminthiases
WHO	World Health Organization
WRA	women of reproductive age

1. Introduction

The “NTD Roadmap”, published by the World Health Organization (WHO) in 2012,¹ set two targets for the control of soil-transmitted helminthiases (STH) by 2020, namely:

- 75% of preschool (pre-SAC) and school-age children (SAC) in need of treatment are regularly treated; and
- 75% coverage with preventive chemotherapy (PC) is achieved in pre-SAC and SAC in 100% of countries.

These process indicators were selected at a time when STH control programmes were few and global coverage was estimated to be only around 15%. In addition, the cost-effectiveness of school-based deworming programmes was beginning to be fully appreciated. Expansion of programme coverage was therefore identified as an immediate priority.

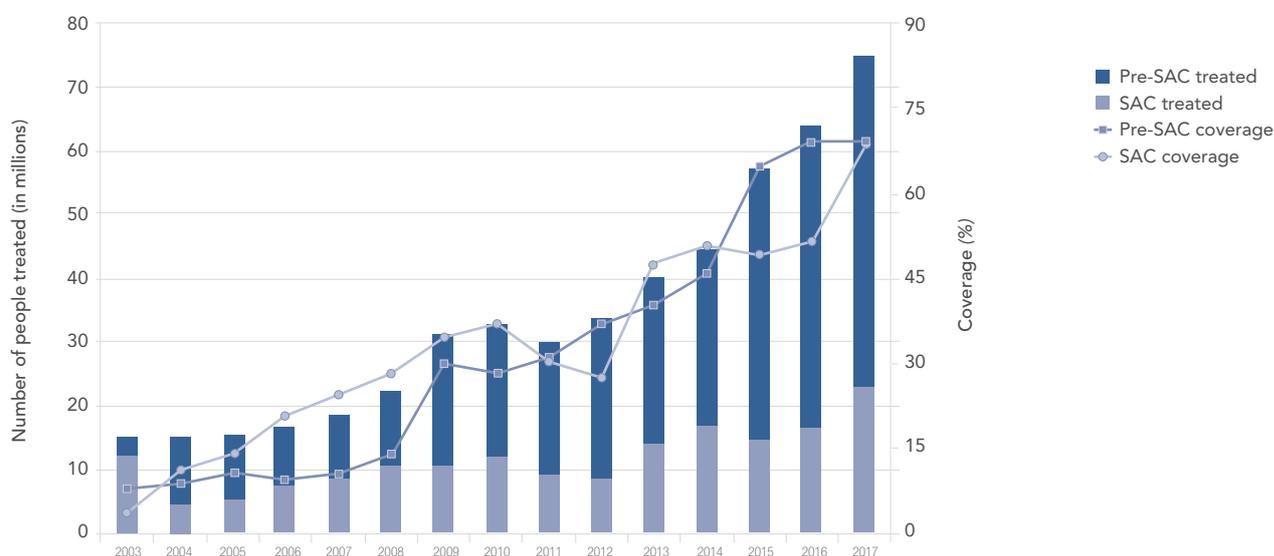
Although women of reproductive age (WRA) have always been considered an important risk group for STH, no 2020 coverage targets for WRA were proposed because the Roadmap included only targets that were regarded as being achievable. WRA, with four specific subgroups of adolescent girls, pregnant and lactating women and other adult women, were considered to be much more difficult to reach.

Between 2010 and 2017, coverage of PC in pre-SAC and SAC has steadily increased. Data collected from the 103 countries endemic for STH in 2017 show that the two Roadmap targets are well within reach by 2020 (see **Figure 1**).²

¹ Accelerating work to overcome the global impact of neglected tropical diseases: a roadmap for implementation. Geneva; World Health Organization; 2012 (https://www.who.int/neglected_diseases/NTD_RoadMap_2012_Fullversion.pdf, accessed July 2019).

² Schistosomiasis and soil-transmitted helminthiases: numbers of people treated in 2017. Wkly Epidemiol Rec. 2018;681–92 (<https://apps.who.int/iris/bitstream/handle/10665/276933/WER9350.pdf>, accessed July 2019).

Figure 1. Number of pre-SAC and SAC treated and progress in PC coverage, 2003–2017



In parallel with the increase in PC coverage, there have been additional important achievements. It is estimated that, in 2015, STH control programmes averted the loss of more than 500 000 disability-adjusted life years (DALYs) in pre-SAC and SAC, out of the total of 1 300 000 DALYs that would have been lost without such programmes.³ Several countries have already completely eliminated STH morbidity (that is, morbidity caused almost exclusively by STH infections of moderate and heavy intensity). Furthermore, a number of countries have conducted PC programmes for more than 5 years and are evaluating their epidemiological impact in terms of morbidity (see **Table 1**).

A group of representatives from STH-endemic countries, together with partners from other institutions supporting STH control activities, met in Basel in October 2018 to identify new targets to guide PC and other control activities after the achievement of the 2020 targets (see list of participants annexed to this document).

The group stressed the need to identify attainable targets that will:

- maintain the achievements obtained by on-going STH control programmes in the first decade;
- further expand the benefit to other groups at risk (i.e. WRA);
- promote the control of strongyloidiasis within STH control programmes, where warranted;
- align with the targets of other NTDs and with the Sustainable Development Goals (SDGs);
- take advantage of recent changes in the public health landscape reflecting the increased visibility of NTDs in the health arena; the familiarity of endemic countries with the principles of PC; and the engagement of pharmaceutical donors in covering the drug needs of additional groups at risk;
- highlight collaboration with WASH experts to reduce re-infection and the need for PC; and
- progressively promote sustainability of the STH control programmes by endemic countries by adapting the intervention to the new epidemiological situation resulting from the successful implementation of the control measures (see **Figure 2**).

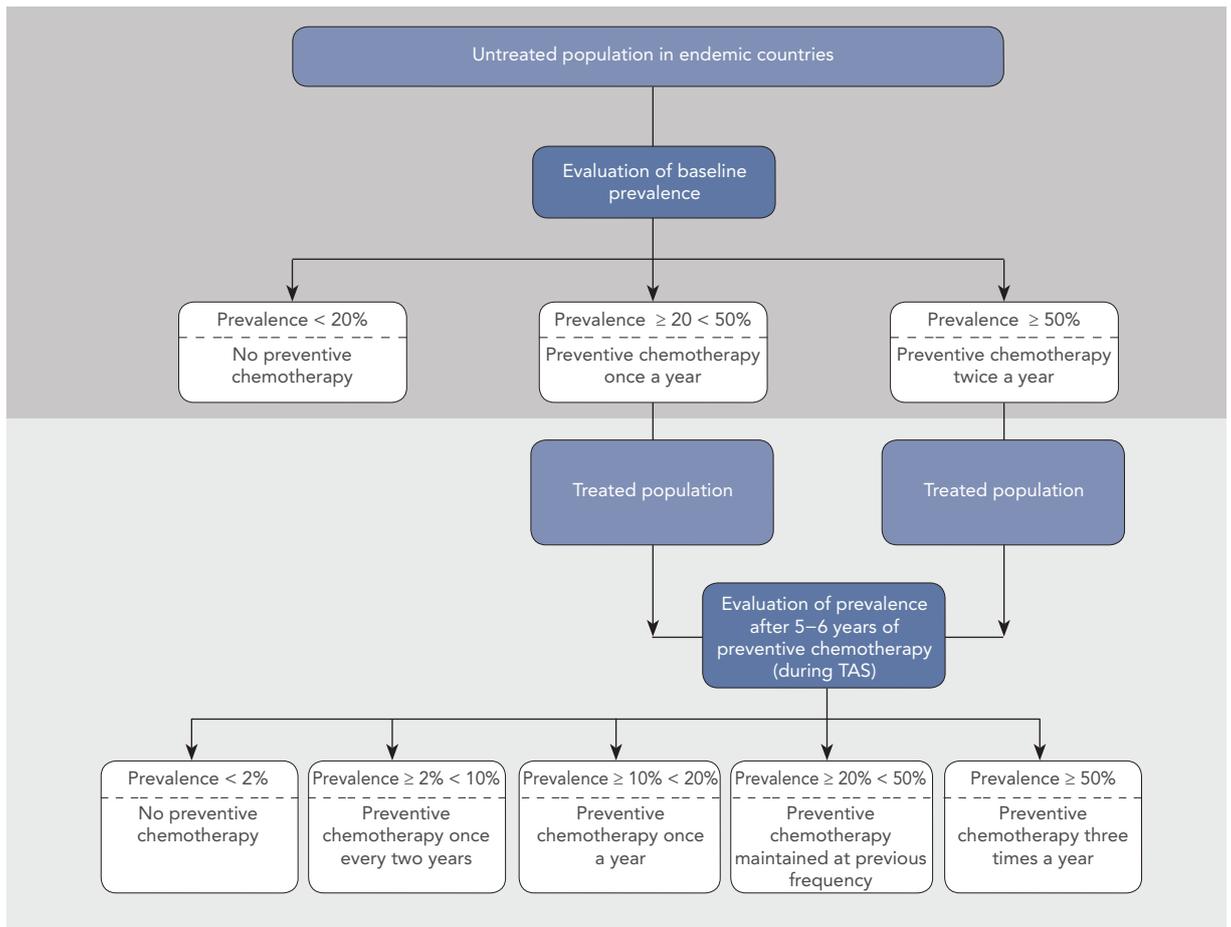
² Montresor A, Trouleau W, Mupfasoni D, Bangert M, Joseph SA, Mikhailov A, Fitzpatrick C.. Preventive chemotherapy to control soil transmitted helminthiasis averted more than 500 000 DALYs in 2015. *Transactions of the Royal Society of Tropical Medicine and Hygiene* 2017 Oct 1;111(10):457-463.

Table 1. Country categorization according to implementation of PC programmes for STH, in terms of coverage and morbidity (as determined by moderate and heavy intensity infection [MHI]), as of 2017

PC STH not started	PC STH coverage < 75%	PC STH coverage ≥ 75% (less than 5 years)	PC STH coverage ≥ 75% (5 years and more)	MHI < 1%
Antigua and Barbuda	Angola	Afghanistan	Bangladesh	Benin
Bahamas	Armenia	Azerbaijan	Belize	Bhutan
Botswana	Bolivia (Plurinational State of)	Brazil	Burundi	Burkina Faso
Dominica	Central African Republic	Cabo Verde	Cambodia	Mali
Nauru	Chad	Congo	Cameroon	Niger
Saint Lucia	China	Côte d'Ivoire	Dominican Republic	Paraguay
Suriname	Colombia	Cuba	Democratic People's Republic of Korea	Senegal
	Comoros	Ecuador	Ghana	
	Democratic Republic of the Congo	El Salvador	Haiti	
	Djibouti	Fiji	Kiribati	
	Equatorial Guinea	Gambia	Kyrgyzstan	
	Ethiopia	Guatemala	Lao People's Democratic Republic	
	Gabon	Guinea	Malawi	
	Georgia	Guyana	Mexico	
	Guinea-Bissau	Honduras	Myanmar	
	Indonesia	India	Nicaragua	
	Jamaica	Iraq	Rwanda	
	Kenya	Liberia	Sierra Leone	
	Micronesia (Federated States of)	Lesotho	Tajikistan	
	Namibia	Madagascar	Togo	
	Pakistan	Marshall Islands	Tuvalu	
	Papua New Guinea	Mozambique		
	Sao Tome and Principe	Nepal		
	Solomon Islands	Nigeria		
	Somalia	Panama		
	South Sudan	Peru		
	Sudan	Philippines		
	Trinidad and Tobago	South Africa		
		Swaziland		
		Timor-Leste		
		Tonga		
		Uganda		
		United Republic of Tanzania		
		Uzbekistan		
		Vanuatu		
		Venezuela (Bolivarian Republic of)		
		Viet Nam		
		Yemen		
		Zambia		
		Zimbabwe		
7	28	40	21	7

The indicators identified by this group and presented in this document can be viewed as expert recommendations to the WHO Department of Control of Neglected Tropical Diseases, to be shared with WHO regional and country offices, health ministry officials and programme managers in endemic countries, in order to inform the final list of STH indicators to be achieved by 2030.

Figure 2. Decision tree showing changes in frequency of PC intervention with progression of a control programme



2. Expected PC situation in STH risk groups in 2020 [and real situation in 2018]

2.1. Coverage

- SAC: 75% coverage in endemic countries [60% in 2018]; 90% of endemic countries have implemented PC at different levels of coverage [73% in 2018].
- Pre-SAC: 75% coverage [40% in 2018]; 75% of endemic countries have implemented PC but frequently coverage is inconsistent [68% in 2018].
- WRA: 20% coverage (provided by the Global Programme to Eliminate Lymphatic Filariasis (GPELF) and maternal and child health (MCH) services).
- Strongyloidiasis: 12% coverage (provided by the Global Programme to Eliminate Lymphatic Filariasis (GPELF)).

2.2. Drug availability

- SAC: donations available since 2010 and continued until 2020 (albendazole).
- PreSAC: donations available since 2019 and continued until 2020 (mebendazole).
- WRA: no drug donations.
- No ivermectin donation for STH or prequalified generic ivermectin available.

2.3. Morbidity

- SAC: 10% of endemic countries have documented absence of STH morbidity and reported in the WHO Joint Application Package (JAP) [6% in 2018].
- 35% of endemic countries have administered PC for more than 5 years but impact on morbidity has not been measured [19% in 2018].
- Pre-SAC: no endemic country has documented STH morbidity; 15% [15% in 2018] of endemic countries have administered PC consistently for more than 5 years.

2.4. Ownership/self-financing

- SAC: 70% of SAC are reached through school-based deworming programmes; 30% are reached through community-based deworming programmes via GPELF.

School-based deworming programmes

- 95% of the countries implementing PC through school-based deworming programmes received donated drugs (in India, the donations only partly covered the country's needs)
- 60% of the countries implementing PC partially covered distribution costs (normally with personnel from the ministries of health and of education).

Community-based deworming programmes via GPELF

- GPELF provides albendazole to 7% of pre-SAC and to 12% of SAC in need of treatment for STH.
- Lymphatic filariasis (LF) is expected to be eliminated by 2025; therefore, no contribution is expected from GPELF thereafter.

Child health days

- Pre-SAC: a large majority of pre-SAC were dewormed during child health days
 - 80% of the countries implementing PC had partners that provided a financial contribution to the drug distribution.

2.5. Drug resistance assessment

- 50% of countries that implemented PC for more than 5 years conducted at least one drug efficacy evaluation (30% in 2018)
- To date no drug resistance has been confirmed

3. List of STH targets and indicators to be achieved by 2030

	Target	Indicator
1	Achieve and maintain elimination of STH morbidity in pre-SAC and SAC by 2030	Number of countries where prevalence of pre-SAC and SAC with STH infections of moderate and heavy intensity (M&HI) < 2%
2	Reduce the number of tablets needed in PC for STH	No. of anthelmintic tablets needed to deworm pre-SAC and SAC
3	Increase domestic financial support to PC for STH	% of children that are treated by programmes which are fully financed by the endemic countries
4	Establish an efficient STH control programme in adolescent, pregnant and lactating WRA	Deworming coverage in adolescent, pregnant, lactating and other WRA in endemic areas (defined as areas in which SAC are in need of treatment); (data should be disaggregated by WRA subgroup)
5	Establish an efficient strongyloidiasis control programme in SAC	Coverage with ivermectin of SAC at risk of morbidity due to strongyloidiasis
6	Ensure universal access to at least basic sanitation and hygiene by 2030 in STH-endemic areas	a) % of population practicing open defecation b) % of population using basic sanitation c) % of population using safely managed sanitation services, including a hand-washing facility with soap and water d) % of population with hand-washing facilities including soap and water

The following tables provide for each 2030 targets identified, the public health aim of the target, the indicator to be utilized to assess the progress in achieving the target, details on how to calculate the indicator, how frequently to collect it, the interpretation of the results and the expected milestones.

3.1. Soil-transmitted helminthiases (STH)

Groups at risk	Pre-SAC and SAC
Target #1	Achieve and maintain elimination of STH morbidity in pre-SAC and SAC by 2030
Intention	To maintain and expand the reduction in STH morbidity obtained in the previous decade
Activities to achieve the target	Maintain coverage and, where indicated, progressively reduce frequency of PC, according to the WHO decision tree (see Figure 2), in all endemic countries implementing PC
Indicator	Number of countries with prevalence of pre-SAC and SAC with STH infections of moderate and heavy intensity (M&HI) < 2%
How the indicator is collected	<u>Survey in each endemic country after 5 years of PC</u> <u>Population to be surveyed:</u> pre-SAC and SAC in different endemic areas of the country. <u>Sample size:</u> 250 children in each ecologically homogeneous area (reference to standard survey)
Calculation of the indicator	in each county: $\frac{\text{Number of children with M\&HI}}{\text{Total number of children examined}}$
Threshold to be achieved by 2030	< 2% of pre-SAC and SAC have STH infections of M&HI
Estimated value of the indicator in 2020	28 countries with STH M&HI < 2%
Technique for collection	Kato–Katz (or any other validated quantitative technique)
Frequency of collection	At least every 3 years
Analysis of the results	The data should be analysed by risk group and by area because the epidemiological situation can vary by risk group and in different areas of the country.
Interpretation of the results	If <2% M&HI infections are found in the surveyed risk group(s) or area(s), morbidity has been controlled.
Action needed	<u>By Member States:</u> Once achieved, the elimination of morbidity should be communicated internally and internationally to document the results obtained and to maintain interest by decision-makers.
Milestones	2023: 70 countries with <2% children with STH of M&HI 2025: 90 countries with <2% children with STH of M&HI 2030: 98 countries with <2% children with STH of M&HI
Comments	The elimination of M&HI infections does not mean that PC programmes should stop; <u>if localized STH infections are still prevalent, targeted PC should be maintained.</u> The frequency of PC will depend on the prevalence measured (Figure 2). Kato–Katz has lower sensitivity for STH infections of light intensity, but it is ideal for identifying infections of M&HI. The denominator used for the indicator is the total number of children investigated (i.e. both infected and uninfected children participating in the survey, not only those who are found to be infected) It is statistically very challenging to measure the absence of M&HI infections (i.e. prevalence of M&HI = 0). For this reason, the threshold is fixed at “less than 2%”: if, in a sample of 250 children, no M&HI infections are found, then the threshold of < 2% is reached (with 95% confidence interval = 0% – 1.8%).

3.2. Soil-transmitted helminthiases (STH)

Groups at risk	Pre-SAC and SAC
Target #2	Reduce the number of tablets needed in PC for STH
Intention	To progressively reduce the cost of the PC intervention, allowing country ownership
Activities to achieve the target	Evaluate STH epidemiology at least after 5 years of PC implementation and progressively reduce the frequency of PC according to the WHO decision tree (see Figure 2)
Indicator	No. of anthelmintic tablets needed to deworm pre-SAC and SAC
How the indicator is collected	Analysis of programme data reported by endemic countries to WHO (with JAP). <u>Data to be extracted:</u> no. of pre-SAC and SAC in need of PC and frequency of PC needed.
Calculation of the indicator	in each country: <ul style="list-style-type: none"> • no. of pre-SAC at risk × annual PC frequency • no. of SAC at risk × annual PC frequency
Threshold to be achieved by 2030	50% reduction in the number of anthelmintic tablets needed to treat pre-SAC and SAC
Estimated value of the indicator in 2020	Pre-SAC= 450 million tablets of anthelmintics needed annually (200 million donated) SAC = 800 million tablets of anthelmintics needed annually (600 million donated)
Technique for collection	Country level: examination of files Global level: compilation of country data
Frequency of collection	Annual
Analysis of the results	The data should be analysed by risk group and by ecological area because the epidemiological situation can vary by risk group and in different areas of the country.
Interpretation of the results	A reduction in the number of tablets needed indicates a decrease in programme costs and a step towards self-sustainability of the programme.
Action needed	<u>By WHO:</u> prepare global forecasts annually and exchange data with drug producers to adapt production to global need
Milestones	2023: 20% reduction 2025: 30% reduction 2030: 50% reduction
Comments	This indicator is aligned with the SDG 3.3 indicator for NTDs (90% reduction in the number of individuals in need of PC): since STH is an NTD not targeted for elimination, the reduction is less marked. It is expected that the global campaign to eliminate open defecation (included in SDG 6) will also contribute to reducing the need of PC for STH and other NTDs.

3.3. Soil-transmitted helminthiases (STH)

Groups at risk	Pre-SAC and SAC
Target #3	Increase domestic financial support to PC for STH
Intention	To progressively increase country ownership and sustainability of PC for STH control
Activities to achieve the target	Ministry of Health in endemic countries dedicate funds to PC
Indicator	a) % of endemic countries that, after elimination of STH morbidity, fully financially support the maintenance phase of control activities. b) % of at-risk children who are treated by a control programme fully financed by the endemic countries
How the indicator is collected	Analysis of programme data reported by endemic countries to WHO (with JAP). <u>Data to be extracted:</u> country economic contribution (in-kind or, for example, in terms of time spent by distributors) and country financial (monetary) contribution.
Calculation of the indicator	in each county: $\frac{\text{No. of endemic countries (that eliminated morbidity) financing PC for STH}}{\text{Total no. of endemic countries that eliminated morbidity}}$ $\frac{\text{No. of at-risk children covered by endemic countries fully financing PC for STH}}{\text{Total no. of at-risk children in endemic countries}}$
Threshold to be achieved by 2030	30% of endemic countries that have eliminated STH morbidity, fully support PC interventions for STH (drug procurement, distribution, and monitoring and evaluation (M&E) activities) 50% of children are dewormed by PC programmes fully supported domestically
Estimated value of the indicator in 2020	0% (no endemic country fully supports its own PC programme against STH).
Technique for collection	File examination
Frequency of collection	Annually
Analysis of the results	Country economic contribution and country financial contribution should be analysed separately.
Interpretation of the results	Document proportion of PC programme costs provided by the national budget
Action needed	<u>By Member States:</u> Adjust national budget to cover for programme costs
Milestones	2023: 5 countries deworming children by domestic funds 2025: 15 countries deworming children by domestic funds 2030: 25 countries deworming children by domestic funds
Comments	Data on external financial support are routinely reported to WHO. Several countries endemic for STH are already financially independent in terms of drug administration, but they still require additional resources for drug procurement and M&E activities. Availability of high-quality drugs at affordable cost is also essential.

3.4. Soil-transmitted helminthiases (STH)

Groups at risk	WRA
Target #4	Establish an efficient STH control programme for adolescent, pregnant and lactating WRA
Intention	To eliminate morbidity in a previously neglected high-risk group
Activities to achieve the target	Include routine deworming in human papillomavirus (HPV) vaccination programmes and in maternal and child health (MCH) programmes (including post-partum deworming)
Indicator	Deworming coverage in adolescent, pregnant, lactating and other WRA in endemic areas (defined as areas where SAC are in need of treatment); (data should be disaggregated by WRA sub-group)
How the indicator is collected	<u>Survey</u> Population to be surveyed: all WRA subgroups (adolescent girls, pregnant women, lactating women, or other adult women) in the different areas in the country in need of treatment.
Calculation of the indicator	In each endemic country (data should be disaggregated by WRA subgroup): $\frac{\text{No. of adolescent, pregnant and lactating WRA receiving deworming}}{\text{Total no. of adolescent, pregnant and lactating WRA}}$
Threshold to be achieved by 2030	75% coverage of deworming in adolescent, pregnant and lactating WRA
Estimated value of the indicator in 2020	Between 15% and 20% (based on DHS and GPELF reports)
Technique for collection	JAP report, DHS
Frequency of collection	At least every 3 years
Analysis of the results	The data should be analysed by WRA subgroup and by area because the situation can be different in different areas of the country.
Interpretation of the results	If coverage of adolescent, pregnant and lactating WRA is over 75% the programmes are considered successful
Action needed	<u>By WHO:</u> Develop a policy presenting the WHO strategy and a manual to guide assessment of indicators. <u>By Member States:</u> Once achieved, the elimination of morbidity should be communicated internally and internationally to document the results obtained and maintain interest by decision-makers.
Milestones	2023: WRA coverage = 40% 2025: WRA coverage = 50% 2030: WRA coverage = 75%
Comments	Of the three groups at highest risk for STH morbidity, that of WRA is the more difficult to reach. Platforms such as: <ul style="list-style-type: none"> • HPV vaccination programmes (for adolescents) • MCH activities (for pregnant and lactating women) • hospital services (for post-partum deworming) should be considered.

3.5. Strongyloidiasis

Groups at risk	SAC (ivermectin is not approved for use in pre-SAC)
Target #4	Establish an efficient strongyloidiasis control programme in SAC
Intention	To recognize the public health importance of strongyloidiasis as a soil-transmitted helminth infection and to include it in STH prevention and control programmes
Activities to achieve the target	In areas of high endemicity of <i>S. stercoralis</i> , to distribute ivermectin together with either albendazole or mebendazole
Indicators	Coverage with ivermectin of SAC at risk of morbidity due to strongyloidiasis
How the indicator is collected	Analysis of programme data reported by endemic countries to WHO (with JAP). <u>Data to be extracted:</u> coverage in the areas of co-endemicity (STH – strongyloidiasis) and the drugs used for PC in SAC
Calculation of the indicator	In strongyloidiasis-endemic areas: $\frac{\text{No. of at-risk SAC receiving ivermectin and a benzimidazole}}{\text{Total no. of at-risk SAC}}$
Threshold to be achieved by 2030	75% of SAC in strongyloidiasis-endemic areas receive ivermectin and benzimidazole
Estimated value of the indicator in 2020	12% no specific programme for control of strongyloidiasis is operational; however, several countries endemic for LF and onchocerciasis distribute ivermectin (in combination with albendazole in the case of LF)
Technique for collection	Survey or examination of files
Frequency of collection	Survey: at least every 3 years File examination: annually
Analysis of the results	The data should be analysed by age group and by area because the situation can be different in different areas of the country.
Interpretation of the results	This indicator provides an indication of the overall progress of strongyloidiasis control and its integration in the effort to control morbidity due to STH.
Action needed	<u>By WHO before 2020:</u> To enable implementation of control activities against <i>S. stercoralis</i> it will be necessary to: <ul style="list-style-type: none"> • identify strongyloidiasis-endemic areas worldwide; • identify endemic areas that have already received PC with ivermectin (and that do not need further intervention); • define the prevalence threshold requiring PC intervention; • quantify the global need for ivermectin; • ensure the availability of a generic ivermectin (or moxidectin) at an affordable price on the global market. It will also be necessary to develop a WHO manual describing the strategy and its application in areas of co-endemicity (STH + <i>S. stercoralis</i>).
Milestones	2023: 40% of children at risk of strongyloidiasis receiving ivermectin 2025: 50% of children at risk of strongyloidiasis receiving ivermectin 2030: 75% of children at risk of strongyloidiasis receiving ivermectin
Comments	A large number of individuals in LF-endemic areas have been treated with albendazole and ivermectin.

3.6. Sanitation and hygiene

Groups at risk	Entire population
Target #4	Ensure universal access to at least basic sanitation and hygiene by 2030 in STH-endemic areas (including ending open defecation and increasing access to safely managed sanitation, safe disposal of child faeces, shoe-wearing and hand-washing)
Intention	To prevent infections and reinfections through increased sanitation and behavior-change investments in STH-endemic areas and improved sanitation and hygiene interventions to reduce transmission (i.e. safe excreta management, shoe wearing, hand-washing).
Activities to achieve the target	Coordination and joint planning with WASH programmes (e.g. sharing and mapping of epidemiological information alongside WASH coverage, inputs to WASH programme design, collaboration on behaviour change interventions, integration of hygiene promotion within STH/education/health programme delivery).
Indicators	<ul style="list-style-type: none"> a) % of population practicing open defecation b) % of population using basic sanitation c) % of population using safely managed sanitation services, including a hand-washing facility with soap and water d) % of population with hand-washing facilities including soap and water
How the indicator is collected	National surveys and census data combined with NTD data
Calculation of the indicator	WHO and UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP). ¹ JMP produces country, regional and global estimates every 2 years.
Threshold to be achieved by 2030	<p>In STH-endemic areas:</p> <ul style="list-style-type: none"> a) 0% of population practicing open defecation b) 100% of population using basic sanitation c) 80% of population using safely managed sanitation services d) 100% of population with hand-washing facilities including soap and water
Estimated value of the indicator in 2020	To be extracted from JMP 2019 or 2021 report for countries, regions and globally
Technique for collection	Examination of selected publications
Frequency of collection	Bi-annually
Analysis of the results	The data should be analysed by area because the situation can be different in different areas of the country.
Interpretation of the results	Access levels to sanitation, and hygiene behaviours, should be interpreted to predict the likelihood of bounce back to inform decisions on frequency of PC or suspending PC, and the need for further investment in sanitation and hygiene education/infrastructure in endemic areas
Action needed	<u>By Member States:</u> Use endemicity data as a key consideration in targeting investment in sanitation and hygiene infrastructure and behavioural change, and actively plan and coordinate service delivery
Milestones	<p>2023: reduce open defecation below 30%</p> <p>2025: reduce open defecation below 20%</p> <p>2030: reduce open defecation to 0%</p>
Comments	Personnel responsible for STH control programmes should coordinate with WASH programmes, share epidemiological information, and promote safe sanitation and hygiene behaviours. Global level reporting of indicators is collated under the WHO/ UNICEF Joint Monitoring Programme (JMP) as the custodian agency for monitoring SDG 6.1 and 6.2; this collaboration is aligned with the SDG 6 targets on WASH.

4. Conclusions

- Overall, STH control programmes have been successful during the 2010–2020 decade and the targets for control of STH by 2020 will likely be reached.
- Morbidity due to STH has been eliminated in all countries in which PC was implemented for more than 5 years and 70% of the endemic countries are expected to eliminate STH morbidity between 2018 and 2023.
- In some countries, the control of STH morbidity achieved via PC has not been accompanied by substantial improvements in sanitation; therefore, interruption of PC may result in a return to the baseline levels of infection.
- Where morbidity control has been achieved but there is a continued risk of transmission, a progressive reduction in the frequency of PC (as described in the WHO decision tree on Figure 2) can keep morbidity levels low while also minimizing PC costs.
- PC programmes for at-risk women of reproductive age have long been neglected. This should now be considered a public health priority, especially in highly endemic areas.
- Morbidity due to strongyloidiasis has been neglected within NTD programmes. Where endemicity levels are high, appropriate treatment for *S. stercoralis* infection should be integrated into PC programmes.
- Sustainable control of STH is inconceivable without improvements in sanitation; managers of NTD control programmes should therefore avail themselves of any opportunity to inform colleagues in the WASH sector of the epidemiological STH situation. This provides a simple and rapid assessment of the need for improvement in sanitation.

¹ <https://washdata.org/>

Annex. List of participants

Invited experts

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