

# Malawi Reassessment Survey 2017 Recommendations Report

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## 1 Programmatic recommendations

This report reviews the reassessment survey which was conducted across 13 districts in Malawi, in February-April 2017, following five rounds of mass preventive chemotherapy (PC) for schistosomiasis (SCH) and soil-transmitted helminths (STH). Sampling for the survey was stratified into high-risk or low-risk of infection within each district. The classification of the high-risk areas, or 'hotspots', were based on local knowledge, which created 22 sub-districts for analysis. The last PC was in April 2016 and the next is planned for July 2017. The following programmatic recommendations are:

**Table 1:** Observations, interpretations and programmatic actions determined from the reassessment survey results

Finding or observation	Interpretation	Programmatic action
<p>Pre-treatment baseline mapping data existed for nine of the 13 districts, representing 14 sub-districts in the 2017 reassessment survey.*</p> <p><i>Schistosoma haematobium</i> prevalence decreased from district-level baseline in all of these sub-districts.</p>	<p>PC is reaching target population in these areas.</p>	<p>Ministry of Health (MoH) control programme works to maintain these gains.</p> <p>MoH to complete reassessment in remaining districts in 2018 and 2019. National level treatment strategy to be adjusted based on findings.</p>
<p>For <i>S. haematobium</i>;</p> <p>in seven of the nine districts, with available data at both time points, the World Health Organisation (WHO) risk category has reduced to the level below i.e.</p> <ul style="list-style-type: none"> <li>▪ Mulanje and Nsanje from &gt;50% (high-risk) to 10%-50% prevalence (moderate-risk)</li> <li>▪ Chipita, Karonga, Kasungu, Dedza, Thyolo from 10%-50% (moderate) to 1%-10% prevalence (low-risk)</li> </ul>	<p>PC has had an impact on the district-level prevalence. However, there is still moderate risk of SCH infection in 4 of the districts.</p>	<p>MoH to continue implementing measures to reduce prevalence of SCH.</p>
<p>Overall for <i>S. haematobium</i>:</p> <ul style="list-style-type: none"> <li>▪ 5 of the 22 surveyed sub-districts had an average prevalence that fell within the WHO defined moderate risk category,</li> <li>▪ 15 fell within the WHO defined low risk category,</li> <li>▪ The remaining 2 sub-districts had prevalence &lt;1%.</li> </ul>	<p>Sub-districts have been re-classified based on prevalence and treatment strategy will need to be reviewed based on WHO guidelines (WHO 2013, Annex 10+).</p>	<p>MoH to complete reassessment in remaining districts in 2018-2019 to inform national treatment strategy.</p> <p>Treatment frequency to be determined by highest level of risk of any schistosomiasis, as per WHO guidelines.</p>

Finding or observation	Interpretation	Programmatic action
For <i>S. mansoni</i> , average prevalence estimates in all sub-districts were below 10%.	All sub-districts low-risk (<10% prevalence) for <i>S. mansoni</i> according to WHO guidelines and treatment strategy will need to be reviewed ( <i>WHO 2013, Annex 10</i> <sup>†</sup> ).	MoH to complete reassessment in remaining districts in 2018-2019 and adjust treatment plan accordingly.  Treatment frequency to be determined by highest level of risk of any schistosomiasis, as per WHO guidelines.
With the exception of 1 district, average prevalence of <i>S. mansoni</i> and <i>S. haematobium</i> was not significantly different between hotspot and non-hotspot schools within districts.	Hotspot classification of areas based on local knowledge and practices may not be related to prevalence or specific enough, to inform treatment of schistosomiasis.	Standardised criteria to be identified by MoH and implemented for classification of hotspot and non-hotspot schools, utilising WHO guidelines and recommendations, and evidence from other endemic settings.
STH were endemic in 10 of the 22 surveyed sub-districts.	Based on reassessment results, all sub-districts with 'any STH' categorised as low risk (<20%) according to WHO thresholds.	MoH to complete reassessment in remaining districts in 2018-2019 to inform national treatment strategy for STH.

\*Pre-treatment data were collected through MoH surveys (2003 – 2010), prior to SCI's collaboration in the country.

† Helminth control in school age children: a guide for managers of control programmes - 2nd ed. World Health Organisation (2013)

## 2 Methods

All methods described in associated protocol:

[https://imperiallondon.sharepoint.com/:w:/r/sites/fom/schisto/\\_layouts/15/Doc.aspx?sourcedoc=%7BB5D1AFD4-3440-44A1-B0CF-207F20A7D595%7D&file=MWI\\_Reassessment\\_Protocol\\_2017\\_EN.docx&action=default&mobileredirect=true](https://imperiallondon.sharepoint.com/:w:/r/sites/fom/schisto/_layouts/15/Doc.aspx?sourcedoc=%7BB5D1AFD4-3440-44A1-B0CF-207F20A7D595%7D&file=MWI_Reassessment_Protocol_2017_EN.docx&action=default&mobileredirect=true)

### 2.1 Field methods

The survey was paused for three weeks during school holidays, however data collection was resumed once schools had started again.

### 2.2 Deviations from protocol

- Eight schools out of the 252 that were randomly selected within the strata could not be visited (e.g. school was permanently closed). The reason for not visiting the school or for not selecting a reserve school was not always given.

- Eleven schools visited were reserve schools.
- On some occasions the age of the children were not recorded or the age fell outside the required range of 10 to 14 years old (4% of pupils).
- Gender was not recorded in 27 of 7,409 cases. Approximately 50% of the pupils surveyed in most school were girls, with the exception of 8 out of 244 schools where the percentage of females was either < 40% or > 60%.
- Following the protocol, the number of children surveyed was 30 in most cases. However, in 20 and in 7 schools, < 30 pupils and > 30 were examined, respectively.
- In a few cases, Kato Katz data were read over two days instead of one. To be consistent across all the schools, only the two readings from day one were included in the analyses.
- A total of 2.5% of the parasitological data were missing from the full dataset.

### 2.3 Ethical approval

Ethical approval was granted by Imperial College Research Committee ICREC\_8\_2\_2. In Malawi, the National Health Sciences Research Committee determined this study was exempt from scientific and ethical review because it was an evaluation activity of an existing programme of the Ministry of Health.

## 3 Survey Recommendations

**Table 2:** Observations, interpretation and corrective measures for the survey process itself

Finding or observation	Interpretation	Corrective action
Many of the Global Positioning System (GPS) coordinates were not recorded correctly.	Some GPS coordinates were missing while others were out of range for Malawi.	<p>MoH and Schistosomiasis Control Initiative (SCI) to jointly provide special attention to the correct recording of the GPS coordinates during the training. The discussion of possible mistakes with data collection team during supervision will result in better quality data.</p> <p>Consider use of mobile phones for electronic data collection in future surveys, as GPS coordinates can be recorded as part of the electronic data collection forms.</p> <p><b>N.B.</b> The GPS coordinates of all but 3 of the schools have now been corrected by using online resources.</p>

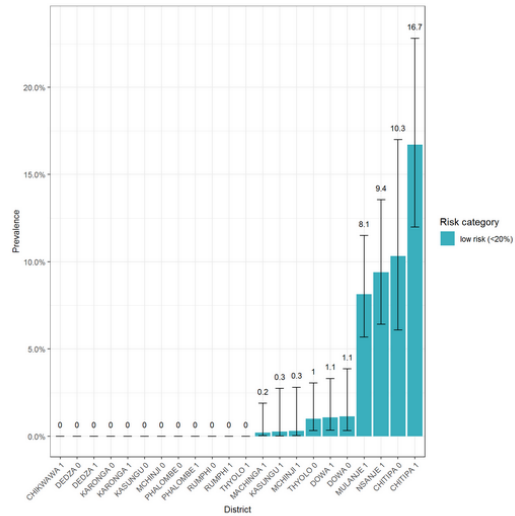
Finding or observation	Interpretation	Corrective action
Delays and errors in data entry process complicated data cleaning and analysis.	Use of paper forms can delay identification and resolution of data quality issues.	<p>MoH and SCI to jointly provide additional training before the survey and supervision during the survey for data entry team.</p> <p>Consider use of mobile phones for electronic data collection in future surveys.</p>
Some of the sampled students were out of the age range specified in the protocol.	Ages below and above the required age range recorded on paper forms.	<p>MoH and SCI to jointly provide additional training before the survey and supervision during the survey for data entry team.</p> <p>Consider using mobile phones for future data collection to allow early identification of data issues. Ensure that constraints are incorporated in the data collection to ensure ages outside the range are not recorded.</p>
Missing parasitological data.	Data could be missing because the person was not sampled or because no parasites were observed.	<p>Pre-survey training and practical exercises to give special attention to registering all data including negative results. Additional supervision to be provided by MoH and SCI during data collection.</p> <p>Consider using electronic data collection on mobile phone devices for future surveys to allow early identification of data issues. This will enable daily review of the data that has been collected and allow immediate feedback to the survey supervisors.</p>
Schools not visited.	Not all the schools that are in the sampling frame can be visited. The role of the reserve school is to act as a backup for those cases.	<p>It is important to emphasise during training and supervision that the reasons for not visiting the selected/reserve schools should be recorded to ensure representativeness of the sample.</p> <p>Ensure that supervisors are accessible during the survey, so the teams can update them about inaccessible schools.</p>

# 4 Results

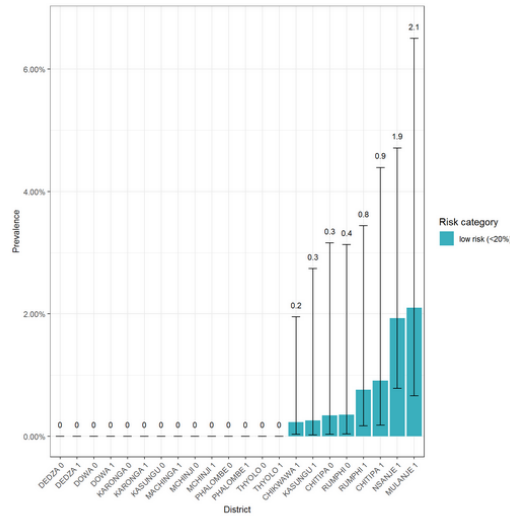
## 4.1 Dashboard



*Ascaris lumbricoides*



Hookworm



Comments

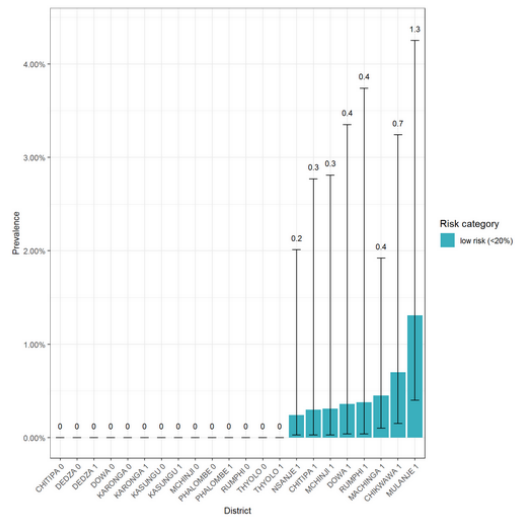
*Ascaris lumbricoides* was the most abundant of the three STH species identified in this survey. *A. lumbricoides* was found in 10 out of the 22 sub-districts surveyed with an upper prevalence of 16.7% (12.0%, 22.8%) in Chitipa 1.

Risk category	# Districts
low risk (<20%)	22
moderate risk (<50%)	0
high risk (>=50%)	0

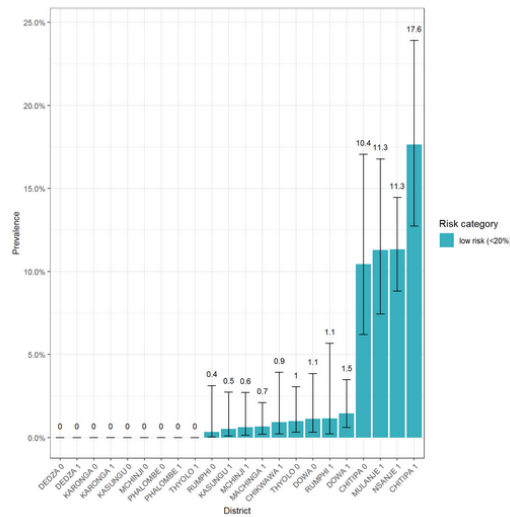
Hookworm was present in 8 out of the 22 sub-districts surveyed with an upper prevalence of only 2.0% (0.6%, 6.4%) in Mulanje 1.

Risk category	# Districts
low risk (<20%)	22
moderate risk (<50%)	0
high risk (>=50%)	0

*Trichuris trichiura*



Any STHs



Comments

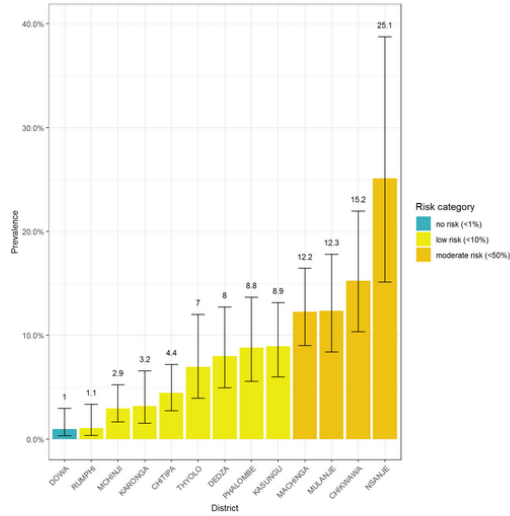
*Trichuris trichiura* was found in 8 out of the 22 sub-districts but in all cases its prevalence was relatively low, reaching a maximum of 1.3% (0.4%, 4.2%) in Mulanje 1.

Risk category	# Districts
low risk (<20%)	22
moderate risk (<50%)	0
high risk (>=50%)	0

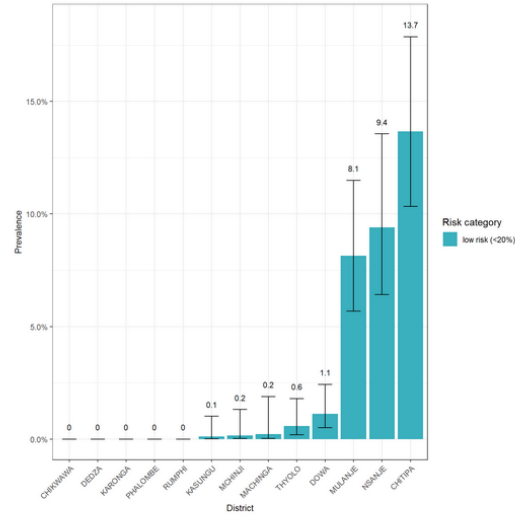
STHs were found in 10 of the 22 sub-districts: Machinga 1, Kasimji 1, Mchinji 1, Thyolo 0, Dowa 1, Dowa 0, Mulanje 1, Nsanje 1, Chitipa 0 and Chitipa 1.

Risk category	# Districts
low risk (<20%)	22
moderate risk (<50%)	0
high risk (>=50%)	0

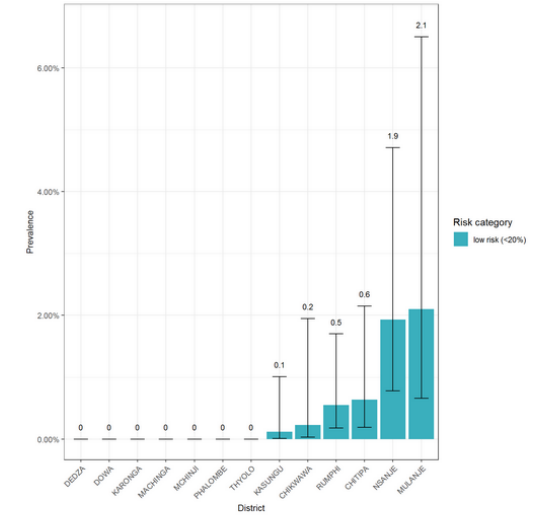
*Schistosoma haematobium*



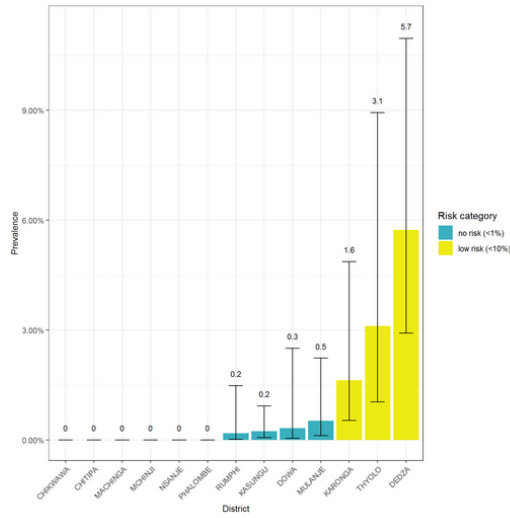
*Ascaris lumbricoides*



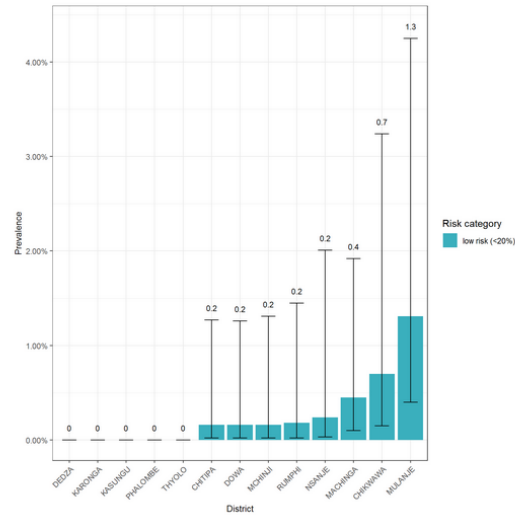
Hookworm



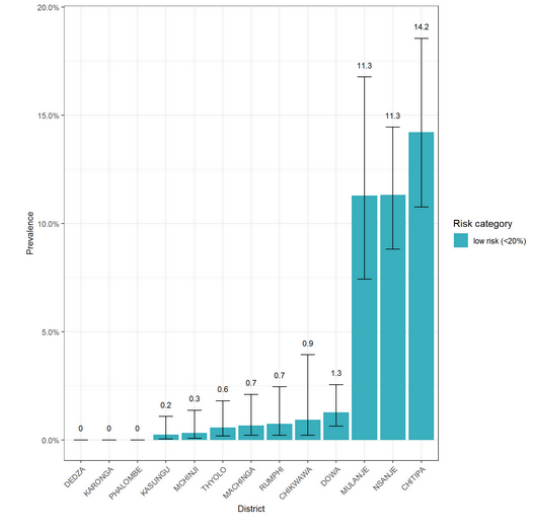
*Schistosoma mansoni*



*Trichuris trichiura*

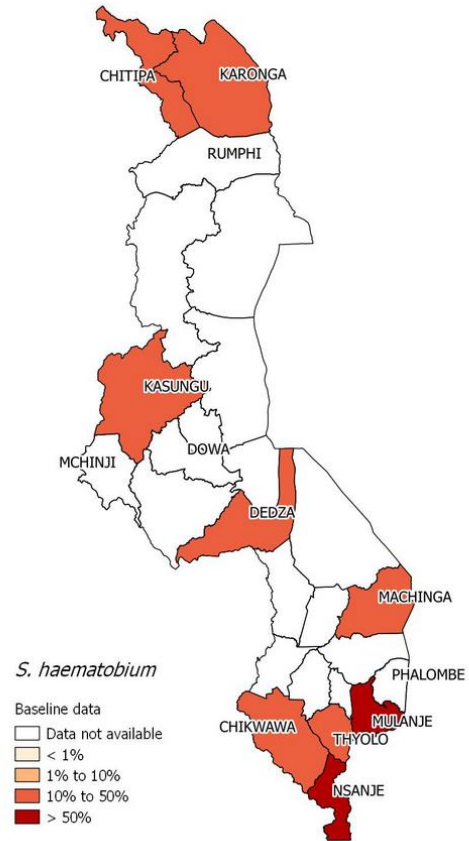


Any STHs

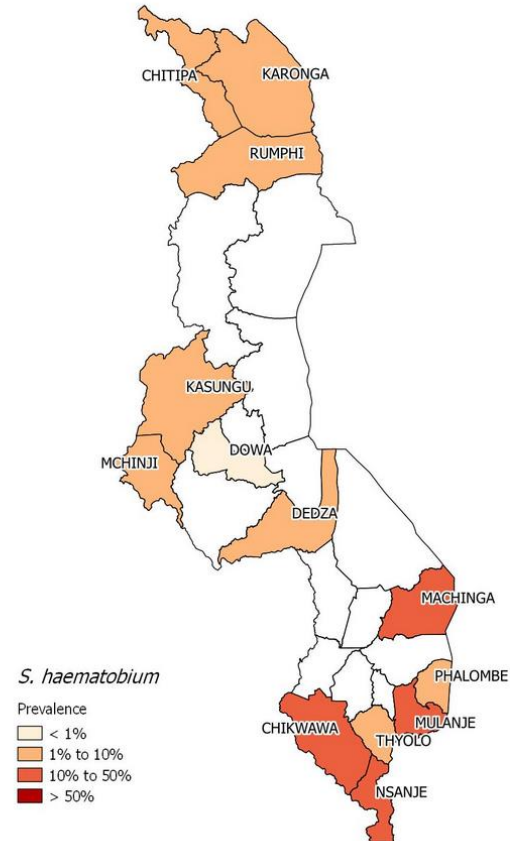




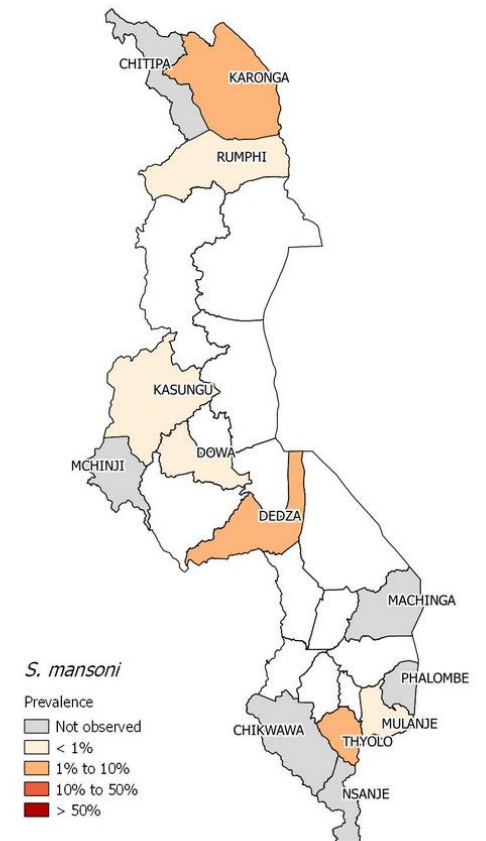
Prevalence of *Schistosoma haematobium*, mapping (2003,2008, 2010) surveys



Prevalence of *Schistosoma haematobium*, 2017 re-assessment survey



Prevalence of *Schistosoma mansoni*, 2017 Re-assessment survey



## 4.2 Results tables

**Table 3.** Reassessment survey results

Infection	Characteristics				Prevalence		Prevalence of heavy infections		Mean Intensity (epg / ep10ml) in egg-positive children	
	District	Hotspot (0 = No, 1= Yes)	No. Schools	No. Pupils	Prevalence	95% confidence interval	Prevalence of heavy infections	Prevalence of heavy infections percentiles† across all schools	Mean Intensity (No. egg-positive children)	Mean intensity percentiles† across all schools
<i>S. mansoni</i>	CHIKWAWA	1	14	401	0.0%	(0 ,0)	0	n/a	n/a	n/a
	CHITIPA	0	10	297	0.0%	(0 ,0)	0	n/a	n/a	n/a
	CHITIPA	1	11	329	0.0%	(0 ,0)	0	n/a	n/a	n/a
	DEDZA	0	12	357	3.9%	(1.2,11.7)	0	n/a	110.6 (14)	51, 90, 132
	DEDZA	1	8	236	8.5%	(3.2,20.4)	5	0, 0, 0	73.2 (20)	33, 54, 75
	DOWA	0	12	352	0.6%	(0.1 ,5)	0	n/a	138.0 (2)	135, 138, 141
	DOWA	1	10	275	0.0%	(0 ,0)	0	n/a	n/a	n/a
	KARONGA	0	12	340	0.3%	(0 ,2.6)	0	n/a	12.0 (1)	12, 12, 12
	KARONGA	1	8	232	3.1%	(0.6,13.8)	0	n/a	79.5 (8)	57, 84, 111
	KASUNGU	0	12	432	0.2%	(0 ,1.4)	0	n/a	108.0 (1)	108, 108, 108
	KASUNGU	1	10	384	0.3%	(0 ,2.7)	0	n/a	24.0 (1)	24, 24, 24
	MACHINGA	1	15	445	0.0%	(0 ,0)	0	n/a	n/a	n/a
	MCHINJI	0	9	267	0.0%	(0 ,0)	0	n/a	n/a	n/a
	MCHINJI	1	11	322	0.0%	(0 ,0)	0	n/a	n/a	n/a
	MULANJE	1	14	383	0.5%	(0.1 ,2.2)	0	n/a	42.0 (2)	39, 42, 45
	NSANJE	1	15	415	0.0%	(0 ,0)	0	n/a	n/a	n/a
	PHALOMBE	0	11	321	0.0%	(0 ,0)	0	n/a	n/a	n/a
	PHALOMBE	1	9	266	0.0%	(0 ,0)	0	n/a	n/a	n/a
	RUMPHI	0	12	283	0.4%	(0 ,3.1)	0	n/a	84.0 (1)	84, 84, 84
	RUMPHI	1	9	258	0.0%	(0 ,0)	0	n/a	n/a	n/a
THYOLO	0	12	301	1.0%	(0.3 ,3.1)	0	n/a	36.0 (3)	30, 36, 42	
THYOLO	1	8	214	6.1%	(1.4,22.6)	0	n/a	58.2 (13)	24, 60, 84	

Infection	Characteristics				Prevalence		Prevalence of heavy infections		Mean Intensity (epg / ep10ml) in egg-positive children	
	District	Hotspot (0 = No, 1= Yes)	No. Schools	No. Pupils	Prevalence	95% confidence interval	Prevalence of heavy infections	Prevalence of heavy infections percentiles† across all schools	Mean Intensity (No. egg-positive children)	Mean intensity percentiles† across all schools
<i>S. haematobium</i>	CHIKWAWA	1	14	417	15.6%	(10.4 ,22.8)	6.15	0, 0, 0	17.5 (65)	3, 4, 8
	CHITIPA	0	10	300	1.7%	(0.8 ,3.5)	0	n/a	4.0 (5)	3, 4, 5
	CHITIPA	1	11	330	7.0%	(4.2 ,11.4)	0	n/a	5.0 (23)	2.5, 5, 5
	DEDZA	0	12	360	6.9%	(3.4 ,13.7)	12	0, 0, 0	20.1 (25)	4, 5, 19
	DEDZA	1	8	240	9.6%	(4.3 ,20.1)	8.7	0, 0, 0	14.5 (23)	3.5, 6, 13.5
	DOWA	0	12	350	1.1%	(0.2 ,6)	75	75, 100, 100	172.8 (4)	97.5, 188, 263.25
	DOWA	1	10	278	0.7%	(0.2 ,3.2)	0	n/a	10.5 (2)	9.25, 10.5, 11.75
	KARONGA	0	12	347	1.7%	(0.3 ,10.2)	16.67	0, 0, 0	12.7 (6)	1, 2.5, 10.75
	KARONGA	1	8	238	4.5%	(2.3 ,8.7)	0	n/a	2.3 (12)	1, 2, 3.25
	KASUNGU	0	12	437	9.1%	(4.6 ,17.4)	17.5	0, 0, 0	18.4 (40)	2, 4, 15
	KASUNGU	1	10	390	8.7%	(5.2 ,14.3)	2.94	0, 0, 0	10.4 (34)	2, 4, 10
	MACHINGA	1	15	449	12.3%	(9 ,16.4)	3.64	0, 0, 0	8.4 (55)	3, 5, 8.5
	MCHINJI	0	9	268	1.7%	(0.7 ,4.6)	0	n/a	7.6 (5)	4, 4, 7
	MCHINJI	1	11	323	3.7%	(1.6 ,8.2)	15.38	0, 0, 0	40.8 (13)	3, 6, 13
	MULANJE	1	14	381	12.6%	(8.5 ,18.3)	8	0, 0, 0	52.8 (50)	5, 7, 13.25
	NSANJE	1	15	418	25.1%	(15.1 ,38.7)	0	n/a	3.8 (105)	2, 3, 5
	PHALOMBE	0	11	323	7.4%	(3.6 ,14.6)	4.17	0, 0, 0	8.1 (24)	1, 3, 17, 5
	PHALOMBE	1	9	268	10.5%	(5.1 ,20.2)	7.14	0, 0, 0	9.0 (28)	1, 2.5, 10.25
	RUMPHI	0	12	291	1.4%	(0.3 ,7.2)	0	n/a	7.0 (4)	2.75, 3.5, 7.75
	RUMPHI	1	9	261	0.8%	(0.2 ,3.3)	0	n/a	5.0 (2)	4, 5, 6
THYOLO	0	12	325	8.3%	(4.2 ,15.9)	37.04	0, 0, 100	41.6 (27)	6, 29, 77.5	
THYOLO	1	8	236	5.1%	(1.4 ,16.8)	33.33	0, 0, 100	49.8 (12)	27.56, 38, 53.5	

Infection	Characteristics				Prevalence		Prevalence of heavy infections		Mean Intensity (epg / ep10ml) in egg-positive children	
	District	Hotspot (0 = No, 1= Yes)	No. Schools	No. Pupils	Prevalence	95% confidence interval	Prevalence of heavy infections	Prevalence of heavy infections percentiles† across all schools	Mean Intensity (No. egg-positive children)	Mean intensity percentiles† across all schools
Hookworm	CHIKWAWA	1	14	400	0.3%	(0 ,2.1)	0	n/a	432.0 (1)	432, 432, 432
	CHITIPA	0	10	297	0.3%	(0 ,3.2)	0	n/a	12.0 (1)	12, 12, 12
	CHITIPA	1	11	329	0.9%	(0.2 ,4.4)	0	n/a	76.0 (3)	66, 84, 90
	DEDZA	0	12	357	0.0%	(0 ,0)	0	n/a	n/a	n/a
	DEDZA	1	8	236	0.0%	(0 ,0)	0	n/a	n/a	n/a
	DOWA	0	12	352	0.0%	(0 ,0)	0	n/a	n/a	n/a
	DOWA	1	10	275	0.0%	(0 ,0)	0	n/a	n/a	n/a
	KARONGA	0	12	341	0.0%	(0 ,0)	0	n/a	n/a	n/a
	KARONGA	1	8	232	0.0%	(0 ,0)	0	n/a	n/a	n/a
	KASUNGU	0	12	432	0.0%	(0 ,0)	0	n/a	n/a	n/a
	KASUNGU	1	10	384	0.3%	(0 ,2.7)	0	n/a	12.0 (1)	12, 12, 12
	MACHINGA	1	15	445	0.0%	(0 ,0)	0	n/a	n/a	n/a
	MCHINJI	0	9	267	0.0%	(0 ,0)	0	n/a	n/a	n/a
	MCHINJI	1	11	322	0.0%	(0 ,0)	0	n/a	n/a	n/a
	MULANJE	1	14	383	2.0%	(0.6 ,6.4)	0	n/a	45.0 (8)	21, 24, 51
	NSANJE	1	15	415	1.9%	(0.8 ,4.7)	0	n/a	145.5 (8)	45, 60, 183
	PHALOMBE	0	11	320	0.0%	(0 ,0)	0	n/a	n/a	n/a
	PHALOMBE	1	9	266	0.0%	(0 ,0)	0	n/a	n/a	n/a
	RUMPHI	0	12	282	0.4%	(0 ,3.1)	0	n/a	24.0 (1)	24, 24, 24
	RUMPHI	1	9	258	0.8%	(0.2 ,3.4)	0	n/a	138.0 (2)	117, 138, 159
THYOLO	0	12	301	0.0%	(0 ,0)	0	n/a	n/a	n/a	
THYOLO	1	8	214	0.0%	(0 ,0)	0	n/a	n/a	n/a	

Infection	Characteristics				Prevalence		Prevalence of heavy infections		Mean Intensity (epg / ep10ml) in egg-positive children	
	District	Hotspot (0 = No, 1= Yes)	No. Schools	No. Pupils	Prevalence	95% confidence interval	Prevalence of heavy infections	Prevalence of heavy infections percentiles† across all schools	Mean Intensity (No. egg-positive children)	Mean intensity percentiles† across all schools
<i>Ascaris lumbricoides</i>	CHIKWAWA	1	14	400	0.0%	(0 ,0)	0	n/a	n/a	n/a
	CHITIPA	0	10	300	10.3%	(6.1 ,17)	0	n/a	46.5 (31)	24, 36, 66
	CHITIPA	1	11	329	16.7%	(12 ,22.8)	0	n/a	67.2 (55)	24, 48, 78
	DEDZA	0	12	357	0.0%	(0 ,0)	0	n/a	n/a	n/a
	DEDZA	1	8	236	0.0%	(0 ,0)	0	n/a	n/a	n/a
	DOWA	0	12	351	1.1%	(0.3 ,3.9)	0	n/a	66.0 (4)	51, 60, 75
	DOWA	1	10	275	1.1%	(0.4 ,3.3)	0	n/a	76.0 (3)	54, 60, 90
	KARONGA	0	12	341	0.0%	(0 ,0)	0	n/a	n/a	n/a
	KARONGA	1	8	232	0.0%	(0 ,0)	0	n/a	n/a	n/a
	KASUNGU	0	12	431	0.0%	(0 ,0)	0	n/a	12.0 (1)	12, 12, 12
	KASUNGU	1	10	386	0.3%	(0 ,2.7)	0	n/a	n/a	n/a
	MACHINGA	1	15	445	0.2%	(0 ,1.9)	0	n/a	36.0 (1)	36, 36, 36
	MCHINJI	0	9	267	0.0%	(0 ,0)	0	n/a	n/a	n/a
	MCHINJI	1	11	322	0.3%	(0 ,2.7)	0	n/a	24.0 (1)	24, 24, 24
	MULANJE	1	14	383	8.3%	(6 ,11.6)	0	n/a	46.2 (33)	24, 48, 60
	NSANJE	1	15	415	9.4%	(6.4 ,13.6)	0	n/a	65.9 (39)	36, 60, 84
	PHALOMBE	0	11	320	0.0%	(0 ,0)	0	n/a	n/a	n/a
	PHALOMBE	1	9	266	0.0%	(0 ,0)	0	n/a	n/a	n/a
	RUMPHI	0	12	282	0.0%	(0 ,0)	0	n/a	n/a	n/a
	RUMPHI	1	9	258	0.0%	(0 ,0)	0	n/a	n/a	n/a
THYOLO	0	12	301	1.0%	(0.3 ,3.1)	0	n/a	60.0 (3)	42, 48, 72	
THYOLO	1	8	214	0.0%	(0 ,0)	0	n/a	n/a	n/a	

Infection	Characteristics				Prevalence		Prevalence of heavy infections		Mean Intensity (epg / ep10ml) in egg-positive children	
	District	Hotspot (0 = No, 1= Yes)	No. Schools	No. Pupils	Prevalence	95% confidence interval	Prevalence of heavy infections	Prevalence of heavy infections percentiles† across all schools	Mean Intensity (No. egg-positive children)	Mean intensity percentiles† across all schools
Any 5TH	CHIKWAWA	1	14	400	1.0%	(0.2 ,4.2)	n/a			
	CHITIPA	0	10	297	10.4%	(6.2 ,17.1)				
	CHITIPA	1	11	329	17.6%	(12.7 ,23.9)				
	DEDZA	0	12	357	0.0%	(0 ,0)				
	DEDZA	1	8	236	0.0%	(0 ,0)				
	DOWA	0	12	351	1.1%	(0.3 ,3.9)				
	DOWA	1	10	275	1.5%	(0.6 ,3.5)				
	KARONGA	0	12	341	0.0%	(0 ,0)				
	KARONGA	1	8	232	0.0%	(0 ,0)				
	KASUNGU	0	12	431	0.0%	(0 ,0)				
	KASUNGU	1	10	384	0.5%	(0.1 ,2.7)				
	MACHINGA	1	15	445	0.7%	(0.2 ,2.1)				
	MCHINJI	0	9	267	0.0%	(0 ,0)				
	MCHINJI	1	11	322	0.6%	(0.1 ,2.6)				
	MULANJE	1	14	383	11.4%	(7.6 ,16.6)				
	NSANJE	1	15	415	11.3%	(8.8 ,14.5)				
	PHALOMBE	0	11	320	0.0%	(0 ,0)				
	PHALOMBE	1	9	266	0.0%	(0 ,0)				
	RUMPHI	0	12	282	0.4%	(0 ,3.1)				
	RUMPHI	1	9	258	1.2%	(0.2 ,5.7)				
THYOLO	0	12	301	1.0%	(0.3 ,3.1)					
THYOLO	1	8	214	0.0%	(0 ,0)					

† 25th, 50th (median), 75th

**Table 4.** Reassessment survey results by sex

Infection	Year	No. Schools	No. Girls	No. Boys	Prevalence	Prevalence	Prevalence of heavy infections	Prevalence of heavy infections	Mean Intensity (epg / ep10ml) (No. egg-positive children)	Mean Intensity (epg / ep10ml) (No. egg-positive children)
					Girls	Boys	Girls	Boys	Girls	Boys
<i>S. mansoni</i>	2017	244	3584	3618	1.06%	0.77%	0.03%	0.00%	77 (38)	78 (28)
<i>S. haematobium</i>	2017	244	3645	3678	7.08%	8.29%	0.36%	0.90%	12 (258)	23 (305)
Any STH	2017	244	3584	3614	2.76%	2.99%	n/a	n/a	n/a	n/a
<i>A. lumbricoides</i>	2017	244	3587	3616	2.26%	2.49%	0.00%	0.00%	57 (81)	60 (90)
Hookworm	2017	244	3585	3615	0.36%	0.33%	0.00%	0.00%	114 (13)	86 (12)
<i>T. trichiura</i>	2017	244	3588	3618	0.17%	0.25%	0.00%	0.00%	86 (6)	1215 (9)

**Table 5.** Reassessment survey results by district.

Infection	Characteristics			Prevalence		Prevalence of heavy infections		Mean Intensity (epg / ep10ml) in egg-positive children	
	District	No. Schools	No. Pupils	Prevalence	95% confidence interval	Prevalence of heavy infections	prevalence of heavy infections percentiles† across all schools	Mean Intensity (No. egg-positive children)	mean intensity percentiles† across all schools
<i>S. mansoni</i>	CHIKWAWA	14	401	0%	n/a	0	n/a	n/a	n/a
	CHITIPA	21	626	0%	n/a	0	n/a	n/a	n/a
	DEDZA	20	593	5.73%	(5.7, 5.77)	0.17%	0, 0, 0	88.6 (34)	36, 72, 105
	DOWA	22	627	0.32%	(0.31, 0.33)	0	0, 0, 0	138 (2)	135, 138, 141
	KARONGA	20	601	1.5%	(1.48, 1.52)	0	0, 0, 0	72 (9)	48, 72, 108
	KASUNGU	22	818	0.24%	(0.24, 0.25)	0	0, 0, 0	66 (2)	45, 66, 87
	MACHINGA	15	445	0%	n/a	0	n/a	n/a	n/a
	MCHINJI	20	639	0%	n/a	0	n/a	n/a	n/a
	MULANJE	14	396	0.51%	(0.5, 0.51)	0	0, 0, 0	42 (2)	39, 42, 45
	NSANJE	15	415	0%	n/a	0	n/a	n/a	n/a
	PHALOMBE	20	587	0%	n/a	0	n/a	n/a	n/a
	RUMPHI	21	545	0.18%	(0.18, 0.19)	0	0, 0, 0	84 (1)	84, 84, 84
	THYOLO	20	515	3.11%	(3.08, 3.14)	0	0, 0, 0	54 (16)	24, 48, 75



Infection	Characteristics			Prevalence		Prevalence of heavy infections		Mean Intensity (epg / ep10ml) in egg-positive children	
	District	No. Schools	No. Pupils	Prevalence	95% confidence interval	Prevalence of heavy infections	prevalence of heavy infections percentiles† across all schools	Mean Intensity (No. egg-positive children)	mean intensity percentiles† across all schools
<i>S. haematobium</i>	CHIKWAWA	14	417	15.59%	(15.53, 15.64)	0.96%	0, 0, 0	17.5 (65)	3, 4, 8
	CHITIPA	21	630	4.44%	(4.42, 4.46)	0%	n/a	4.9 (28)	3, 5, 5
	DEDZA	20	600	8%	(7.96, 8.04)	0.83%	0, 0, 0	17.4 (48)	4, 5, 16
	DOWA	22	628	0.96%	(0.95, 0.97)	0.48%	0, 0, 0	118.7 (6)	14, 70, 220
	KARONGA	20	614	2.93%	(2.91, 2.95)	0.16%	0, 0, 0	5.7 (18)	1, 2, 4
	KASUNGU	22	829	8.93%	(8.89, 8.96)	0.97%	0, 0, 0	14.7 (74)	2, 4, 14
	MACHINGA	15	449	12.25%	(12.22, 12.28)	0.45%	0, 0, 0	8.4 (55)	3, 5, 9
	MCHINJI	20	641	2.81%	(2.79, 2.82)	0.31%	0, 0, 0	31.6 (18)	3, 6, 12
	MULANJE	14	396	12.63%	(12.58, 12.67)	1.01%	0, 0, 0	52.8 (50)	5, 7, 13
	NSANJE	15	418	25.12%	(25.01, 25.23)	0%	n/a	3.8 (105)	2, 3, 5
	PHALOMBE	20	591	8.8%	(8.76, 8.84)	0.51%	0, 0, 0	8.6 (52)	1, 3, 6
	RUMPHI	21	556	1.08%	(1.07, 1.09)	0%	n/a	6.3 (6)	3, 4, 6
	THYOLO	20	561	6.95%	(6.92, 6.99)	2.5%	0, 0, 0	44.1 (39)	8, 35, 73

Infection	Characteristics			Prevalence		Prevalence of heavy infections		Mean Intensity (epg / ep10ml) in egg-positive children	
	District	No. Schools	No. Pupils	Prevalence	95% confidence interval	Prevalence of heavy infections	prevalence of heavy infections percentiles† across all schools	Mean Intensity (No. egg-positive children)	mean intensity percentiles† across all schools
<i>Ascaris lumbricoides</i>	CHIKWAWA	14	400	0%	n/a	0%	n/a	n/a	n/a
	CHITIPA	21	629	13.67%	(13.64, 13.71)	0%	n/a	59.7 (86)	24, 48, 72
	DEDZA	20	593	0%	n/a	0%	n/a	n/a	n/a
	DOWA	22	626	1.12%	(1.11, 1.13)	0%	n/a	70.3 (7)	54, 60, 90
	KARONGA	20	602	0%	n/a	0%	n/a	n/a	n/a
	KASUNGU	22	819	0.12%	(0.12, 0.12)	0%	n/a	12 (1)	12, 12, 12
	MACHINGA	15	445	0.22%	(0.22, 0.23)	0%	n/a	36 (1)	36, 36, 36
	MCHINJI	20	639	0.16%	(0.15, 0.16)	0%	n/a	24 (1)	24, 24, 24
	MULANJE	14	396	8.33%	(8.31, 8.36)	0%	n/a	46.2 (33)	24, 48, 60
	NSANJE	15	415	9.4%	(9.37, 9.43)	0%	n/a	65.9 (39)	36, 60, 84
	PHALOMBE	20	586	0%	n/a	0%	n/a	n/a	n/a
	RUMPHI	21	544	0%	n/a	0%	n/a	n/a	n/a
THYOLO	20	515	0.58%	(0.58, 0.59)	0%	n/a	60 (3)	42, 48, 72	

Infection	Characteristics			Prevalence		Prevalence of heavy infections		Mean Intensity (epg / ep10ml) in egg-positive children	
	District	No. Schools	No. Pupils	Prevalence	95% confidence interval	Prevalence of heavy infections	prevalence of heavy infections percentiles† across all schools	Mean Intensity (No. egg-positive children)	mean intensity percentiles† across all schools
Hookworms	CHIKWAWA	14	400	0.25%	(0.25, 0.25)	0%	n/a	432.0	432, 432, 432
	CHITIPA	21	626	0.64%	(0.63, 0.65)	0%	n/a	60 (4)	39, 66, 87
	DEDZA	20	593	0%	n/a	0%	n/a	n/a	n/a
	DOWA	22	627	0%	n/a	0%	n/a	n/a	n/a
	KARONGA	20	602	0%	n/a	0%	n/a	n/a	n/a
	KASUNGU	22	818	0.12%	(0.12, 0.12)	0%	n/a	12 (1)	12, 12, 12
	MACHINGA	15	445	0%	n/a	0%	n/a	n/a	n/a
	MCHINJI	20	639	0%	n/a	0%	n/a	n/a	n/a
	MULANJE	14	396	2.02%	(2, 2.04)	0%	n/a	45 (8)	21, 24, 51
	NSANJE	15	415	1.93%	(1.91, 1.94)	0%	n/a	145.5 (8)	45, 60, 183
	PHALOMBE	20	586	0%	n/a	0%	n/a	n/a	n/a
	RUMPHI	21	544	0.55%	(0.55, 0.56)	0%	n/a	100 (3)	60, 96, 138
THYOLO	20	515	0%	n/a	0%	n/a	n/a	n/a	

Infection	Characteristics			Prevalence		Prevalence of heavy infections		Mean Intensity (epg / ep10ml) in egg-positive children	
	District	No. Schools	No. Pupils	Prevalence	95% confidence interval	Prevalence of heavy infections	prevalence of heavy infections percentiles† across all schools	Mean Intensity (No. egg-positive children)	mean intensity percentiles† across all schools
<i>Trichuris trichiura</i>	CHIKWAWA	14	400	0.75%	(0.74, 0.76)	0%	n/a	68 (3)	30, 36, 90%
	CHITIPA	21	629	0.16%	(0.16, 0.16)	0%	n/a	36 (1)	36, 36, 36%
	DEDZA	20	595	0%	n/a	0%	n/a	n/a	n/a
	DOWA	22	626	0.16%	(0.16, 0.16)	0%	n/a	1248 (1)	1248, 1248, 1248
	KARONGA	20	602	0%	n/a	0%	n/a	n/a	n/a
	KASUNGU	22	819	0%	n/a	0%	n/a	n/a	n/a
	MACHINGA	15	445	0.45%	(0.44, 0.46)	0%	n/a	1224 (2)	738, 1224, 1710
	MCHINJI	20	639	0.16%	(0.15, 0.16)	0%	n/a	72 (1)	72, 72, 72
	MULANJE	14	396	1.26%	(1.25, 1.28)	0%	n/a	64.8 (5)	48, 60, 84
	NSANJE	15	416	0.24%	(0.24, 0.25)	0%	n/a	64.8	48, 60, 84
	PHALOMBE	20	586	0%	n/a	0%	n/a	n/a	n/a
	RUMPHI	21	544	0.18%	(0.18, 0.19)	0%	n/a	24 (1)	24, 24, 24
	THYOLO	20	515	0%	n/a	0%	n/a	7092 (1)	7092, 7092, 7092

Infection	Characteristics			Prevalence		Prevalence of heavy infections		Mean Intensity (epg / ep10ml) in egg-positive children	
	District	No. Schools	No. Pupils	Prevalence	95% confidence interval	Prevalence of heavy infections	prevalence of heavy infections percentiles† across all schools	Mean Intensity (No. egg-positive children)	mean intensity percentiles† across all schools
Any STH	CHIKWAWA	14	400	1%	(0.99, 1.01)	n/a	n/a	n/a	n/a
	CHITIPA	21	626	14.22%	(14.18, 14.25)				
	DEDZA	20	593	0%	n/a				
	DOWA	22	626	1.28%	(1.27, 1.29)				
	KARONGA	20	602	0%	n/a				
	KASUNGU	22	817	0.24%	(0.24, 0.25)				
	MACHINGA	15	445	0.67%	(0.67, 0.68)				
	MCHINJI	20	639	0.31%	(0.31, 0.32)				
	MULANJE	14	396	11.36%	(11.32, 11.4)				
	NSANJE	15	415	11.33%	(11.3, 11.35)				
	PHALOMBE	20	586	0%	n/a				
	RUMPHI	21	544	0.74%	(0.73, 0.74)				
	THYOLO	20	515	0.58%	(0.58, 0.59)				

### 4.3 Pdf of dashboard



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