Ministry of Education

Ministry of Health

National School-Based Deworming Programme (NSBD)
Y7 (2018-2019) Treatment Results

NATIONAL SCHOOL-BASED DEWORMING PROGRAMME

OVERVIEW OF THE NATIONAL SCHOOL-BASED DEWORMING PROGRAMME

The NSBD (National School-Based Deworming) programme is a government initiative implemented by the Ministry of Education and Ministry of Health with technical support from Evidence Action.

Over six million school-age children in Kenya are at risk of intestinal parasitic worm infection, including soil transmitted helminths and schistosomes, which have a negative impact on their health and education.

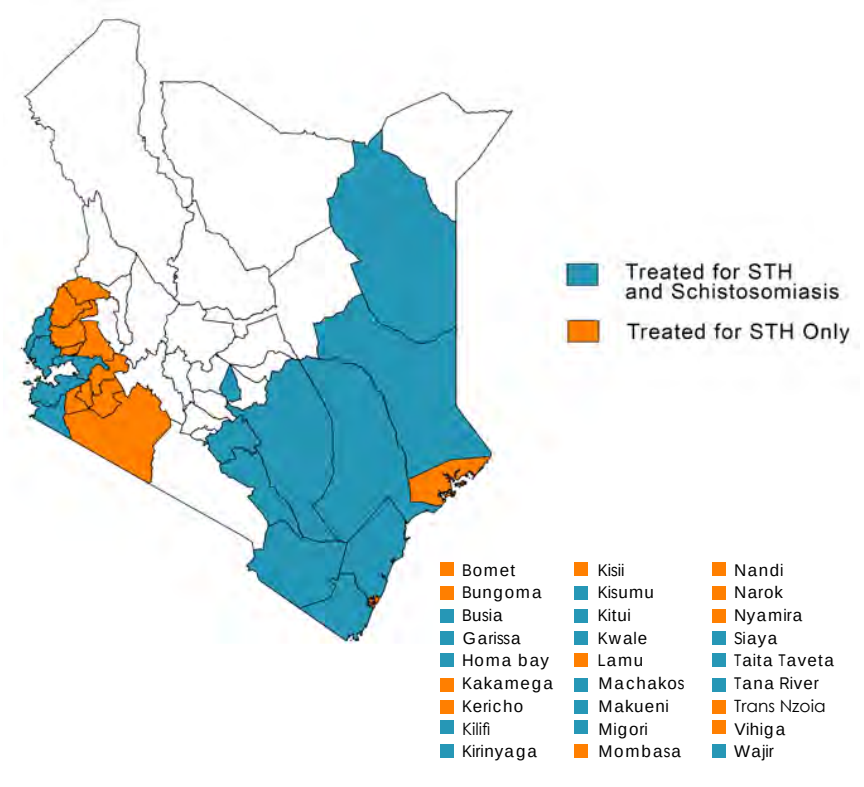
The deworming programme aims to eliminate these worms as a public health problem in children aged 2-14 years (both enrolled and non-enrolled) in areas endemic for parasitic worms. When done regularly through schools it is cost effective and safe as trained teachers administer deworming tablets.

Y7 (2018-2019) LESSONS LEARNED, SUCCESSES, CHALLENGES AND OPPORTUNITIES

Lessons Learnt

1. Comprehensive and advance planning for programme activities is key
2. Continuous engagement with requisite stakeholders is paramount to programme success
3. Advocacy for policy direction and guidance by government should be continuous to mitigate gaps as a result of attrition, budgetary allocation and financial accountability
4. Training, sensitization and distribution of inputs to key players for cascade implementation remains a pillar of success for the programme
5. Availability of deworming medicine is the single most important driver for the implementation of the programme

Coverage Map



NATIONAL SCHOOL-BASED DEWORMING PROGRAMME

Successes:

The Y7 programme implementation was successful against the odds of erratic supply of deworming medicines.

- Over 90% data and financial returns across all implementing counties and sub-counties received
- 23 county sensitization meetings held
- 126 sub-county trainings conducted
- 934 teacher training sessions conducted
- 18,164 schools reached
- 31,374 GoK officials trained
- 126 Master Trainers trained and implemented training activities

Challenges:

The greatest challenge during the Y7 programme implementation was irregular supply of deworming medicines, which led to postponement of scheduled programme activities, warranting a third treatment wave. Further, postponement meant that there was an increased rate in reinfection and a high worm load in children.

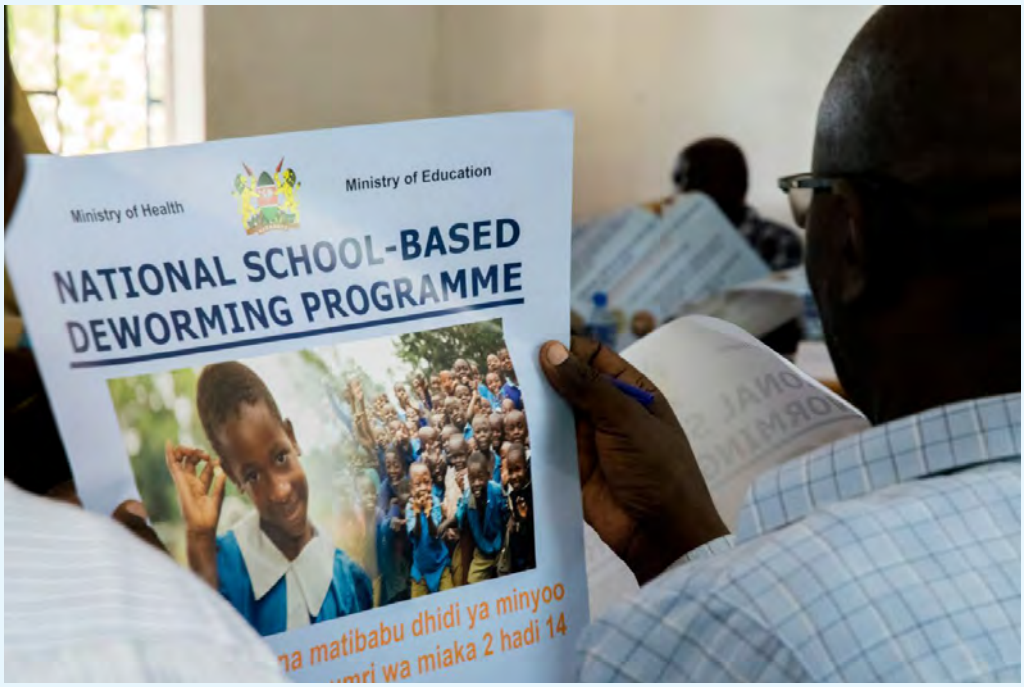
Opportunities:

There is however is an opportunity for effective engagement at National and County levels to explore more sustainable options for sourcing of deworming medicines.

One proposal is to have the Ministry of Health (MOH) at national level through the division of adolescent and school health (DASH) have budgetary allocation for purchase of deworming medicines for the programme.

An alternate proposal at county level would be to have each county procure the same prior to scheduled deworming days.

Another proposal is to have the NSBD programme benefit from the WHO donations of deworming medicines to Kenya.



NATIONAL SCHOOL-BASED DEWORMING PROGRAMME

County	Sub County	Children Targeted (STH)	Children Dewormed (STH)	% Children Treated (STH)	Children Targeted (SCH)	Children Dewormed (SCH)	% Children Treated (SCH)
Bomet 271,823 (82%)	Bomet Central	42,852	41,549	97%			
	Bomet East	60,731	39,296	65%			
	Chepalungu	80,724	70,171	87%			
	Konoin	57,250	41,728	73%			
	Sotik	89,590	79,079	88%			
Bungoma 616,607 (87%)	Bumula	88,893	81,819	92%			
	Bungoma Central	72,739	65,238	90%			
	Bungoma East	52,612	41,342	79%			
	Bungoma North	52,370	47,537	91%			
	Bungoma South	102,893	88,652	86%			
	Bungoma West	57,924	48,167	83%			
	Cheptais	66,266	56,098	85%			
	Kimilili Bungoma	70,393	60,533	86%			
	Mt Elgon	39,898	35,214	88%			
	Tongaren	43,947	39,798	91%			
	Webuye West	62,662	52,209	83%			
Busia 307,587 (80%)	Bunyala	33,676	28,055	83%	24,417	20,597	84%
	Busia	53,821	47,655	89%	11,331	9,252	82%
	Butula	67,600	43,802	65%			
	Nambale	45,348	39,820	88%			
	Samia	43,968	37,668	86%	10,844	7,497	69%
	Teso North	54,885	46,539	85%			
	Teso South	84,469	64,048	76%			
Garissa 789 (62%)	Balambala	593	455	77%	488	406	83%
	Ijara	671	334	50%	494	341	69%
Homabay 392,582 (79%)	Homa Bay	51,982	31,801	61%	10,044	8,214	82%
	Mbita	51,380	43,509	85%	20,896	15,321	73%
	Ndhiwa	96,751	63,888	66%			
	Rachuonyo East	55,025	45,966	84%			
	Rachuonyo North	73,482	63,519	86%	3,001	2,73	91%
	Rachuonyo South	58,766	50,851	87%	2,285	2,071	91%
	Rangwe	55,725	48,573	87%			
	Suba	54,362	44,475	82%	18,713	10,878	58%
Kakamega 702,839 (79%)	Butere	71,834	56,985	79%			
	Kakamega Central (Lurambi)	71,599	56,065	78%			
	Kakamega East (Shinyalu)	85,509	62,014	73%			
	Kakamega North (Malava)	116,576	92,765	80%			
	Kakamega South (Ikolomani)	52,284	41,551	79%			
	Khwisero	47,983	38,210	80%			
	Likuyani	65,858	57,413	87%			
	Lugari	56,562	47,630	84%			
	Matete	41,262	33,088	80%			
	Matungu	84,390	68,143	81%			
	Mumias East	57,834	43,357	75%			
	Mumias West	55,633	46,375	83%			
	Navakholo	79,301	59,243	75%			
Kericho 287,306 (91%)	Belgut	44,849	41,071	92%			
	Buret	68,906	63,669	92%			
	Kericho	54,483	48,012	88%			
	Kipkelion East	50,014	46,703	93%			
	Kipkelion West	46,976	41,695	89%			
	Soin / Sigowet	50,092	46,156	92%			
Kilifi 368,940 (70%)	Chonyi	24,374	17,739	73%	7,050	5,340	76%
	Ganze	68,028	39,914	59%	8,771	7,091	81%
	Kaloleni	75,364	59,647	79%	22,027	16,658	76%
	Kauma	7,780	6,206	80%	1,567	846	54%
	Kilifi North	40,140	34,917	87%			
	Kilifi South	84,947	49,582	58%	2,960	-	0%
	Magarini	84,569	58,223	69%	12,347	8,846	72%
	Malindi	100,416	72,473	72%	4,285	3,231	75%
	Rabai	44,122	30,239	69%	8,207	6,481	79%
Kirinyaga 51,771 (75%)	Mwea East	39,021	27,340	70%	30,319	22,501	74%
	Mwea West	30,163	24,431	81%	26,831	19,191	72%
Kisii 434,867 (87%)	Etago	29,349	34,611	118%			
	Gucha	37,051	32,366	87%			
	Gucha South	33,216	29,735	90%			
	Kenyenya	53,800	46,480	86%			
	Kisii Central	79,759	51,652	65%			
	Kisii South	53,534	50,803	95%			
	Kitutu Central	38,603	36,823	95%			
	Marani	52,540	44,684	85%			
	Masaba South	42,060	38,017	90%			
	Nyamache	51,726	44,870	87%			
	Sameta	26,318	24,826	94%			

NATIONAL SCHOOL-BASED DEWORMING PROGRAMME

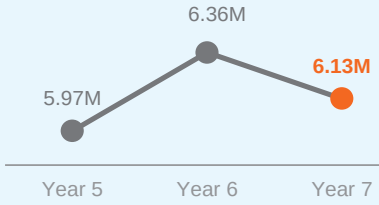
County	Sub County	Children Targeted (STH)	Children Dewormed (STH)	% Children Treated (STH)	Children Targeted (SCH)	Children Dewormed (SCH)	% Children Treated (SCH)
	Kisumu Central	71,487	54,807	77%			
	Kisumu East	48,678	37,875	78%	36,587	17,733	48%
	Kisumu West	63,279	46,905	74%	22,201	9,455	43%
	Muhoroni	65,019	52,298	80%	8,570	6,786	79%
	Nyakach	70,780	53,091	75%	9,485	5,342	56%
Kisumu 334,671 (76%)	Nyando	69,467	52,061	75%	17,161	13,802	80%
	Seme	52,201	37,634	72%	21,863	15,897	73%
Kitui170 (65%)	Matinyani / Kitui West 261	170		65%	219	140	64%
	Kinango	51,403	33,694	66%	22,285	16,707	75%
	Kwale/Matuga	58,180	49,138	84%	23,333	18,918	81%
	Lunga Lunga	58,750	51,649	88%	26,434	20,686	78%
Kwale 216,538 (81%)	Msambweni	54,160	48,092	89%	13,065	10,801	83%
	Samburu	43,514	33,965	78%	4,192	15,720	375%
	Lamu Central	13,922	10,600	76%			
Lamu 35,837 (79%)	Lamu East	7,103	5,514	78%			
	Lamu West	24,512	19,723	80%			
Machakos 0 (0%)	Yatta	250	-	0%	189	290	153%
Makueni 356 (101%)	Mbooni East	353	356	101%	353	322	91%
	Awendo	73,230	60,273	82%			
	Kuria East	36,183	29,159	81%			
	K uria West	53,147	42,992	81%			
	Mabera	40,392	34,908	86%			
	Ntimaru	10,577	8,781	83%			
	N yatike	83,360	64,247	77%	59,574	32,197	54%
	Rongo	58,436	50,873	87%			
	S una East	56,644	49,632	88%	297	308	104%
Migori 437,855 (78%)	Suna West	86,455	44,908	52%	28,954	7,594	26%
	Uriri	61,295	52,082	85%			
	Changamwe	50,379	22,740	45%			
	Jo mvu	55,500	35,311	64%			
	K isauni	150,292	48,116	32%			
	Likoni	97,387	57,092	59%			
Mombasa 242,536 (51%)	M vita	45,970	28,557	62%			
	Nyali	73,034	50,720	69%			
	Nandi East	40,948	40,984	100%			
Nandi 130,039 (91%)	Nandi South	58,378	55,803	96%			
	Tinderet	43,748	33,252	76%			
Narok 115,724 (76%)	Trans Mara East	59,182	39,894	67%			
	Trans Mara West	93,930	75,830	81%			
	Borabu	33,080	20,528	62%			
	Manga	40,511	31,726	78%			
	Masaba North	39,022	32,699	84%			
Nyamira 194,883 (77%)	Nyamira North	74,217	56,374	76%			
	Nyamira South	65,941	53,556	81%			
	Bondo	78,419	44,266	56%	28,028	15,112	54%
	Gem	67,806	49,269	73%			
	Rarieda	59,510	47,326	80%	41,699	34,517	83%
	Siaya	81,271	67,219	83%	10,686	8,863	83%
Siaya 290,947 (77%)	Ugenya	51,237	44,687	87%			
	Ugunja	41,838	38,180	91%			
	Mwatate	22,448	20,253	90%			
	Taita	13,984	13,350	95%			
Taita Taveta 84,933 (92%)	T aveta	25,936	23,328	90%	9,060	8,177	90%
	Voi	29,661	28,002	94%			
	Bura/Tana North	35,622	21,476	60%	7,748	4,889	63%
Tana River 68,207 (54%)	Tana Delta	50,563	25,740	51%	33,628	18,952	56%
	Tana River	41,131	20,991		7,383	3,899	53%
	Endebess	53,518	39,571	74%			
	K iminini	105,311	77,999	74%			
	Kwanza	97,148	68,401	70%			
Trans Nzoia 338,548 (72%)	Trans Nzoia East / Cherengany	105,327	79,713	76%			
	Trans Nzoia West / Saboti	105,936	72,864	69%			
	Emuhaya	41,500	32,791	79%			
	Hamisi	72,625	60,779	84%			
	Luanda	44,415	36,053	81%			
Vi higa 207,460 (81%)	Sabatia	58,767	48,550	83%			
	Vihiga	40,374	29,287	73%			
Wajir 313 (23%)	Buna	737	98	13%	566	34	6%
	Eldas	610	215	35%	514	180	35%
	Total	**7,883,329**	**6,134,128**	**78%**	**660,951**	**454,814**	**77%**

NATIONAL SCHOOL-BASED DEWORMING PROGRAMME

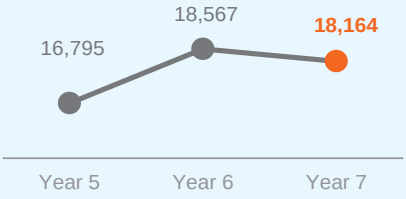
Year 7 (2018-2019) National Programme Results

Soil-Transmitted Helminths (STH) Treatment Summary

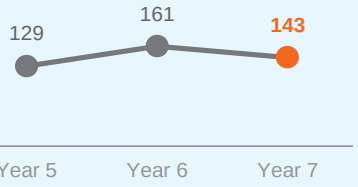
6,134,128
Children Dewormed



18,164
Schools Reached



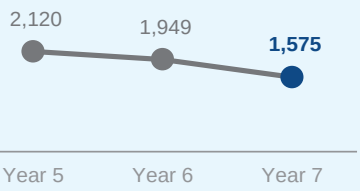
143
Sub-counties Reached



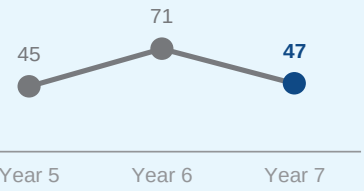
Schistosomiasis (SCH) Treatment Summary

454,814
Children Dewormed

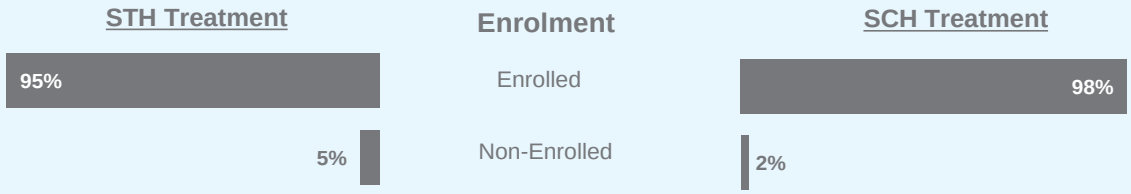
1,575
Schools Reached



47
Sub-counties Reached



Comparison of Treatments by enrolment status



One of the main challenges noted with regard to treatment within the financial year 2018 / 2019 was a shortage of deworming tablets. The result of this was a spill over of treatment into the next financial year. Of the 27 counties treated, 18 were treated in FY 2018 / 2019 and 9 in FY 2019 / 2020. The total number of children treated in each is as below

FY 2018 / 2019

County	Children treated for STH	Children treated for Bilharzia
Bomet	271,823	
Garissa	789	747
Homabay	392,582	39,215
Kericho	287,306	
Kilifi	368,940	48,493
Kirinyaga	51,771	41,692
Kisii	434,867	
Kisumu	334,671	69,015
Kitui	170	140
Machakos	0	290
Makueni	356	322
Migori	437,855	40,099
Narok	115,724	
Nyamira	194,883	
Siaya	290,947	58,492
Trans Nzoia	338,548	
Vihiga	207,460	
Wajir	313	214
Total	**3,729,005**	**148,052**

FY 2019 / 2020

County	Children treated for STH	Children treated for Bilharzia
Bungoma	616,607	
Busia	307,587	37,346
Kakamega	702,839	
Kwale	216,538	88,832
Lamu	35,837	
Mombasa	242,536	
Nandi	130,039	
Taita Taveta	84,933	8,177
Tana River	68,207	27,740
Total	**2,405,123**	**156,095**

NATIONAL SCHOOL-BASED DEWORMING PROGRAMME

Cascade Overview

The NSBD programme uses a cascade implementation model that efficiently and cost-effectively delivers training, deworming medicines, monitoring forms, funds, and other programme materials and resources from the national level to schools. The cascade brings together personnel from the MOE and MOH for collaborative leadership in planning, implementation, and monitoring of programme activities at all levels.

County Sensitization and Planning Meetings:

County Directors of Education and Health convene sen sitization meetings on the programme. This allows the programme to gain buy-in and build partnerships with - county level leaders.

Sub county Trainings:

Master trainers, nominated from MOE and MOH personnel in implementing counties, are responsible for training of Sub county and ward / division level personnel on managing and implementing the programme. Community Health Extension Workers (CHEWs) / Community Health Assistants (CHAs) also attend this training to support in community mobilization and management of any potential serious adverse events (SAEs).

Teacher Trainings:

Teachers are critical to the programme's success. They help in the administration of deworming medicines in schools. Head teachers and health teachers are trained to sensitize children and the community, administer deworming medicine, and properly fill and submit reporting forms after deworming day.

Community Sensitisation and Mobilisation:

Before Deworming day health workers and teachers share key messages with children, parents, and local leaders, encouraging community members to bring their children for deworming. Posters are put up in schools and strategic community locations to emphasize the importance of deworming, how to prevent infections, and the date and location of treatment. The key messages are also disseminated through local FM radio stations.

Deworming Day:

On designated county deworming days, teachers administer deworming medicines to children aged 2-14 years in public and private primary schools, in nearby Early Childhood Development (ECD) Centres, and to children ho are non-enrolled. Teachers fi o record the number of child nnel visit schools to monitor dr anage any serious adverse ev

KWA AFYA NA ELIMU BORA

TUANGAMIZE MINYOO

KEMRI: Impact Assessment

The Kenya Medical Research Institute (KEMRI) is the national body responsible for carrying out human health research in Kenya, and is a key partner in the NSBD Programme. Through its renowned international experts in STH and schistosomiasis research, KEMRI provides support in mapping, parasitological analysis, implementation research and impact evaluation. KEMRI's Eastern and Southern Africa Centre of International Parasite Control (ESACIPAC) has conducted repeat cross-sectional school-level surveys assessing prevalence and intensity for three types of STH (hookworm, whipworm—specifically Trichuris trichiura, and roundworm— specifically Ascaris lumbricoides) and schistosome infections (Schistosoma mansoni and Schistosoma haematobium) in school-age children. Results from this work guide programme decisions and help NSBD maintain its evidence-based approach. During year 6 of the programme, KEMRI did an evaluation of the first five years of the programme after five rounds of treatment.

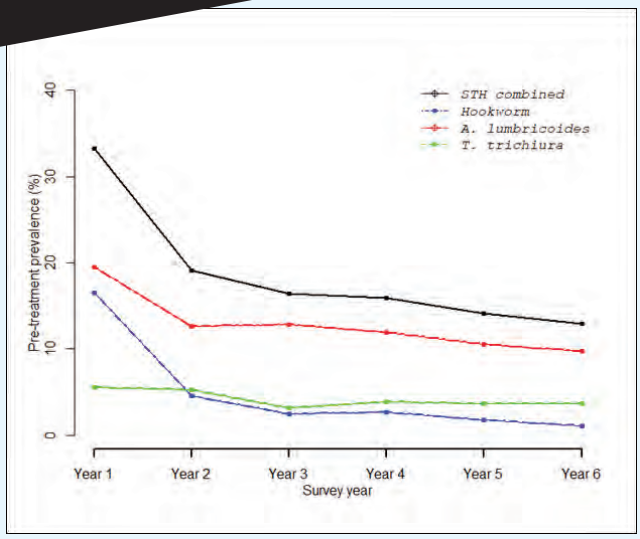


Figure 1: Trend in STH prevalence among Kenyan school-aged children, 2012-2018

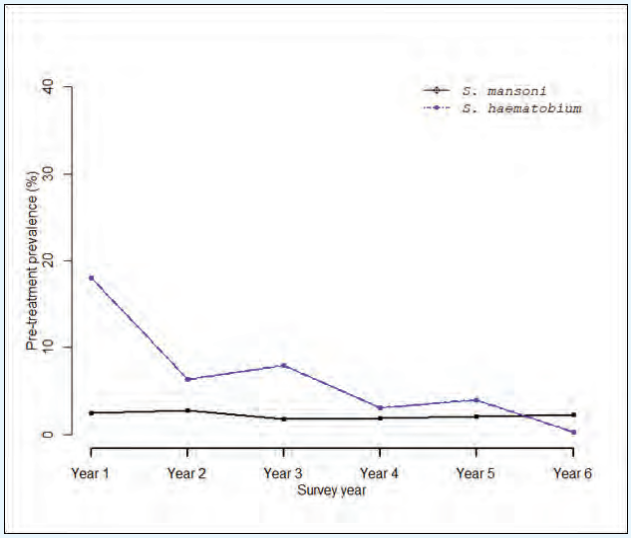


Figure 2: Trend in schistosomiasis prevalence among Kenyan school-aged children, 2012-2018

From the results of this evaluation exercise, the programme reduced the prevalence of STH to 12.9% up from initial prevalence of 32.3% (Figure 1), and both species of schistosomiasis to 0.3% from 18.0% for S. haematobium and 2.2% from 2.4% for S. mansoni (Figure 2).

As much as the sampling design was not powered to detect changes at county level, the programme managed to drive the prevalence of STH infections to below 1% in five out of the twenty counties evaluated, and schistosomiasis prevalence to below 1% in fourteen counties (Table 1).

Table 1: Overall and county prevalence % (95%CI) for STH and schistosomiasis among school children in Kenya after five rounds of MDA

County	No. children (%) N=9,801	STH combined	Hookworm	A. lumbricoides	T. trichiura	S. mansoni	S. haematobium
Bomet	541 (5.5 %)	24.0 (16.5-34.8)	0	23.4 (15.8-34.6)	1.1 (0.3-4.1)	0	_ns
Bungoma	519 (5.3 %)	5.1 (2.5-10.4)	0.2 (0-1.4)	4.9 (2.5-9.8)	0	0	_ns
Busia	540 (5.5 %)	23.4 (9.1 -6.0)	1.1 (0.2-7.9)	4.8 (2.0-11.6)	21.2 (7.4 -60.5)	17.6 (6.7 -46.0)	_ns
Garissa	197 (2.0 %)	0	0	0	0	0	0.5 (0.1-4.8)
Homa Bay	535 (5.5 %)	23.0 (17.4-30.4)	5.6 (2.7-11.6)	16.5 (10.3-26.4)	4.9 (2.6-9.1)	4.9 (1.4-16.6)	_ns
Kakamega	539 (5.5 %)	23.9 (17.3-33.2)	2.8 (2.3-3.4)	22.8 (15.9-32.6)	1.3 (0.9-1.9)	6.7 (1.1-41.6)	_ns
Kericho	540 (5.5 %)	16.9 (13.8-20.9)	0.4 (0.1-2.7)	16.0 (13.1-19.6)	1.3 (0.6-2.7)	0	_ns
Kilifi	507 (5.2 %)	4.8 (1.4-16.6)	0.6 (0.1-2.4)	0.4 (0.1-1.3)	4.0 (0.9-17.1)	0	0.2 (0-1.4)
Kisii	532 (5.4 %)	21.6 (13.8-33.9)	0.4 (0.1-1.3)	20.8 (13.3-32.7)	1.5 (0.6-4.1)	0	_ns
Kisumu	540 (5.5 %)	3.2 (1.3-7.6)	0.2 (0-1.3)	1.1 (0.6-2.1)	2.0 (0.8-5.5)	4.6 (1.5-13.9)	_ns
Kitui	540 (5.5 %)	0.4 (0.1-1.2)	0.4 (0.1-1.2)	0	0	1.1 (0.3-3.7)	0
Kwale	522 (5.3 %)	6.3 (3.5-11.3)	2.8 (1.3-5.8)	0	3.9 (1.4-11.3)	0.4 (0.1-2.8)	1.1 (0.2-8.1)
Makueni	522 (5.3 %)	0.6 (0.2-2.1)	0.6 (0.2-2.1)	0	0	3.7 (0.9-15.8)	0
Wajir	112 (1.1 %)	0	0	0	0	0	0
Migori	539 (5.5 %)	2.4 (1.4-4.3)	0.7 (0.3-1.9)	1.3 (0.6-3.0)	0.6 (0.2-2.1)	0	_ns
Mombasa	526 (5.4 %)	2.2 (0.8-6.0)	0.8 (0.1-5.5)	0.4 (0-3.3)	1.0 (0.3-3.3)	0.2 (0-1.4)	1.9 (0-1.3)
Narok	516 (5.3 %)	24.5 (17.4-34.5)	0	12.4 (6.1 -25.3)	14.4 (7.3 -28.1)	0	_ns
Nyamira	511 (5.2 %)	22.9 (13.3-39.3)	0.4 (0.1-2.9)	22.1 (13.1-37.1)	0.8 (0.2-3.4)	0	_ns
Taita Taveta	491 (5.0 %)	0.2 (0-1.4)	0	0.2 (0-1.4)	0	0.4 (0.1-1.3)	0
Vihiga	532 (5.4 %)	30.7 (19.2-49.1)	0.9 (0.5-1.8)	30.3 (18.7-49.0)	7.8 (3.5-17.0)	0.4 (0.1-2.7)	_ns
Total	9,801 (100%)	12.9 (10.4-16.1)	1.0 (0.6-1.5)	9.7 (7.5-12.6)	3.6 (2.2-5.8)	2.2 (1.2-4.3)	0.3 (0.1-1.0)

_ns Indicates counties which were not surveyed for S. haematobium

Owing to the county level heterogeneity in infection prevalence that mask the national prevalence, the programme should consider adopting county specific surveys where the sampling, planning and execution of deworming is done at county level.