

# TANZANIA PUBLIC Health Bulletin



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**Minister  
Launches  
Bulletin: Event  
Witnessed By  
Doctors From  
Around Tanzania**

**Integrated  
Disease  
Surveillance and  
Response (IDSR)  
Cumulative  
Report**

**Tanzania Takes  
Measures to  
Stop the Spread  
of Dengue**

**Tanzania on  
the Verge of  
Eliminating  
Lymphatic  
Filariasis and  
Trachoma**

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## Contents

Editorial: Minister launches bulletin: Event witnessed by Doctors from around Tanzania-	30-31
Tahariri: Waziri Azindua Jarida la Afya ya Jamii	31
Integrated Disease Surveillance and Response (IDSR) Cumulative Report, July –December 2018 (WHO Weeks 27-52)	32 - 38
Mkakati wa Ufuatiliaji na Udhhibiti wa Magonjwa ya Mlipuko (IDSR): Ripoti ya Miezi Sita, Julai-Desemba 2018 (Wiki ya 27 hadi 52 za Shirika la Afya Duniani)	38
Tanzania Takes Measures to Stop the Spread of Dengue	39- 46
Tanzania Yachukua Hatua Dhidi Ya Kuenea Kwa Mlipuko Wa Homa Ya Dengue	45
Tanzania On The Verge Of Eliminating Lymphatic Filariasis And Trachoma	46 - 50
Tanzania Ipo Katika Hatua Nzuri Kutokomeza Ugonjwa Wa Mabusha, Matende Na Vikope (Trakoma)	51

# Editorial

## Minister Launches Bulletin: Event Witnessed By Doctors From Around Tanzania

The Tanzania Public Health Bulletin was officially launched on July 1, 2019 by the Minister for Health Community Development, Gender, Elderly and Children Hon. Ummu Mwalimu (MP) at the Institute of Rural Development Planning in Dodoma. This was witnessed by the Deputy Minister for Health, Community Development, Gender, Elderly and Children Hon. Dr. Faustine Ndogulile, the Permanent Secretary in the Ministry, Dr. Zainab Chaula, and other dignitaries by cutting a ribbon (Figure 1) and displaying the launched bulletin to the attending audience (Figure 2).



Figure 1. The Minister for Health, Community Development, Gender, Elderly and Children Hon. Ummu Mwalimu (MP) cutting a ribbon to mark the launch of the Tanzania Public Health Bulletin.

The launch was part of a workshop for Medical Officers in-charge of the Regional Referral Hospitals that was also attended by Regional Medical Officers, Hospital Secretaries as well as Regional Health Management Information System (HMIS/MTUHA) Coordinators. The gathering was estimated to have more than 200 participants (Figure 3).



Figure 2: The Minister for Health, Community Development, Gender, Elderly and Children Hon. Ummu Mwalimu (MP) and other dignitaries display the Tanzania Public Health Bulletin during the launch ceremony.

The Minister told the audience that the Ministry, under the office of the Chief Medical Officer (CMO), who is the Editor-in-Chief, owns the

TPHB. She said the Health Ministry's Permanent Secretary is also among the Editorial Advisors.

"The Bulletin is special for publishing and disseminating vetted and timely, reliable, authoritative, accurate, objective, and useful public health information including progress and achievements of the Ministry, news, commentaries, IDSR and other surveillance data, outbreak investigation reports, guidelines, policies, policy recommendations, Standard Operating Procedures and scientific results with public health impact aiming at minimizing public health threats," she said.



Figure 3: Health, Community Development, Gender, Elderly and Children Hon. Ummu Mwalimu (MP) addressing workshop participants on the importance of the TPHB before launching.

The Hon. Minister urged all Government entities which are dealing with human or animal health to use the bulletin to ensure all relevant government information is published, "as this will be one of the major established Government's communication channels on health matters. I am also urging policy makers, health professionals, academicians, researchers, media industry and the public in general to make use of information published in this Bulletin which is very much informative and educative in order to minimize public health threats for improved social wellbeing."

The Hon. Minister thanked all people involved in the establishment of the bulletin including Ministry staff and the sponsors Bloomberg Philanthropies through CDC and CDC Foundation.

In his brief welcoming remarks, the Director of Preventive Services, Dr. Leonard Subi informed the Hon. Minister that the bulletin has followed all the procedures for establishing a new publication, and has been licensed as a print media and registered as a bulletin with International Standard Serial Number 2665-0576. He said the bulletin will be accessible online on the Ministry's website.

He thanked all Ministry's staff members that were part of the inaugural issue process as well as the team of editors who worked tirelessly to ensure the TPHB is established and produced. This was followed by acknowledgement message from the TPHB Deputy Editor-in-Chief, Dr. Julius Massaga who the Hon. Minister accepting to be the Guest of Honor to officially launch the bulletin (Figure 4)



Figure 4: TPHB Deputy Editor-in-Chief, Dr. Julius Massaga thanking the Minister and making a commitment to publish high quality articles in the Bulletin.

## Tahariri Waziri Azindua Jarida la Afya ya Jamii: Hafla Yashuhudiwa na Madaktari Kutoka Nchini Kote

Jarida la Afya ya Jamii ya Tanzania (TPHB) lilizinduliwa rasmi tarehe 1 Julai, 2019 na Waziri wa Afya, Maendeleo ya Jamii, Jinsia, Wazee na Watoto, Mhe. Ummu Mwalimu (MB) katika hafla iliyofanyika kwenye Ukumbi wa Taasisi ya Mipango ya Maendeleo Vijijini, jijini Dodoma. Tukio hilo pia lilishuhudiwa na Naibu Waziri wa Afya, Maendeleo ya Jamii, Jinsia, Wazee na Watoto Mhe. Dk Faustine Ndugulile (MB), Katibu Mkuu katika wizara hiyo, Dk Zainab Chaula, na watendaji wengine ambao walishiriki kukata utepe (Kielelezo namba 1) na kulionesha jarida lililozinduliwa kwa waliohudhuria ikwa ni inshara kuthibitisha uzinduzi wake (Kielelezo namba 2).



Kielelezo 1. Waziri wa Afya, Maendeleo ya Jamii, Jinsia, Wazee na Watoto Mhe. Ummu Mwalimu (MB) akikata utepe wakati wa uzinduzi wa Jarida la Afya ya Jamii ya Tanzania (TPHB).

Uzinduzi huo ulifanyika kama sehemu ya warsha ya Waganga Wafawidhi wa Hospitali za Rufaa za Mikoa ambayo pia ilihudhuriwa na Waganga Wakuu wa Mikoa, Makatibu wa Hospitali na Waratibu wa Taarifa za Usimamizi wa Afya wa Mikoa (HMIS/MTUHA). Mkusanyiko huo ulikadiriwa kuwa na zaidi ya washiriki 200 (Kielelezo 3).

“I promise that I will work closely with the Ministry to ensure that we publish vetted public health information and that together with the editorial team we will strive to maintain the highest standards of scientific quality and integrity and will work hard to make sure that the TPHB is the main source of public health information in the country.”

The Bulletin now has been officially launched and will be produced quarterly, although urgent information will be received, reviewed and published within 24 hours as an early release and is accessible at [www.moh.go.tz/en/about-tphb](http://www.moh.go.tz/en/about-tphb).



Kielelezo cha 2: Waziri wa Afya, Maendeleo ya Jamii, Jinsia, Wazee na Watoto Mhe. Ummu Mwalimu (MB) na watendaji wengine wakionesha jarida la Afya ya Jamii Tanzania kwa washiriki waliohudhuria kama ishara ya uzinduzi wake.

Mhe. Waziri aliwaambia washiriki kuwa jarida la TPHB linamilikiwa na Wizara chini ya Ofisi ya Mganga Mkuu wa Serikali ambaye ni Mhariri Mkuu. Alisema Katibu Mkuu wa Wizara pia ni mmoja wa Wahariri Washauri.

“Jarida hili ni maalum kwa kuchapisha na kusambaza kwa wakati taarifa muhimu ambazo zimehakikiwa na mamlaka za afya, zikiwemo zile zinazohusu shughuli na mafanikio ya wizara, takwimu za mfumo wa taifa wa ufuatiliaji magonjwa (IDSR) na takwimu kutoka mifumo mingine ya ufuatiliaji, taarifa za uchunguzi wa magonjwa ya mlipuko, miongozo, sera, mapendekezo ya sera, taratibu za utendaji wa kawaida na matokeo ya tafiti za kisayansi zenye manufaa kwa afya ya jamii kwa lengo la kupunguza matishio ya kiafya yanayoweza kuathiri afya ya jamii,” alisema.



*Kielelezo 3: Waziri wa Afya, Maendeleo ya Jamii, Jinsia, Wazee na Watoto Mhe. Ummu Mwalimu (MB) akihutubia washiriki wa warsha ambapo pia alieleza juu ya umuhimu wa jarida la TPHB kabla ya kuzindua.*

Mhe. Waziri alivishauri vyombo vyote vya Serikali ambavyo vinashughulika na afya ya binadamu au wanyama kutumia jarida hili ili kuhakikisha habari zote za Serikali zinachapishwa, kwani hii itakuwa ni moja ya njia kuu ya mawasiliano ya Serikali juu ya maswala ya afya. “Ninawasihia pia watunga sera, wataalamu wa afya, wasomi, watafiti, wanatania ya habari na umma kwa ujumla kutumia taarifa zinazochapishwa katika jarida hili ambazo zinahabarisha na kuelimisha sana ili kupunguza matishio ya kiafya yanayoweza kuleta madhara kwa umma kwa ajili ya ustawi wa jamii.”

Mh. Waziri aliwashukuru wote waliohusika katika uanzishaji wa jarida hilo ikiwa ni pamoja na wafanyakazi wa Wizara na wadhaminu wa Bloomberg Philanthropies kupitia CDC na CDC Foundation.

Katika hotuba yake fupi ya kumkaribisha mgeni rasmi, Mkurugenzi wa Huduma za Kinga katika Wizara, Dk Leonard Subi alimfahamisha Mhe. Waziri kwamba jarida hilo limefuata taratibu zote za uanzishaji wa machapisho mapya, na limeidhinishwa na serikali kama chombo cha kutolea habari na kupewa leseni na limeorodheshwa na kusajiliwa kama

jarida kwa ISSN namba 2665-0576. Alisema jarida hilo linapatikana kwenye tovuti ya wizara.

Mhe. Waziri pia aliwashukuru wafanyikazi wote wa wizara ambao ni sehemu ya mchakato wa uzinduzi na pia timu ya wahariri ambao walifanya kazi kwa bidii kuhakikisha kuwa TPHB linaanzishwa na kuzalishwa. Hii ilifuatiwa na neno la shukrani kutoka kwa Naibu Mhariri Mkuu wa TPHB, Dk Julius Massaga ambaye alimshukuru Mhe. Waziri kwa kukubali kuwa Mgeni Rasmi katika uzinduzi. (Kielelezo namba 4)



*Kielelezo 4: Naibu Mhariri Mkuu, Dk Julius Massaga akimshukuru Waziri na kutoa ahadi ya kuendelea kutoa jarida lenye kiwango cha juu cha ubora.*

“Ninaahidi kuwa mimi pamoja na wenzangu tutafanya kazi kwa karibu na Wizara kuhakikisha kwamba tunachapisha habari za afya ya jamii zilizohakikiwa na kwamba kwa kushirikiana na timu ya wahariri tutajitahidi kudumisha viwango vya hali ya juu vya ubora wa kisayansi, tutafanya kazi kwa uadilifu na kufanya bidii kuhakikisha kuwa TPHB ndiyo chanzo kikuu cha habari ya afya ya jamii nchini.”

Jarida sasa limezinduliwa rasmi na litatolewa kila robo ya mwaka ingawa pale kunapokuwa na taarifa inayohitaji kusambazwa haraka itapokelewa, kupitiwa na kuchapishwa ndani ya masaa 24. Jarida linapatikana mtandaoni kupitia [www.moh.go.tz/en/about-tphb](http://www.moh.go.tz/en/about-tphb)

## Integrated Disease Surveillance and Response (IDSR) Cumulative Report, July –December 2018 (WHO Weeks 27-52)

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### SUMMARY

The Ministry of Health, Community Development, Gender, Elderly and Children (MOHCDGEC) carries out surveillance of reportable diseases and conditions. This paper reports the cumulative IDSR data for the 6 months of 2018 from July to December, which are WHO weeks 27 to 52. Data were analyzed to assess the national and regional performance in term of timeliness and completeness of reporting, determine the cumulative number of cases and deaths and their distribution by age, sex, month and region.

All 26 regions of Tanzania Mainland submitted weekly reports to the national level. The national health facilities reporting performance was below the set national target of  $\geq 80\%$ , with average timeliness and completeness of 53.0% and 72.8% respectively. Iringa was the only region that met both the average timeliness and completeness national target. Mtwara, Lindi, Dodoma, Tanga, Arusha, Kagera, Kilimanjaro, Mwanza and Dar es Salaam met the national completeness target. The national completeness target was reached in weeks of 37 and 38.

Cumulatively, a total of 23,778 cases and 144 deaths were reported for all IDSR immediate reportable conditions for the period of July to December 2018. The most commonly reported condition was animal bites, which accounted for 19,196 (80.5%) of all reported cases, and was reported from all 26 regions whereby Arusha regions had reported the highest proportion 10.6% (2,029 of 19,196) of the cases. For all reportable conditions, a total 18,016 of the 23,853 (75.5%) cases were reported in the population aged 5 years and above. Of the 144 deaths reported, 93 (64.6%) were caused by Severe Acute Respiratory Illness (SARI), and was high 60 (64.5%) in the population aged below five years. The condition with the highest case fatality rate (CRF) was suspected cases of Neonatal Tetanus 1 of 1 (100%), which was followed by suspected rabies 9 of 53 (17.0%) and suspected Cerebral Spinal Meningitis

(CSM) being 3 of the 20 (15.0%) cases.

The observed average timeliness and completeness were below the national target of  $\geq 80\%$ . The Government will thus accelerate the completion of the ongoing upgrading of data capture systems such that data are timely collected, submitted and analyzed for immediate response to prevent disease outbreaks. Regarding the high neonatal tetanus case fatality rate, it is the Government's plan to continue with community sensitization to ensure that mothers of childbearing age are vaccinated especially during pregnancy.

**BACKGROUND:** The Government of Tanzania under the Ministry of Health, Community Development, Gender, Elderly and Children carries out surveillance of reportable diseases and conditions under the integrated disease surveillance and response (IDSR). IDSR is a strategy to generate and provide immediate information to guide health managers and decision makers at all levels of the health system and to ensure that health officials can take informed and appropriate response to reduce morbidity, mortality and disabilities from priority infectious diseases. In Tanzania Mainland, IDSR data are collected from all public and private health facilities in all 26 regions and immediately electronically submitted to the national level. At the national level data are assimilated, immediately analyzed and published weekly and monthly. This present paper the cumulative IDSR data reported during the last 6 months of 2018 from July to December is presented, which corresponds to WHO week 27 to 52. Data were analyzed to assess the national and regional performance in terms of timeliness and completeness reporting as well as determining the cumulative number of cases and deaths and their distribution by age, sex, month and region.

## ANALYSIS OUTCOME

**Health Facilities Performance:** All 26 regions from Tanzania Mainland during the period of July to December 2018 submitted weekly reports of reportable conditions to the national level. The overall performance for timeliness and completeness was 53.0% and 72.8% respectively. This is low as compared to that reported in the period of January to June 2018, which was 62.6% and 75.0% for timeliness and completeness respectively. The Month of July had the highest scores for both timeliness and completeness (Table 1), but it was still below the set national standard of  $\geq 80\%$ .

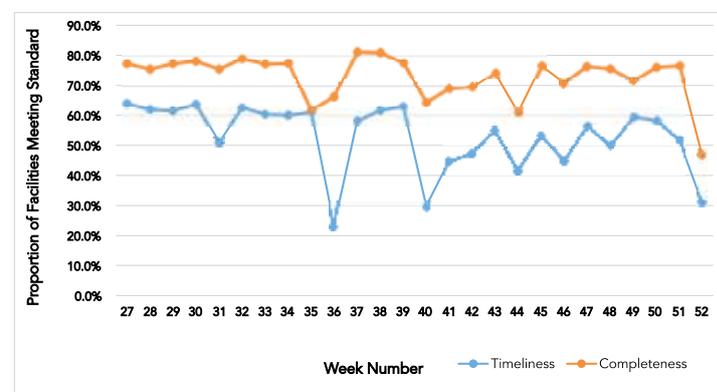
**Table 1: Average Timeliness and Completeness of Health Facility Reporting by Month, July – December 2018**

Months	% of Timeliness	% of Completeness
July	62.9	77.1
August	59.1	74.2
September	51.6	76.5
October	44.3	69.2
November	49.4	72.1
December	50.2	67.8
Overall Performance	53.0	72.8

As presented in Figure 1, the national target for timeliness of  $\geq 80\%$  was not met in all weeks (27-52) and the reporting was mostly delayed in week 36 where timeliness was about 22%. For completeness, the target was met

only in two weeks of 37 and 38. In reference to the trend observed during the first six months of January to June 2018, the performance is going down, as during that period, completeness met the national standards of  $\geq 80\%$  in 9 weeks.

**Figure 1: Timeliness and Completeness of Health Facilities reporting by week, July – December 2018 (week 27 – 52)**



The overall timeliness and completeness of health facilities reporting from all 26 regions are presented in Figure 2. Only Iringa region met both the national timeliness and completeness target of  $\geq 80\%$ . In most regions, health facilities reporting for completeness met the national target. These regions were: Mtwara, Lindi, Dodoma, Tanga, Arusha, Kilimanjaro, Mwanza and Dar es Salaam.

**Figure 2: Timeliness and Completeness of Health Facility Reporting from the 26 regions, July – December 2018**

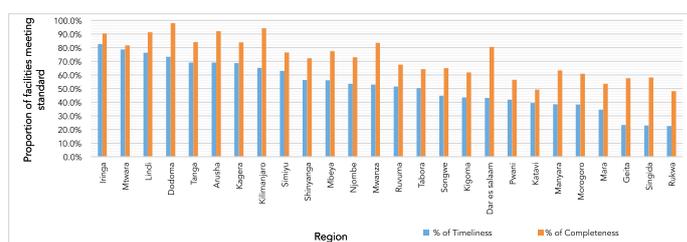


Table 2 presents the proportion of health facilities reporting per region by month. Mainly, the monthly timeliness was low throughout in all regions, but in Rukwa and Singida the timeliness was as low as to 14.5% in the month of October and 17.1% in the months of September respectively. The timeliness for Mtwara region reached the national set target in 5 months of July, August, September, October and December while Iringa region met the timeliness in July, August and September; Dodoma and Lindi in 2 month of July and August with July for Njombe region. On the other hand the proportion of health facilities reporting completeness was relatively high in most regions, thus meeting the national standard with the highest being from Dodoma where it was about 99.9% in the month of September. Katavi region had the lowest proportion of 40.9% in the month of October.

**Table 2: Proportions of Health Facilities Timeliness and Completeness Reporting, by month by Region and months, July - December 2018**

Region	July		August		September		October		November		December		Overall	
	Timeliness (%)	Completeness (%)												
Arusha	72.0	90.3	70.5	88.4	65.7	95.4	61.9	95.4	69.7	94.0	73.4	88.8	69.0	92.0
Dar es Salaam	59.4	95.2	49.0	80.5	40.3	84.0	31.3	75.8	38.2	77.3	39.8	70.9	43.1	80.5
Dodoma	84.7	99.6	83.1	97.3	67.7	99.9	58.9	99.2	70.3	98.3	73.1	93.4	73.3	97.9
Geita	21.7	51.0	18.6	49.7	26.1	70.8	27.5	62.2	26.3	62.6	19.5	49.8	23.2	57.6
Iringa	88.3	91.5	88.1	90.2	90.3	93.6	76.1	83.4	78.5	95.2	73.3	87.5	82.5	90.4
Kagera	77.8	87.1	76.0	88.1	62.2	81.8	59.7	76.6	67.3	84.8	68.0	83.8	68.7	83.9
Katavi	61.9	67.2	45.1	54.2	32.7	44.9	27.8	40.9	33.4	44.3	35.7	43.2	39.4	49.1
Kigoma	43.0	56.7	41.1	58.2	39.5	65.4	32.1	54.7	48.8	67.4	55.4	68.2	43.4	61.9
Kilimanjaro	75.9	95.5	71.4	92.3	62.2	98.9	53.5	97.3	64.8	94.6	61.9	87.0	65.2	94.2
Lindi	85.2	93.4	90.2	97.1	74.6	98	63.7	91.3	75.7	88.6	65.1	77.9	76.3	91.2
Manyara	42.2	60.7	40.0	56.9	38.5	72.6	33.3	56.9	37.3	69.5	39.5	63.0	38.5	63.3
Mara	47.4	62.7	36.7	53.9	29.4	52.1	26.6	49.2	34.0	55.4	33.3	47.0	34.6	53.5
Mbeya	54.7	70.2	62.5	78.8	56.7	82.7	50.9	77.1	55.0	79.6	55.5	74.7	56.1	77.3
Morogoro	43.3	59.6	38.5	57.6	39.9	66.5	29.1	54.6	39.7	66.5	38.5	60.0	38.3	60.9
Mtwara	84.4	85.7	80.1	84.6	82.6	85.6	80.9	84.6	64.8	67.6	82.3	85.1	78.7	81.7
Mwanza	61.7	85.7	46.0	70.1	58.0	94.1	51.2	89.3	50.7	84.0	52.7	80.6	53.0	83.4
Njombe	85.8	94.4	69.9	85.9	51.3	78.1	40.9	66.8	40.5	64.2	31.3	47.6	53.4	73
Pwani	55.2	69.6	47.3	59.1	36.6	57.6	32.0	48.6	40.3	54.2	38.3	49.4	41.8	56.4
Rukwa	31.9	58.2	25.5	48.9	18.3	46.9	14.5	42.7	20.8	48.1	23.6	43.7	22.5	48.1
Ruvuma	79.9	79.9	69	77.2	53.5	74	36.5	61.2	37.3	61.1	32	50.7	51.5	67.5
Shinyanga	71.3	78.0	79.9	87.9	54.4	72	36.1	57.7	37.6	60.4	56.3	76.0	56.2	72.2
Simiyu	71.8	78.3	79.2	89.2	66.9	82	52.1	68.9	53.2	69	53.2	69.7	63	76.4
Singida	23.7	59.3	22.4	52.7	17.1	57.4	20.7	61.8	27.4	64.9	25.4	51.8	22.9	58.1
Songwe	60.0	80.8	59.9	76.5	40.5	67.4	34.9	56.2	33.2	53.5	39.4	55.1	44.8	64.9
Tabora	74.4	79.5	61.9	72.6	47.5	67.7	34.5	50.6	38.3	55.5	45	59.5	50.3	64.2
Tanga	68.7	78.8	75.2	82.3	68.5	87.5	61.9	81.1	72.4	93.2	65.7	79.5	69.1	84
Overall	62.9	77.1	59.1	74.2	51.6	76.5	44.3	69.2	49.4	72.1	50.2	67.8	53.0	72.8

## DISTRIBUTION OF CASES AND DEATHS

Table 3: Numbers of cases and deaths caused by reportable conditions, July - December 2018, by age and sex

Condition		TOTAL	Below 5 yrs Male	Below 5 yrs Female	Above 5yrs Males	Above 5yrs Female
Acute flaccid paralysis (ACP)	Cases	72	13	8	36	15
	Deaths	0	0	0	0	0
Animal Bites	Cases	19,196	2,139	1,695	9,260	6,102
	Deaths	10	0	10	0	0
Anthrax	Cases	27	2	0	20	5
	Deaths	1	0	0	1	0
Bloody diarrhea	Cases	746	155	132	297	162
	Deaths	1	0	0	1	0
Cerebral Spinal Meningitis (CSM)	Cases	20	3	1	13	3
	Deaths	3	1	0	1	1
Cholera	Cases	1,911	271	186	886	568
	Deaths	26	2	0	20	4
Keratoconjunctivitis	Cases	2	0	0	1	1
	Deaths	0	0	0	0	0
Measles	Cases	82	23	29	20	10
	Deaths	0	0	0	0	0
NNT	Cases	1	0	0	1	0
	Deaths	1	0	0	1	0
Rabies	Cases	53	9	3	29	12
	Deaths	9	1	1	7	0
Severe Acute Respiratory Illness	Cases	1,743	657	511	292	283
	Deaths	93	34	26	25	8
Total	Cases	23,853	3,272	2,565	10,855	7,161
	Deaths	144	38	37	56	13

Total reported cases for from July to December 2018 for all immediate reportable conditions were 23,853 of which 19,196 (80.5%) were cases due to animal bites (Table 3). Overall, there were more cases 18,016 of 23,853 (75.5%) in the population aged 5 years and above, and most of these were males, being 14,127 (59.2%). During the reporting period, there were a total of 144 deaths whereby majority 93 of 144 (64.6%) of deaths were due to Severe Acute Respiratory Illness (SARI). There were more deaths 75 of 144 (52.1%), among children aged below 5 years.

Table 4: Number of cases and deaths caused by reportable conditions, by month, July to December 2018

Condition	July		August		September		October		November		December		Total		CFR %
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	
AFP	5	0	17	0	11	0	7	0	17	0	15	0	72	0	-
Animal Bites	3,132	0	3,391	10	3,079	0	2,215	0	3,777	0	3,602	0	19,196	10	0.1
Anthrax	4	0	8	1	6	0	7	0	0	0	2	0	27	1	3.7
Blood diarrhoea	112	0	134	0	84	0	95	1	206	0	115	0	746	1	0.1
CSM	2	0	1	0	2	0	3	0	12	3	0	0	20	3	15.0
Cholera	539	9	344	2	433	10	206	4	294	1	95	0	1,911	26	1.4
Keratoconjunctivitis	0	0	0	0	0	0	0	0	2	0	0	0	2	0	-
Measles	30	0	1	0	3	0	24	0	15	0	9	0	82	0	-
Neonatal Tetanus	0	0	0	0	0	0	1	1	0	0	0	0	1	1	100.0
Rabies	8	1	12	3	5	0	10	2	14	0	4	3	53	9	17.0
SARI	298	22	456	26	311	9	313	13	287	22	78	1	1,743	93	5.3
Total	4,092	31	4,327	41	3,934	19	2,881	21	4,624	26	3,920	4	23,853	144	

Table 4 presents the number of cases and deaths due to immediate reportable conditions by month. Cases reported were high 4,624 of 23,853 (19.4%) in the month of November, which had the highest number of animal bites, 3,777 of 19,196 (19.7%). The month of October had the lowest number of cases, 2,881 of 23,853 (12.1%). Deaths occurred in all immediate reportable conditions except for AFP, keratoconjunctivitis and measles, whereby 93 of 144 (64.5%) were caused by SARI. The condition with the highest case fatality rate was suspected cases of Neonatal Tetanus 1 of 1 (100%) which was followed by suspected rabies cases 9 of 53 (17.0%) and suspected CSM cases 3 of 20 (15.0%).

Table 5: Number of reported cases of illnesses by region, July – December 2018

Region	AFP	Animal Bites	Anthrax	Blood Diarrhea	CSM	Cholera	Keratoconjunctivitis	Measles	Neonatal Tetanus	Rabies	SARI	Total
Arusha	7	2,029	15	12	0	1,323	0	0	0	0	659	4,045
D'Salaam	5	1,420	5	2	0	0	0	1	0	0	486	1,919
Dodoma	0	1,367	1	0	2	0	0	0	0	1	0	1,371
Geita	1	427	0	0	0	0	0	0	0	0	0	428
Iringa	3	454	0	44	2	0	0	1	0	4	0	508
Kagera	3	700	0	5	4	0	2	0	0	5	0	719
Katavi	0	154	0	13	0	0	0	0	0	0	0	167
Kigoma	2	315	0	2	1	13	0	5	1	5	0	344
Kilimanjaro	1	1,061	5	9	0	47	0	0	0	0	1	1,124
Lindi	1	449	1	52	0	0	0	0	0	7	0	510
Manyara	2	1,301	0	43	0	66	0	0	0	0	260	1,672
Mara	5	507	0	3	0	0	0	0	0	0	0	515
Mbeya	1	989	0	10	0	0	0	0	0	2	0	1,002
Morogoro	6	1,029	0	19	1	0	0	0	0	9	0	1,064
Mtwara	3	25	0	229	0	0	0	61	0	0	108	426
Mwanza	7	1,283	0	2	1	0	0	0	0	0	229	1,522
Njombe	1	340	0	11	0	0	0	0	0	5	0	357
Pwani	9	662	0	81	1	0	0	13	0	6	0	772
Rukwa	0	416	0	2	1	81	0	0	0	0	0	500
Ruvuma	0	855	0	50	0	0	0	0	0	0	0	905
Shinyanga	2	611	0	49	0	0	0	0	0	0	0	662
Simiyu	4	483	0	21	2	0	0	0	0	1	0	511
Singida	0	280	0	12	0	0	0	1	0	2	0	295
Songwe	1	196	0	25	0	381	0	0	0	0	0	603
Tabora	1	866	0	5	5	0	0	0	0	0	0	877
Tanga	7	977	0	45	0	0	0	0	0	6	0	1,035
<b>Total</b>	<b>72</b>	<b>19,196</b>	<b>27</b>	<b>746</b>	<b>20</b>	<b>1,911</b>	<b>2</b>	<b>82</b>	<b>1</b>	<b>53</b>	<b>1,743</b>	<b>23,853</b>

As presented in Table 5, all 26 regions of Tanzania Mainland reported animal bites with highest proportion 10.6% (2,029 of 19,196) being reported from Arusha region. The situation is similar to that of January to June 2018 where all 26 regions reported animal bites. Keratoconjunctivitis and Neonatal Tetanus were reported from only one region of Kagera and Kigoma, respectively. Reported cases of 1,911 for cholera and 1,743 for SARI were slightly fewer than those reported during January to June 2018, which were 2,476 and 2,232 for cholera and SARI cases respectively. Overall, most of the cases of immediately reportable conditions, being 4,045 of the 23,853 (17.0%) were from Arusha region. Apart from animal bites, Arusha region also contributed a higher number of cholera cases 1323 of 1911 (69.2%) and SARI cases 659 of 1743 (37.9%).

## CONCLUSION

Based on the analysis of IDSR data, covering the period from July to December 2018 (WHO weeks 27 -52) the reporting averages for timeliness and completeness were below the national target of  $\geq 80\%$ , and there was no week whereby the timeliness recorded met the set national target. The Government will accelerate the completion of the upgrading of data capture systems to ensure that data are timely collected, submitted

and analyzed for immediate response to prevent disease outbreaks. In order to address the high case fatality rate of neonatal tetanus, it is the Government's plan to continue with community sensitization to ensure that mothers of childbearing age are vaccinated especially during pregnancy.

## ACKNOWLEDGMENTS

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# Mkakati wa Ufuatiliaji na Udhibiti wa Magonjwa ya Mlipuko (IDSR): Ripoti ya Miezi Sita, Julai-Desemba 2018 (Wiki ya 27 hadi 52 za Shirika la Afya Duniani)

Wizara ya Wizara ya Afya, Maendeleo ya Jamii, Jinsia, Wazee na Watoto (MOHCDEGEC), Idara ya Epidemiologia na Udhibiti wa Magonjwa

## MUHTASARI

**W**izara ya Wizara ya Afya, Maendeleo ya Jamii, Jinsia, Wazee na Watoto (WAMJW) inaendelea na ufuatiliaji wa magonjwa ya mlipuko yanayotolewa taarifa kwa ajili ya udhibiti wa mapema kabla hayajasambaa na kuleta maafa. Makala hii inatoa taarifa za Mkakati wa Ufuatiliaji na Udhibiti wa Magonjwa ya Mlipuko (Integrated Disease Surveillance and Response, IDSR) kwa kipindi cha miezi 6, kati ya Julai hadi Desemba mwaka 2018, ambayo ni wiki ya 27 hadi 52 ya Shirika la Afya Duniani (WHO). Takwimu zilichambuliwa ili kutathmini ufanisi wa utendaji kwa jumla na kwa kila mkoa, kufahamu idadi ya matukio ya magonjwa na vifo na jinsi yalivyo tokea kulingana na umri, jinsia, mwezi na mkoa.

Mikoa yote 26 ya Tanzania Bara iliwasilisha ripoti katika ngazi ya kitaifa. Kwa ujumla ufanisi wa utendaji wa kuwasilisha taarifa kutoka vituo vya kutolea huduma ulikuwa chini ya lengo la kitaifa la asimia 80 au zaidi ( $\geq 80\%$ ). Kwa wastani ufanisi (timeliness) ulikuwa asilimia 53 na ukamilifu (completeness) ulikuwa asilimia 72.8. Iringa ndiyo mkoa pekee ambao ulikuwa na wastani ambapo ufanisi na ukamilifu ulifikia lengo la kitaifa. Wastani wa ukamilifu wa mikoa ya Mtwara, Lindi, Dodoma, Tanga, Arusha, Kagera, Kilimanjaro, Mwanza na Dar es salaam ulifikia lengo la kitaifa. Aidha, ukamilifu ulifikia lengo la kitaifa katika wiki ya 37 na 38. Kujumla, idadi ya matukio ya magonjwa 23,778 na vifo 144 viliripotiwa katika kipindi cha Julai hadi Desemba 2018. Tukio la ugonjwa lililoripotiwa kwa wingi zaidi ilikuwa ni kuumwa kwa wanyama ambapo yalikuwa jumla ya matukio 19,196 sawa na asilimia 80.5 ya matukio yote 23,853 ya magonjwa. Matukio ya kuumwa na wanyama yaliripotiwa kutoka mikoa yote 26 ambapo mkoa wa Arusha uliripoti

zaidi kwa asilimia 10.6 (matukio 2,029 kati ya 19,196). Kwa matukio yote ya magonjwa yaliyoripotiwa, jumla ya matukio 18,016 kati ya 23,853 sawa na asilimia 75.5, yalikuwa katika kundi la watu wenye umri wa miaka 5 na zaidi. Kwa matukio ya magonjwa kwa mwezi, inaonesha Mwezi Novemba ulikuwa na idadi kubwa ya matukio yaliyoripotiwa ambapo kulikuwa na matukio 4,624, au asilimia 18.4%. Kati ya vifo 144 viyoripotiwa, 93 au asilimia 64.6 vilisababishwa na ugonjwa wa homa kali ya kifua (severe acute respiratory illness, SARI), na ulikuwa wa kiwango cha juu cha asilimia 64.5 (matukio 60 kati ya 93) kwa watoto wenye umri chini ya miaka 5. Ugonjwa ambao ulionekana kuwa na kiwango cha juu cha uwezekano wa kuua washukiwa (Case Fatality Rate, CRF) ni ugonjwa wa tetanasi kwa watoto wachanga (Neonatal Tetanus) ambapo mgonjwa 1 sawa na asilimia 100 kati ya mshukiwa 1. Hii ilifuatiwa na ugonjwa wa kichaa cha mbwa, ukiwa na vifo 9 kati ya washukiwa 53, sawa na asilimia 17 na washukiwa wa ugonjwa wa uti wa mgongo (Cerebral Spinal Meningitis, CSM) vifo 3 kati ya 20, sawa na asilimia 15.

Kwa kuhitimisha, taarifa zinaonesha kuwa wastani wa utimilifu na ukamilifu ulikuwa chini ya lengo la kitaifa la asilimia 80 au zaidi ( $\geq 80\%$ ). Ili kurekebisha hali hii, Serikali itahakikisha inaharakisha kukamilika kwa uboreshaji unaoendelea wa mfumo wa ukusanyaji wa takwimu ili ziwe zinakusanywa kwa wakati, na zinawasilishwa na kuchambuliwa haraka kwa lengo kuzuia kuzuka kwa magonjwa ya mlipuko. Kuhusiana na suala la kiwango cha juu cha kufariki kwa wagonjwa wanaoshukiwa kuwa na tetanasi kwa watoto wachanga (Neonatal tetanus), ni mpango wa Serikali kuendelea na uhamasishaji wa jamii ili kuhakikisha kuwa akina mama wanapata chanjo hususan wakati wa uja uzito.

# Tanzania Takes Measures to Stop the Spread of Dengue

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## SUMMARY

The frequency and magnitude of dengue epidemics have increased dramatically in the past 40 years throughout the tropics largely due to unplanned urbanization, global trade and travel, and lack of effective mosquito control. Tanzania has recently experienced frequent dengue outbreaks.

Until 2010, little was known about Dengue in Tanzania. Since then, four outbreaks have been reported in Dar es Salaam in 2010, 2012, 2013 and 2014, with the worst epidemic in 2014, when the cumulative number of confirmed and suspected dengue cases were 961 and 1,969, respectively. This year Tanzania experienced the worst outbreak of dengue affecting 11 regions that left 13 people dead with 6,677 diagnosed with the disease. Dar es Salaam had 6,191 cases and 11 deaths.

Dengue is a mosquito-borne tropical disease caused by four different viruses. It is transmitted by mosquitoes of the genus *Aedes*, of which *A. aegypti* is the primary vector, which are widely distributed in subtropical and tropical areas of the world. They typically bite during the early morning and in the evening, but they may bite and thus spread infection at any time of the day. The best method of prevention is to avoid mosquito bites.

Symptoms typically begin 3 to 14 days after infection. These may include a high fever, headache, vomiting, muscle and joint pains, and a characteristic skin rash. Recovery generally takes 2 to 7 days. However, in a small proportion of cases, the disease develops into severe dengue, also known as dengue haemorrhagic fever, with blood plasma leakage and low numbers of blood platelets, which can result in bleeding. If the loss of plasma and blood is significant, the patient develops a clinical picture with dangerously low blood pressure, called the dengue shock syndrome. If untreated, dengue shock syndrome can be fatal.

The Government has taken and is continuing to implement several measures to contain the spread of the disease. These include health promotion to create awareness of the mode of transmission and preventive measures that include wearing long pants, long-sleeved shirts, and socks, tucking pant legs into shoes or socks, applying safe and effective insect repellents to exposed skin, and use of a mosquito net while sleeping (daytime and at night). Other interventions include environmental management by destroying mosquito breeding sites and appropriate garbage disposal. At the individual level, the public was advised to maintain cleanliness around households by ensuring there were no open cans, tyres or plastic containers that could retain rainwater and to securely tighten water storage tank lids. In addition, the Government sprayed larvicides on potential breeding sites and fogged residential areas to kill adult mosquitoes. Furthermore, the public was encouraged to seek medical help at health care facilities where testing services and treatment were provided free of charge. Despite the rumours of using papaya leaf juice as a cure, the Government recommended that once the disease is contracted, the individual should seek medical care from health facilities as there was no credible scientific proof at this time that papaya leaf juice is beneficial.

In conclusion, the 2019 dengue outbreak was severe with a high number of cases and deaths, particularly in Dar es Salaam region, but the Government managed to contain it. For long-term control of the disease, the Government has launched a 5-year National Strategy for Vector Control (2019-2024). Through this strategy, the Government is determined to control all vector-borne diseases including dengue fever.

## WHAT IS DENGUE?

Dengue is a viral infection caused by four types of viruses, dengue virus 1, 2, 3 and 4 (DENV-1, DENV-2, DENV-3, DENV-4) belonging to the *Flaviviridae* family. The viruses are transmitted through the bite of infected *A. aegypti* female mosquitoes that feed (Figure 1) both indoors and outdoors during the daytime (from sunrise to sunset) [1,2].

Several factors such as rainfall, temperature, and humidity provide appropriate conditions for the survival, breeding, egg hatching, and virus transmissibility of these mosquitoes. *Aedes* mosquito species have adapted well to human habitation, breeding around household water containers such as those used for water storage or for indoor plants and in the discarded water-holding vessels like discarded cans, used tires, plastic containers etc. Lack of reliable sanitation and regular garbage collection also contribute to the spread of the mosquitoes [1].



Figure 1: *Aedes aegypti* feeding on human (source [https://en.wikipedia.org/wiki/Aedes\\_aegypti](https://en.wikipedia.org/wiki/Aedes_aegypti))

Human-to-human transmission takes place through the bite of an infected mosquito. They inflict an innocuous bite, usually on the back of the neck and the ankles. The mosquito can bite several individuals to complete one blood meal. Thus entire families commonly develop infection within a 24- to 36-hour period, presumably from the bites of a single infected mosquito. After virus incubation for 4–10 days, an infected mosquito is capable of transmitting the virus for the rest of its life [1].

## RISK

Dengue is endemic in 110 countries including tropical and subtropical areas of Central America, South America, Africa, Asia, and Oceania. All travellers are at risk during outbreaks. It is well documented that the spread of dengue is associated with world trade, climate change, urbanisation, mosquito biting behaviour and resistance to insecticides. Eggs of the dengue-causing mosquito species can survive long periods under dry conditions thus encouraging their transportation over great distances in ships, even across continents [1,2].

## SYMPTOMS

In some cases, dengue infection is asymptomatic (i.e., persons do not exhibit symptoms). Those with symptoms get ill between 4 to 7 days after the bite. The infection is characterized by flu-like symptoms, which include a sudden high fever coming in separate waves, pain behind the eyes, muscle, joint, and bone pain, severe headache, and a skin rash with red spots [1,2].

The illness may progress to dengue haemorrhagic fever (DHF). Symptoms include severe abdominal pain, vomiting, diarrhoea,

convulsions, bruising, and uncontrolled bleeding. High fever can last from 2 to 7 days. Complications can lead to circulatory system failure and shock, and can be fatal (a condition called dengue shock syndrome) [2].

If one becomes infected with the Dengue virus, then he/she becomes immune to future infections by that serotype, but may develop only a short-term immunity to infections with other different serotypes. If one is then subsequently infected with one of those different serotypes, there is an increased risk of developing dengue haemorrhagic fever.

#### BOX 1

##### WHEN TO SUSPECT A DENGUE INFECTION?

- » High fever (>39°C/104°F)

Dengue fever is also usually accompanied by any 2 or more of the following symptoms: -

- » Severe headache
- » Pain behind the eyes
- » Muscle and joint pains
- » Nausea, vomiting
- » Swollen glands or
- » Rash

Dengue is related to Zika virus, yellow fever, West Nile virus and Japanese encephalitis. It can also be misdiagnosed for chikungunya, Zika virus or yellow fever.

#### GLOBAL SITUATION

Dengue is spreading very rapidly, with a 30-fold increase in global incidence over the past 50 years. According to the United States Centers for Disease Control and Prevention (CDC), about 40% of the world's population live in an area where Dengue is endemic [2]. At least 100 countries in Asia and the Pacific (where around 75% people are exposed), the Americas, Africa, and the Caribbean are areas where Dengue is endemic. Each year 50 to 100 million infections occur, including 500,000 dengue haemorrhagic fever cases with 22,000 deaths, mostly among children [1,2]

#### SITUATION IN TANZANIA

Until 2010, little was known about dengue in Tanzania. Since then, four outbreaks have been reported in Dar es Salaam in 2010, 2012, 2013 and 2014, with the worst epidemic in 2014. From January 2014 until end

of May 2014, the cumulative number of confirmed and suspected dengue cases was 961 and 1,969 respectively [3]. Dar es Salaam has thus been frequently hit by Dengue outbreaks. The situation could be associated with the fact that Dar es Salaam is a fast growing city with widespread unplanned urbanization without appropriate waste management. Such a situation results into scattered wastes around households such as open cans, tyres, plastics containers that retain rainwater, providing ideal breeding sites for mosquitoes (Figure 2) [4, 5]



Figure 2: Some of the breeding sites observed with larvae of *Aedes* mosquito in Dar Es Salaam region

In addition Dar es Salaam is widely exposed to outbreaks as it hosts the largest airport in Tanzania and handles about 90% of shipping cargo in Tanzania with strong trade and economic links with many countries in South-East Asia where dengue is endemic, providing a route for imported infected mosquitoes and the introduction of new serotypes of dengue virus.

#### THE 2019 DENGUE OUTBREAK

In 2019, Tanzania experienced another dengue outbreak that included more regions in addition to Dar es Salaam region, which had experienced previous outbreaks. The distribution of confirmed dengue cases and deaths per month and per region is presented in Table 1. Of the total 6,664 confirmed cases 3,154 (47.3%) were reported in the month of May. Overall, Dar es Salaam had the highest number of cases (6,180 of 6,664 (92.7%)) and deaths (11 of 13 (84.6%)). As presented in Figure 3 and Table 1, the highest number of deaths was reported in the month of May.

Regions	Jan		Feb		March		April		May		June		July		Total	
	Patients	Deaths	Patients	Deaths	Patients	Deaths	Patients	Deaths	Patients	Deaths	Patients	Deaths	Patients	Deaths	Patients	Deaths
DSM	25	0	67	0	227	1	1079	4	3093	5	1132	1	557	0	6180	11
Tanga	31	0	16	0	7	0	20	0	54	0	110	1	93	0	331	1
Kilimanjaro	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Morogoro	0	0	0	0	0	0	0	0	6	0	15	0	1	0	22	0
Arusha	0	0	0	0	0	0	0	0	0	0	3	0	5	0	8	0
Dodoma	0	0	0	0	0	0	0	0	0	0	3	1	0	0	3	1
Singida	0	0	0	0	0	0	1	0	0	0	1	0	1	0	3	0
Kagera	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0
Lindi	0	0	0	0	0	0	0	0	0	0	1	0	11	0	12	0
Ruvuma	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
Pwani	0	0	0	0	0	0	0	0	0	0	38	0	63	0	101	0
<b>Total</b>	<b>56</b>	<b>0</b>	<b>83</b>	<b>0</b>	<b>234</b>	<b>1</b>	<b>1,100</b>	<b>4</b>	<b>3,154</b>	<b>5</b>	<b>1,305</b>	<b>3</b>	<b>732</b>	<b>0</b>	<b>6,664</b>	<b>13</b>

Table 1: Distribution of confirmed dengue cases and deaths per region in Tanzania between 1<sup>st</sup> January 2019 and 31<sup>st</sup> July 2019

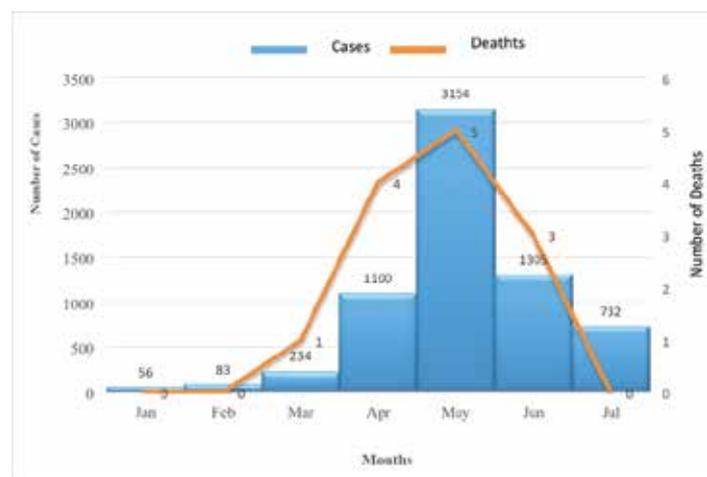


Figure 3: Distribution of dengue cases and deaths in Tanzania between 1 January and 31 July 2019

Distribution of suspected cases by age and sex, Dar Es Salaam and Tanga regions between 1 January and 22 June 2019 for (Figure 4).

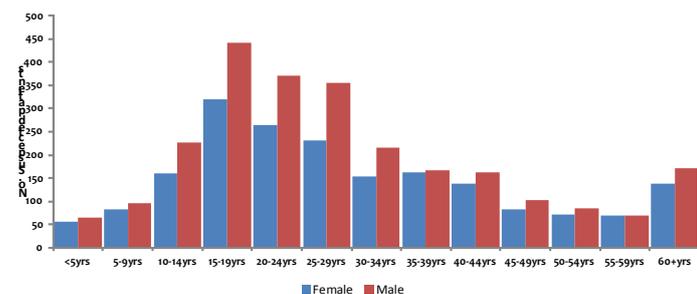


Figure 4: The age and sex distribution of suspected cases seen at health facilities in Tanga and Dar es Salaam regions between 1 January and 22 June 2019.

The age group of 15-19 years had the highest number of individuals seeking care as suspected cases with a total of 325 males and 446 females. More males than females sought medical attention as suspected cases in all age categories (Figure 4). In contrary, many confirmed cases were in persons aged below five years, 25-29 and 40-44 at a rate of 62.0% and 64.0% respectively (Figure 5).

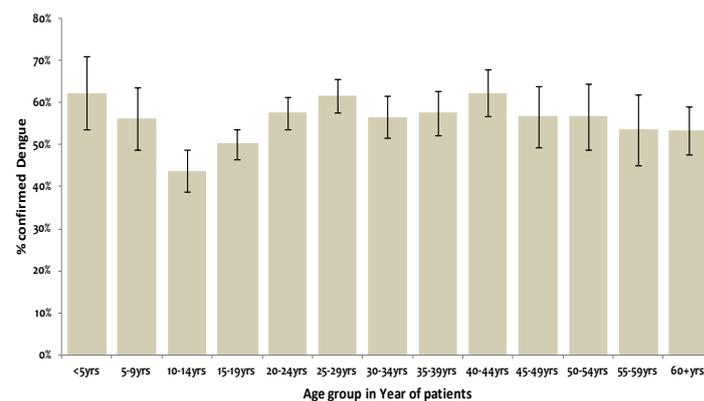


Figure 5: Confirmed Dengue cases by age groups

As presented in Table 2, the Dar es Salaam region had 90.3% of suspected cases (12,405 of the 13,744) and 92.7% confirmed cases (6,180 of 6,664). Muhimbili National Hospital reported the highest number of the suspected cases (3,455 of the national total of 13,744) and confirmed cases (1,429 of national total of 6,664). Ilala Municipality had reported the highest number of deaths, 7 of 13 (53.8%) reported deaths.

**Table 2: Distribution of Dengue of suspected and confirmed cases per region and councils for the period of January to July 31, 2019**

Regions	District Council	Suspected Cases	Confirmed Dengue Cases	Total of Deaths
Dar es Salaam	Ilala	1664	1352	7
	Kinondoni	2659	1411	1
	Ubungo	3252	1247	0
	Kigamboni	223	81	0
	Temeke	1152	702	0
	Muhimbili Hospital	3455	1429	3
<b>Total Dar es Salaam</b>		<b>12405</b>	<b>6180</b>	<b>11</b>
Tanga	Tanga City	1006	325	1
	Korogwe Mjini	6	1	0
	Mkinga	5	0	0
	Pangani	5	0	0
	Lushoto	8	5	0
	Handeni DC	5	0	0
<b>Total Tanga</b>		<b>1035</b>	<b>331</b>	<b>1</b>
Singida	Singida TC	2	2	0
	Itigi	1	1	0
<b>Total Singida</b>		<b>3</b>	<b>3</b>	<b>0</b>
Pwani	Bagamoyo	4	4	0
	Kibaha DC	24	24	0
	Kisarawe DC	24	7	0
	Kibaha Mjini	39	34	0
	Rufiji	4	4	0
	Mkurunga	38	32	0
<b>Total Pwani</b>		<b>133</b>	<b>101</b>	<b>0</b>
Kilimanjaro	Moshi Municipal	1	1	0
<b>Total Kilimanjaro</b>		<b>1</b>	<b>1</b>	<b>0</b>
Morogoro	Kilombero DC	4	4	0
	Kilosa DC	4	4	0
	Morogoro MC	13	13	0
	Mvomero DC	1	1	0
<b>Total Morogoro</b>		<b>22</b>	<b>22</b>	<b>0</b>
Kagera	Bukoba Town	3	2	0
<b>Total Kagera</b>		<b>3</b>	<b>2</b>	<b>0</b>
Arusha	Arusha City	6	7	0
	Meru DC	1	0	0
	Arusha DC	1	1	0
<b>Total Arusha</b>		<b>8</b>	<b>8</b>	<b>0</b>
<b>Dodoma City</b>		<b>4</b>	<b>3</b>	<b>1</b>
<b>Total Dodoma</b>		<b>4</b>	<b>3</b>	<b>1</b>
Lindi	Lindi Municipal	120	12	0
<b>Total Lindi</b>		<b>120</b>	<b>12</b>	<b>0</b>
Ruvuma	Tunduru	10	1	0
<b>Total Ruvuma</b>		<b>10</b>	<b>1</b>	<b>0</b>
<b>Grand Total</b>		<b>13744</b>	<b>6664</b>	<b>13</b>

## DENGUE CONTROL IN TANZANIA

The Government of Tanzania has taken strong measures to ensure all cases are detected and managed appropriately to minimize deaths. Several intervention measures were instituted to contain the spread of dengue fever. These measures included: -

### HEALTH PROMOTION

An integrated communication approach was adopted where the public was well informed about the outbreak, mode of transmission, protective measures, symptoms and signs and were encouraged to seeking medical care immediately on symptom onset. Symptoms and signs associated with dengue fever were described and widely aired and circulated.

### DIAGNOSIS

The Government ordered enough diagnostic kits, which were distributed to public and private health facilities. To facilitate testing for suspected cases, the Government introduced free testing services. This came as a major relief to Tanzanians who were paying between TZS 40,000 and TZS 69,000 in the past for testing before it was reduced to between TZS 15,000 and TZS 20,000 in private health facilities by May 2019.

### TREATMENT

There is no specific antiviral or other specific treatment for dengue fever; therefore, as recommended internationally [1,2], treatment includes supportive management of symptoms. Patients infected with dengue virus were given paracetamol (sold under the brand name Panadol and other brand names) to control fever, joint and muscle pains and were advised to drink plenty of fluids to avoid dehydration. The Government assured the public of its commitment and advised sick persons to seek medical care, as there is no vaccine for dengue available in Tanzania. It should be noted that neither aspirin nor ibuprofen should be administered; as they could increase the risk of bleeding!

Appropriate medical care is critical for cases of dengue haemorrhagic fever, which can be fatal in half of cases if untreated. With proper treatment, mainly the administration of fluids to prevent shock by maintaining blood volume, the mortality rate is less than 5%.

*"Dengue fever is a mosquito-borne tropical disease caused by Dengue virus...it's difficult to have definitive treatment on viral diseases...what are being treated are symptoms associated with the disease like sudden high fever, severe headache associated with eye pain, joint and muscle pains," the Chief Medical Officer (CMO said [6].*

### TREATMENT MISCONCEPTION

The most talked about myth during the Dengue outbreak in Tanzania was that papaya leaf juice could be used as a treatment for dengue fever.

There is wide use of papaya leaf juice for dengue, especially in Asia, where it is believed to be a miracle cure for dengue fever with the ability to increase blood platelet counts [7]. However, medical practitioners do not prescribe papaya leaf juice because there is no proof that it works. The Government warns against misconceptions about the treatment of dengue fever, stressing that member of the public should seek professional information.

### BOX 2

#### WHAT SHOULD YOU DO IN CASE OF DENGUE INFECTION?

Consult a doctor or other health professional if fever is accompanied by any two or more of the above sign/symptoms (see Box1).

Prior to that, you should:

- » Continue fluid intake
- » Take only paracetamol to control fever and relieve pain
- » **Do NOT take aspirin or ibuprofen**

### Mosquito Control

To speed-up mosquito control measures, in July 2019 the Government launched a 5-year National Strategy for Vector Control (2019-2024). This was meant to address all vector-borne diseases including dengue. During the launch the Minister for Health, Community Development, Gender, Elderly and Children, Hon. Ummu Mwalimu (MP), stated the urgent need for concerted efforts to control all vector-borne diseases in a holistic approach.

*"Today we have officially launched the fight against mosquitoes and harmful pests in the country that have been spreading disease to humans. These insects include mosquitoes, flies, tsetse flies, fleas, lice, ticks, bed bugs and cockroaches. The diseases that are spread by these pests include Malaria, Dengue, Chikungunya, yellow fever, filariasis, cholera, typhoid, diarrhea, onchocerciasis, schistosomiasis and plague." Hon Ummu A Mwalim*

### Environmental Management

Dengue fever is a mosquito-borne tropical disease; therefore the Government emphasized on abiding by the by-laws on waste management as a measure for environment management. The public was sensitized to abide to the by-laws for ensuring there is no unattended garbage/waste around their households. This is aimed at reducing the possible breeding sites by appropriate management of used containers such as cans, plastic vessels, tyres, coconut husks and the like that could hold water (Figure 6). It is also important to remove from homes flowerpots that could retain enough water to allow mosquitoes to breed. The public also was informed to properly cover water storage tanks (to have tightened lids) to prevent access by mosquitoes to lay eggs.



**Figure 6: A spray man from Dar es Salaam City emptying water from plastic containers to eliminate possible mosquito breeding sites**

### Personal Protection

In this regard, the public was advised to use appropriate insect repellents to deter mosquitoes from landing and biting. Similarly, to minimize the area of exposed skin, the public was advised to wear long pants, long-sleeved shirts, and socks, tucking pant legs into shoes or socks. The public was also advised to change their behaviour to reduce human-vector contact by using mosquito nets especially insecticide treated mosquito nets while sleeping during daytime as well as at night-time as there is a change in mosquito biting behaviour from daytime to night.

### Misconception about Repellents

There was a belief that using a concoction of coconut oil that was mixed with some other plant products such as peppermint or tea leaves applied to the skin can repel mosquitoes. The Government, through the CMO dismissed this claim, as there is no scientific proof and advised the public to follow proper health professional advice and not spend time or money on unproven measures.

### Larva Control

The Government introduced larval control by spraying biolarvicides in possible breeding sites (Figure 7). Two types of larvicides were used namely *Bacillus thuringiensis israelensis* (Bti) na *Bacilus Sphaericus* (Bs)



**Figure 7: Larvicides being sprayed in one of the breeding sites to kill mosquito larvae**

### Adult mosquito Control

The Government in this aspect introduced insecticide spraying (fogging) in residential areas with the target of killing adult mosquitoes. Both vehicle and manual backpack-type sprayers were used as can be seen in Figure 8. To minimize environmental contamination, teams of trained spraying officers were used.



**Figure 8: A trained sprayer using a manual backpack-type sprayer to spray insecticides in residential areas with the aim of killing adult mosquitoes.**

Speaking while participating in an exercise to spray insecticides in residential areas in Mchikichini Ward, Ilala District in Dar es Salaam Region on July 4, 2019, the Honourable Minister for Health, Community Development, Gender, Elderly and Children, said the recent outbreak of Dengue fever had made it necessary for the Ministry to rethink its approach to fighting the disease

### FUTURE PLANS

- » The plan is to implement the National Strategy for Vector Control (2019-2024). This will be a multi-sectoral task including the President's Office - Regional Administration and Local Government (PO-RALG). The Office will oversee the plan's implementation at Regional, Council, Ward and down

to Village level. During its launch, the Minister of State in the President's Office of Regional Administration and Local Government, Hon. Selemani Jafo (MP) reiterated the Office's commitment to supporting the strategy implementation by overseeing from regional to village levels. Each Council in Tanzania will be required to buy a fogging machine to be used to spray insecticides against disease vectors. The Ministry for Health, Community Development, Gender, Elderly and Children has already procured five fogging machines for Dar es Salaam in the fight against Dengue fever and other vector-borne diseases.

- » The Government is to ensure that Councils are reinforcing and maintaining by-laws that guide every household to maintain its environment by eliminating mosquito breeding sites and disease-causing insects.
- » The Government is to continue with health education promotion covering prevention and seeking medical care immediately upon onset of symptoms related to dengue and other vector-borne diseases

## CONCLUSION

The 2019 dengue outbreak affected many regions as compared with the previous outbreaks where Dar es Salaam had most of the cases and deaths. Through integrated health promotion, the public was informed

about the mode of transmission, preventive measures, symptoms and where to seek medical treatment and advice. It was recommended that once the disease causes symptoms, the individual should seek medical care from health facilities and avoid the use of papaya leaf juice, which is popular but never been proven to have any effect against dengue. For long-term control, the Government has launched a 5-year National Strategy for Vector Control that aims to control all vector-borne diseases, including dengue fever.

## ACKNOWLEDGEMENT

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# Tanzania Yachukua Hatua Dhidi ya Kuenea kwa Mlipuko wa Homa ya Dengue

## MUHTASARI

Tatizo la ukubwa na kujirudia mara kwa mara kwa mlipuko ya homa ya dengue (ambayo inajulikana kama homa ya kuvunja mifupa) limeongezeka sana katika miaka 40 iliyopita katika nchi za kitropiki (hali joto) kwa sababu ya ukuaji holela wa miji, utandawazi na ukosefu wa uhabiti madhubuti wa mbu. Kutokana na hali hii, Tanzania inakabiliwa na ongezeko la mlipuko ya dengue ya mara kwa mara.

Hadi mwaka 2010, kwa kiasi kikubwa ugonjwa wa dengue nchini Tanzania ulikuwa haufahamiki. Tangu wakati huo, mlipuko minne imeripotiwa jijini Dar es Salaam mnamo miaka ya 2010, 2012, 2013 na 2014. Mlipuko mkubwa zaidi ukiwa ni ule wa mwaka 2014, ambapo jumla wagonjwa waliohibitika walikuwa 961 na walioshukiwa walikuwa wagonjwa 1,969. Mwaka huu wa 2019, Tanzania ilipata mlipuko mbaya zaidi wa ugonjwa wa dengue ambao uliathiri mikoa 11, kusabisha vifo 13 na jumla ya watu 6,677 wakigundulika kuwa na ugonjwa huo. Mkoa wa Dar es Salaam uliongoza ulikuwa na wagonjwa 6,191 na vifo 11.

Dengue ni ugonjwa unaosababishwa na virusi vya aina nne tofauti ambapo humpata mtu baada ya kung'atwa na mbu. Virusi vya dengue husambaa kupitia mbu jike aina ya *Aedes ambapo A. Aegyptiae ndiye aina ya mbu aliye na uwezo mkubwa wa kusambaza katika ukanda wa kitropiki ulimwenguni*. Mbu hawa hunywa damu ya binadamu badala ya wanyama na hupenda kutaga mayai yake katika vyombo vya maji vilivyotengenezwa na watu. Kawaida mbu hawa huuma wakati wa asubuhi na jioni, lakini wanaweza kuuma wakati wowote wa siku na kuenea maambukizi. Njia bora ya kuzuia maambukizi ni kuzuia kung'atwa na mbu.

Kwa kawaida dalili za ugonjwa wa dengue huanza kuonekana siku

3 hadi 14 baada ya kuambukizwa. Dalili ni pamoja na homa kali ya ghafla, maumivu makali ya kichwa, kutapika, maumivu ya misuli na viungo, na mwasho na vipele vidogo vidogo ambavyo hutokea siku 3 mpaka 14 baada ya maambukizi. Kwa kawaida kupona kwa mgonjwa inachukua jumla ya siku 2 hadi 7. Hata hivyo, katika idadi ndogo ya wagonjwa, homa ya dengue inaweza kubadilika na kuwa aina ya dengue kali inayohatarisha maisha. Hali hii husababisha kutokwa na damu (ngozi, puani na masikioni), kupungua viwango vya chembechembe za damu (aina ya plateleti zinazosabisha kuganda kwa damu) na mgonjwa hupata mshituko mkali katika mzunguko wa damu na hupoteza fahamu unosababisha shinikizo la chini la damu (mapigo ya moyo hayawezi kusikika).

Hakuna chanjo iliyohitishwa inayofanya kazi kuwakinga watu dhidi ya virusi vya dengue, hivyo Serikali imechukua na inaendelea kutekeleza hatua kadhaa za kuzuia kuenea kwa ugonjwa wa dengue. Hii ikiwa ni pamoja na uhamasishaji ili wananchi waweze kufahamu hali ya maambukizi na hatua za kuchukua kujikinga. Hatua hizi ni pamoja na kuvaa nguo ndefu zinazo funika mwili kama vile suruali ndefu, mashati ya mikono mirefu, na soksi ili kupunguza viwango vya kuumwa. Pia inashauriwa kutumia dawa salama za kupuliza ili kufukuza mbu, na utumiaji wa vyandarua vyenye viatilifu wakati wa kulala (mchana na usiku).

Hatua zingine ambazo Serikali imechukua ni pamoja na usimamizi wa usafi wa mazingira na uhabiti wa mbu waenezo dengue (kwa mfano, kuangamiza mazalia ya mbu, kunyunyizia dawa ndani ya nyumba na katika maeneo ya makazi kwa lengo la kuua mbu na viluwiluwi). Aidha hatua nyingine ilikuwa ni kuondoa vitu vinavyo weza kukusanya maji na kufanya mazalia. Katika ngazi ya mtu binafsi, umma unashauriwa

kudumisha usafi karibu na kaya na kuhakikisha hakuna makopo yaliyo wazi, matairi ya magari, vyombo vya plastiki ambavyo vinaweza kuhifadhi maji ya mvua na kufunika vizuri vifuniko vya matanki ya kuhifadhi maji. Zaidi ya hayo, umma unahimizwa kutafuta msaada wa matibabu katika vituo vya kutolea huduma ya afya (hospitali) ambapo huduma za upimaji na matibabu zilikuwa zikitolewa bure. Pamoja na uvumi wa kutumia juisi ya majani ya mpapai kupyona dengue, umma unashauriwa kuwa wagonjwa wenye dalili za dengue kuwahi kwenda hospitali maana hakuna ushahidi wa kisayansi unaothibitisha kwamba juisi hii ni tiba bora ya ugonjwa wa dengue.

Kwa kuhitimisha, teleweke kuwa mlipuko wa dengue wa mwaka huu wa 2019 ulikuwa mkubwa na kulikuwa na idadi kubwa ya wagojwa na vifo hasa katika Mkoa wa Dar es Salaam, lakini Serikali ilifanikiwa kuudhibiti. Kwa malengo ya muda mrefu ya kudhibiti dengue, Serikali imezinduzi Mkakati wa Kitaifa wa Kudhibiti Wadudu waenezo Magonjwa wa miaka 5 (2019-2024). Kupitia mkakati huu, Serikali imedhamiria kudhibiti magonjwa yote yanayotokana na wadudu ikiwa ni pamoja na homa ya dengue.

## REFERENCES

1. WHO, Newsroom, April 15, 2019. Available from <https://www.who.int/en/news-room/fact-sheets/detail/dengue-and-severe-dengue>

2. CDC May 3, 2019. Available at <https://www.cdc.gov/dengue/index.html>
3. Leonard E. G. Mboera, Clement N. Mweya, Susan F. Rumisha, Patrick K. Tungu, Grades Stanley, Mariam R. Makange, Gerald Misinzo, Pasquale De Nardo, Francesco Vairo, Ndeky M. Oriyo (2016). The Risk of Dengue Virus Transmission in Dar es Salaam, Tanzania during an Epidemic Period of 2014. *PLoS Negl Trop Dis*. 10: e0004313. doi:10.1371/journal.pntd.0004313
4. Daniel Msellemu, Tegemeo Gavana, Hassan Ngonyani, Yeromin P. Mlacha, Prosper Chaki, Sarah J. Moore (2019). Description and lessons learned from the 2014 Dengue outbreak in Dar es Salaam, Tanzania. Knowledge, attitudes and bite prevention practices among those with confirmed Dengue. doi: <https://doi.org/10.1101/567396>; <https://www.biorxiv.org/content/10.1101/567396v1.full>
5. Mboera LE, Mweya CN, Rumisha SF, Tungu PK, Stanley G, Makange MR, Misinzo G, De Nardo P, Vairo F, Oriyo NM (2016). The Risk of Dengue Virus Transmission in Dar es Salaam, Tanzania during an Epidemic Period of 2014. *PLoS Negl Trop Dis*; 10: e0004313. doi: 10.1371/journal.pntd.0004313
6. Go for expert advise on handling Dengue fever, public advised; Daily News, May 23, 2019.
7. Dengue on the Rise: Does Drinking Papaya Leaf Juice Really Help? Available at <https://www.ndtv.com/india-news/dengue-on-the-rise-does-drinking-papaya-leaf-juice-really-help-1715193>

# Tanzania on the Verge of Eliminating Lymphatic Filariasis and Trachoma

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## SUMMARY

**Background:** Tanzania is endemic for 13 Neglected Tropical Diseases (NTDs): lymphatic filariasis (LF), onchocerciasis, trachoma, schistosomiasis, soil-transmitted helminths (STH), human African trypanosomiasis, rabies, tick-borne relapsing fevers, echinococcosis (hydatid disease), taeniasis (cysticercosis), brucellosis, plague and leprosy. NTDs are a diverse group of tropical communicable diseases that are common in low-income populations in about 149 developing countries. They are caused by a variety of pathogens including viruses, bacteria, protozoa and helminths. In Tanzania, NTD control and elimination efforts have been implemented under the National Neglected Tropical Diseases Control Program (NTDCP) since 2009. This paper summarizes NTDCP's progress in eliminating LF and trachoma.

**Lymphatic Filariasis:** LF is a parasitic infection in Tanzania is caused by a nematode (worm) called *Wuchereria bancrofti*, and is mainly transmitted by *Anopheles* and *Culex* mosquitoes. In untreated cases, the adult worms block the normal flow of lymph leading to elephantiasis or hydrocele (a swelling in the scrotum that occurs when fluid collects around a testicle). LF is endemic in many areas of Tanzania mainland where about 70% of the population is at risk, and nearly 6 million people have disabilities due to the disease. The NTDCP's main objective is interrupting transmission of *Wuchereria bancrofti* through annual mass drug administration (MDA), using ivermectin plus albendazole, to the entire at-risk population as well as management and prevention of LF-related disabilities. The NTDCP had administered MDA to all eligible populations (those aged 5 years and older) in all LF endemic districts. Results show that as of February 2019, out of the 120 LF endemic districts, 96 (80%) have reached the criteria for stopping MDA. This means that the infection level in a district has been reduced to levels below a threshold at which transmission is interrupted.

**Trachoma:** Trachoma, a leading infectious cause of blindness, is caused by the bacterium *Chlamydia trachomatis*. Blinding trachoma is endemic in 53 countries worldwide, and in Tanzania mainland it is prevalent in 71 districts with an estimated population of 19 million people being at risk of contracting the disease. The infection spreads through personal contact such as via contaminated hands or materials such as towels, handkerchiefs or bedding; and through vector transmission, commonly houseflies that have been in contact with discharge from the eyes of an infected person. Repeated episodes of infection over many years cause irreversible blindness. The implementation of the SAFE (Surgery, Antibiotic therapy, Facial cleanliness, and Environmental improvements) strategy has resulted in significant progress towards the elimination of trachoma. Out of the 71 districts that were endemic, 63 (89%) have reached the criterion for stopping azithromycin MDA as of February 2019. This means that the prevalence of trachoma clinical signs is <5% in children aged 1-9 years.

**Conclusion:** The intervention adopted by the Government has shown that use of ivermectin plus albendazole, as MDA for LF and azithromycin MDA for trachoma is an effective strategy for elimination of LF and trachoma in the country. The implementation is still ongoing in 24 and 8 districts for LF and trachoma respectively. However, to reach the LF and trachoma elimination targets by 2020, the country is intensifying its efforts at the national, district and community levels. Activities include ensuring all individuals eligible for MDA are targeted for treatment during MDA, scaling up - Morbidity Management and Disability Prevention (MMDP) services across all LF endemic districts and S, F and E services across all trachoma endemic districts, building capacity to provide these services and sustainably mobilize funds through each district's Comprehensive Council Health Plan.

## INTRODUCTION

Neglected Tropical Diseases (NTDs) are a group of communicable diseases that are linked with poverty and are prevalent in areas with poor sanitation, inadequate safe water, and substandard housing [1]. In Tanzania, five NTDs that can be targeted with Preventive Chemotherapy and Transmission Control (PCT) include: lymphatic filariasis (LF), onchocerciasis, trachoma, schistosomiasis and soil-transmitted helminths (STH). Other NTDs endemic in Tanzania (which are Case Management Diseases) include: human African trypanosomiasis, rabies, tick-borne relapsing fevers, echinococcosis (hydatid disease), taeniasis (cysticercosis), brucellosis, plague and leprosy. A large part of the Tanzanian population is thus at risk of being infected with more than one of these diseases at the same time.

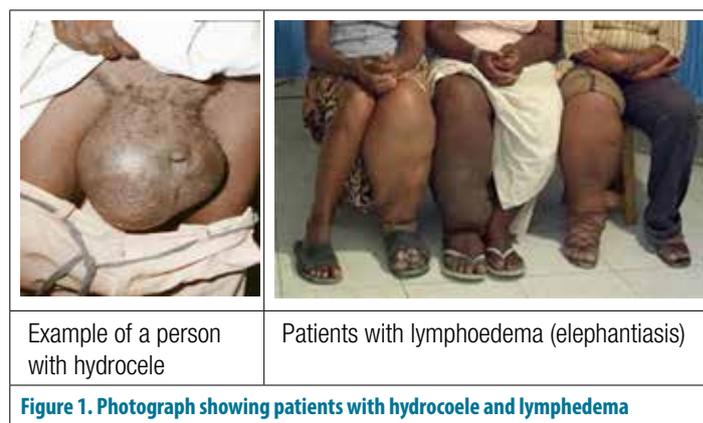
The control and/or elimination of these NTDs started under vertical programs. However, in 2009, Tanzania integrated the implementation of NTD control and elimination efforts under the National Neglected Tropical Diseases Control Program (NTDCP). LF, onchocerciasis and trachoma are targeted for elimination<sup>1</sup> while schistosomiasis and STH are targeted for control<sup>2</sup>.

## LYMPHATIC FILARIASIS

LF is a parasitic infection caused by nematodes (worms): *Wuchereria bancrofti* (*W. bancrofti*), *Brugia malayi* and *B. timori*. *Anopheles*, *Aedes* and *Culex* mosquitoes are the main vectors responsible for the disease transmission. However, in sub-Saharan African countries including Tanzania, LF is caused by *W. bancrofti*, and is mainly transmitted by *Anopheles* and *Culex* mosquitoes [2]. The transmission cycle starts when female mosquitos carrying infective larvae land on human skin to take a blood meal. The larvae penetrate the skin and migrate to the lymphatic vessels where they develop into adult male and female worms over a period of several months. In untreated cases, the adult worms block the normal flow of lymph leading to lymphoedema (elephantiasis) or hydrocele (a swelling in the scrotum that occurs when fluid collects around a testicle), Figure1.

LF is the leading cause of disability due to parasitic infections in Tanzania [3]. It is endemic in many areas of Tanzania mainland where about 70% of the population is at risk, and it is estimated that nearly 6 million people have disabilities due to the disease. Results of endemicity-based immunological tests vary across the country, from high antigenemia levels of 45–60% along the coast to 2–4% in western

Tanzania.



In recognition that LF could be eradicated, the Global Programme to Eliminate Lymphatic Filariasis was established to ensure that the resolution passed by the World Health Assembly in 1997 (WHA 50.29) to eliminate LF by 2020 was achieved [4]

The program had a main objective of interrupting the transmission of *W. bancrofti* and *B. malayi* through annual mass drug administration (MDA) to the entire at-risk population as well as management and prevention of LF-related disabilities. The major assumption behind the MDA approach is that once the community has been treated for at least 4 to 6 years, levels of microfilariae (larval worms) will remain low enough to prevent mosquitoes sustaining transmission. [4].

## Elimination efforts

In combating LF, Tanzania is implementing strategies recommended by WHO, that include the following:

- » Interruption of diseases transmission by provision of Mass Drug Administration (MDA) of ivermectin and albendazole
- » Alleviation of disease burden by provision of LF Morbidity Management and Disability Prevention (MMDP) services

Ivermectin plus albendazole MDA is administered house to house in districts where LF is endemic to all eligible populations (those aged 5 years and older). Children aged less than 5 years, pregnant women and individuals who are very sick are excluded. Ivermectin plus albendazole MDA is administered once a year in districts where LF is endemic. The distribution teams are well organized from national to hamlet levels where training is offered at all levels to MDA teams. Through integrated communication channels the community is sensitized before and during MDA active implementation. Following five rounds of effective ivermectin plus albendazole MDA, the district becomes eligible for surveys (Pre-TAS and TAS – Transmission

1 According WHO, elimination means: Reduction to zero of the incidence of a specified disease in a defined geographical area as a result of deliberate efforts; continued intervention measures are required.

2 According to WHO, control refers to: The reduction of disease incidence, prevalence, morbidity or mortality to a locally acceptable level as a result of deliberate efforts; continued intervention measures are required to maintain the reduction.

Assessment Survey) to assess the level of infection / transmission of the disease. If the district passes both Pre-TAS (the prevalence of infection through rapid test among individuals aged 5 years and older in the sample size is <2%) and TAS (the number of school children aged 6-7 years, standard 1 & 2 pupils, tested positive is less or equal to the Critical Cut-Off point), then the district is said to have met the criteria for stopping ivermectin plus albendazole MDA. This means that the infection level in the district has been reduced to levels below a threshold at which mosquitoes are unable to continue spreading the parasites from person to person and new infections are prevented. At this point, the district is warranted to continue surveillance of the disease by conducting the second and third TAS, 2 and 4 years after stopping MDA respectively. A series of studies evaluating the program in Tanga region has shown good progress (5,6]

MMDP services include identifying patients already affected with LF – those with hydrocele, lymphoedema or both, providing counseling, health education, training on care of lymphoedema (Figure 2) and provide surgical services to remove hydrocele.



Figure 2: Photograph showing training for care of lymphoedema

### OUTCOME OF ELIMINATION PROGRAM

As of February 2019, out of the 120 districts that were endemic for LF, 96 (80%) have reached the criteria for stopping ivermectin plus albendazole MDA (Figure 3a & 3b). Surveillance is currently ongoing in these 96 districts to monitor the recurrence of the disease.

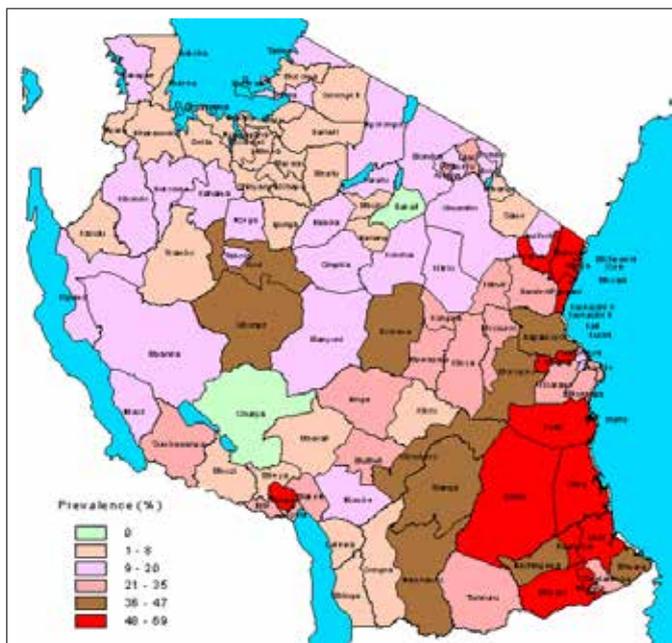


Figure 3a. LF endemicity as of 2004



Figure 3b. LF endemicity as of 2019

Furthermore, the NTDCP, in collaboration with other donors, has been conducting hydrocele camps in all coastal regions of Tanga, Lindi, Dar Es Salaam and Coast. Lymphoedema management Training has mainly been conducted in Dar Es Salaam region and plans to scale up MMDP services to reach all endemic districts are underway.

#### BOX 1

The public should support the elimination program of LF by: -

- » Active participation in MDA
- » Staying informed about program activities
- » Sleeping under mosquito nets
- » Using repellent on exposed skin before going to bed

### TRACHOMA

Trachoma is the leading infectious cause of blindness. It is caused by the bacterium *Chlamydia trachomatis* [7, 8]. According to WHO, trachoma is responsible for 3% of global blindness 2.2 million people are visually impaired, of whom, 1.2 million are irreversibly blind. Trachoma blinds one person every 15 minutes and makes one person experience severe sight loss every 4 minutes. Blinding trachoma is endemic in an estimated 53 countries and highly prevalent in North Africa, Middle East, Central and South America, Australia, and certain regions of South East Asia. An estimated 200 million people worldwide live in endemic areas [9].

In Tanzania mainland, trachoma was prevalent in 71 districts with an estimated population of 18 million being at risk of contacting the disease. The infection spreads through personal contact via contaminated hands

or materials such as towels, handkerchiefs or bedding. The disease is also spread by houseflies that have been in contact with discharge from the eyes of an infected person. Repeated episodes of infection over many years cause irreversible blindness by scarring the eyelids, which ultimately turns eyelashes inwards, subsequently scratching the cornea, a condition called trachomatous trichiasis (TT) [8, 9]

The predisposing environmental risk factors for trachoma include dry climate, poor hygiene, water insecurity, crowded households, and poor sanitation (inadequate latrines). Inadequate sanitation increases the fly population leading to an abundance of flies.

Host factors include age, sex and socioeconomic status. The disease is more common during infancy and early childhood whereby children aged 2 to 5 years are most affected (otherwise there is no age limit). Regarding sex, the disease prevalence is equal in young age groups but more common in females at older age because they are the caretakers of the children. The disease is more common in poor families due to unhygienic living conditions associated with limited access and use of water, and limited face washing.

## ELIMINATION EFFORTS

In 1997, WHO established the Alliance for Global Elimination of Trachoma by the year 2020. For its successful elimination, WHO endorsed an integrated package of interventions through a SAFE strategy as will be described below. Trachoma control program implementation is prioritized in communities where prevalence of active trachoma in children aged 1 to 9 years is 10% or higher and/or where the prevalence of trachomatous trichiasis in people aged 15 years or above is 1% or higher [8,9].

In combating trachoma, Tanzania is implementing the WHO's endorsed integrated SAFE strategy. The SAFE strategy includes the following interventions:

- » S – Surgery for people with trichiasis at immediate risk of blindness
- » A – Antibiotic therapy with azithromycin (sold under the brand name Zithromax, and others) to reduce the community reservoir of infection and thereby stop transmission

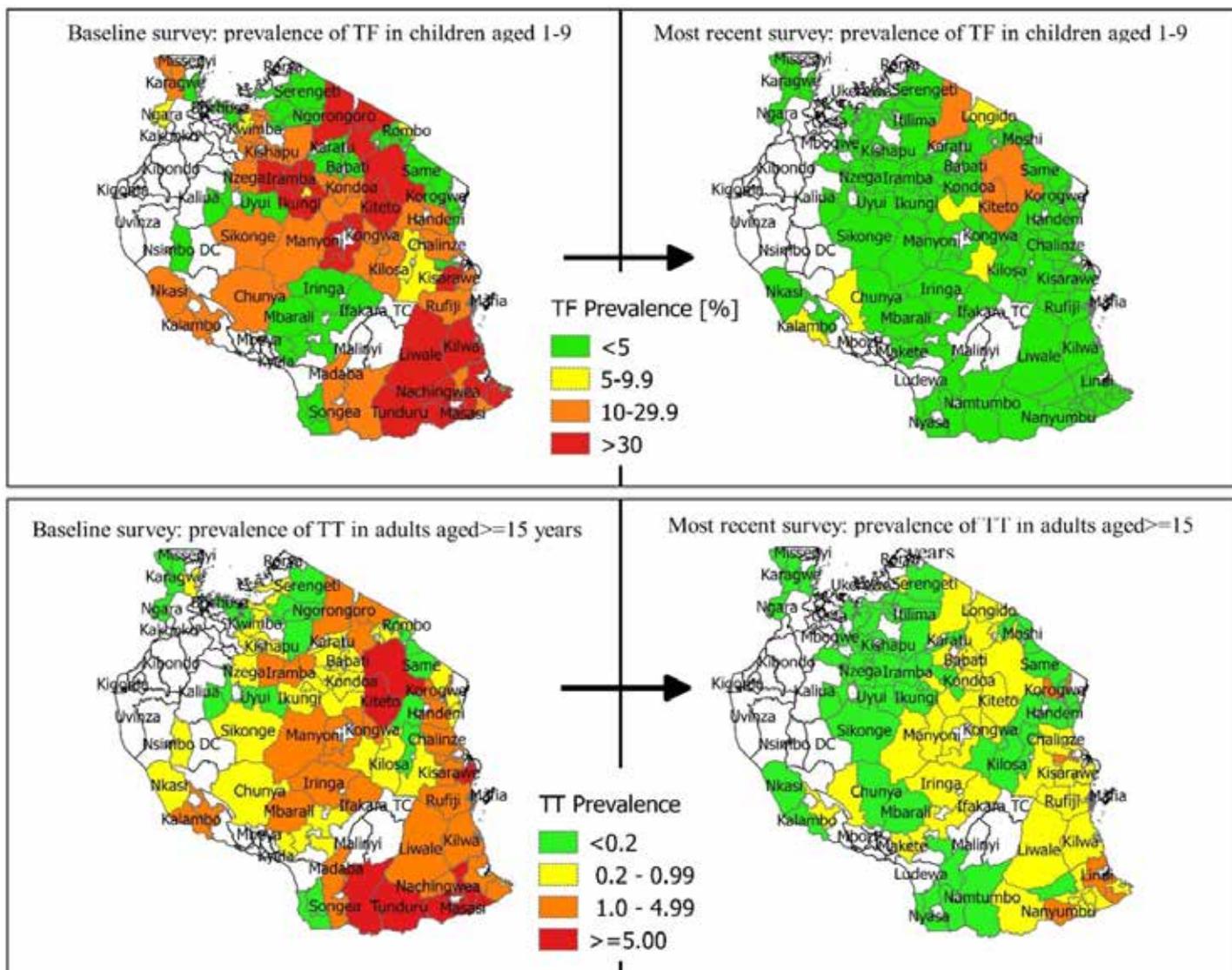
- » F – Facial cleanliness and improved hygiene to reduce transmission
- » E – Environmental improvements and sanitation ensuring that the environment no longer facilitates the transmission of the disease

Antibiotic therapy (with azithromycin) is administered in endemic communities through house-to-house MDA. This process ensures that all eligible populations in the community (those aged 6 months and older) are targeted for treatment. Note that children aged less than 6 months, pregnant women, and those who are severely sick are excluded from azithromycin MDA. Azithromycin MDA is conducted once a year in endemic communities. Following 3 rounds of effective azithromycin MDA (coverage of >80%), the district becomes eligible for a survey (Trachoma Impact Survey, TIS) to assess the level of transmission of the disease in the district. If the district passes TIS (community survey found the prevalence of trachoma clinical signs to be <5% in children aged 5-9 years), then the district is said to have reached the criterion for stopping azithromycin MDA and is warranted to continue monitoring the surveillance of the disease by conducting Trachoma Surveillance Survey 2 years after stopping azithromycin MDA.

Among trachoma endemic districts, efforts are made to identify those already affected with the disease – those with trichiasis, and provide trichiasis surgery. This process helps to prevent those already identified with the disease from going blind. Furthermore, NTDCP is implementing the facial cleanliness and environmental cleanliness strategies through the WASH (Water, Sanitation and Hygiene) campaign in collaboration with other stakeholders.

## Outcome of Elimination of Trachoma

Significant success has been achieved towards the elimination of trachoma whereas, out of the 71 districts that were endemic for trachoma, 63 (89%) have reached the criteria for stopping azithromycin MDA as of February 2019 (Figure 4). The focus is on continuing surveillance of the disease as well as implementing the S, F and E components of the SAFE strategy to prevent disease recrudescence. Surgical services for patients with trichiasis are currently provided in 21 districts in which trachoma is endemic.



### IMPLEMENTATION CHALLENGES OF THE LF AND TRACHOMA ELIMINATION PROGRAMS

The success achieved at this stage based on MDA strategy depends on maintaining a continuous and repeated treatment by covering 80% of the total population in order to reduce the burden of infection in humans to limit onwards transmission. The achievements realized within the program are based on overcoming some implementation challenges that were associated with drug distribution and health systems as reported elsewhere [10, 11].

These challenges included few populations not participating in subsequent rounds of drug administration as a result of MDA fatigue. It should be noted that in the initial rounds the population hesitated to take part due to fear of taking medication based on unfounded fears or speculation of drug side effects. However, this challenge was addressed through well-organized sensitization and mobilization campaigns. During these sessions, the team explained and elaborated the aim of the program, disease prevalence, modes of transmission, and their effect on the population, including socioeconomic effect, treatment/control measures, as well as the drugs and their safety (type, dosage, adverse

reaction and target population) through different communication channels in simple national language. Through this approach the program managed to attract many people to reach the planned targets.

In the case of LF, it was interesting to note that most of the population was demanding services for hydrocelectomy. As in years back, especially along the coast of the Indian Ocean where LF is prevalent, most males were against the practice as they felt it was prestigious to have hydrocele and were called “Mwinyi” (meaning notable person).

In the case of trachoma, the population was somehow slow in adapting personal hygiene improvement practices, particularly facial cleanliness. This is understandable, as it requires attitudinal and sociocultural changes and access to clean water. Continued integrated health education promotion was used to promote the importance of facial cleanliness despite a shortage of water in some areas. Activities also included practicing appropriate management of garbage disposal.

The program also noted dilution of information through the cascade training approach, such that the community drug distributors (CDDs) at hamlet level, who are responsible for dispensing drugs, had received limited information. The programme tackled this matter by

intensifying and improving supervision during training sessions and drug administration schedules.

The implementation process had to follow government procedures to allow ownership for sustainability; at times, this resulted in delays in financial approvals and transportation of medication to sites, which in turn caused delays in initiation of activities and temporary medication stock outs, respectively. This had significant effects on the working morale of staff, especially CCDs. Collaborative links and communication were intensified and improved which allowed each partner involved in the program implementation to observe, adhere and act according to the jointly agreed working plan.

## CONCLUSION

In conclusion, ivermectin plus albendazole MDA for LF and azithromycin MDA for trachoma is an effective strategy for elimination of LF and trachoma in the country. The implementation is still ongoing in 24 and 8 districts for LF and trachoma, respectively. However, to reach the LF and trachoma elimination targets by 2020, the country is intensifying its efforts at national, district and community levels. Efforts include ensuring all individuals eligible for MDA are treated, scaling up MMDP services across all LF endemic districts, providing S, F and E services across all districts in which trachoma is endemic, building capacity to provide these services, and mobilizing resources to sustain

efforts until elimination is achieved.

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# Tanzania Ipo Katika Hatua Nzuri Kutokomeza Ugonjwa wa Mabusha, Matende na Vikope (Trakoma)

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## MUHTASARI

**M**agonjwa Yasiyopewa Kipaumbele ni magonjwa ya kuambukiza ya kitropiki (NTDs) ambayo kwa kawaida yanaathiri idadi kubwa ya watu hususan wenye kipato cha chini. Magonjwa haya yanapatikana katika nchi zinazoendelea zipatazo 149 ikiwa ni pamoja na Tanzania. Magonjwa Yasiyopewa Kipaumbele yanasababishwa na vimelea mbalimbali ikiwa ni pamoja na virusi, bakteria, protozoa na minyoo. Kwa upande wa Tanzania, nchi imeathiriwa na aina 13 za NTDs ambazo ni pamoja na matende na mabusha (ngirimaji), usubi (upofu wa mito), vikope (trakoma), kichocho, minyoo ya tumbo, malale, kichaa cha mbwa, homa ya papasi, uvimbe (ugonjwa wa hydatid), tegu (*taeniasis-cysticercosis*), *brucellosis*, tauni na ukoma. Kwa Tanzania, juhudi za kudhibiti na kutokomeza magonjwa haya zinatekelezwa chini ya Mpango wa Taifa wa Kudhibiti Magonjwa Yasiyopewa Kipaumbele (NTDCP) tangu mwaka 2009. Makala hii inatoa taarifa fupi kuhusu juhudi za Serikali kupitia NTDCP katika kutokomeza ugonjwa wa matende na mabusha pamoja na ugonjwa wa vikope (trakoma) nchini Tanzania.

**Matende na Mabusha:** Matende na Mabusha (ngirimaji) ni moja wapo ya magonjwa yanayoathiri watu wengi nchini Tanzania. Ugonjwa huu husababishwa na minyoo aina ya *Wuchereria Bancrofti* inayosambazwa na Mbu jike aina ya *Anopheles* na *Culex*. Mgonjwa asipopata matibabu, minyoo hii huishi kwenye mfumo wa maji ya damu (*lymphatic system*) na kuzuia mtiririko wa kawaida. Ugonjwa huu husababisha kuvimba kwa miguu, mikono na sehemu za siri (kutokana na mkusanyiko wa majimaji). Lengo kuu la Mpango wa Taifa wa Kudhibiti Magonjwa Yasiyopewa

Kipaumbele ni kuzuia usambazwaji wa minyoo ya *Wuchereria bancrofti* kwa watu katika jamii yote (MDA) iliyoko hatarini kila mwaka kwa kutumia dawa aina ya ivermectin na albendazole. Pia lengo la Mpango wa Taifa ni kutoa huduma ya matibabu ili kuzuia madhara yanayotokana na mabusha na matende kwa kuyasafisha matende na kufanyiwa upasuaji kwa ngirimaji. Mpango wa Taifa wa Kudhibiti Magonjwa Yasiyopewa Kipaumbele ulisimamia ugawaji wa dawa kwa wakazi wote wanaostahiki (wale wenye umri wa miaka 5 na zaidi) katika wilaya zote zenye ugonjwa wa matende na mabusha. Matokeo ya ugawaji huu wa dawa yanaonesha kuwa hadi kufikia mwezi Februari 2019, kati ya wilaya 120 zenye ugonjwa, wilaya 96 ambazo ni sawa na asilimia 80 zimefikia vigezo vya kutokomeza na kusimamisha matumzi ya dawa kwa jamii yote (MDA).

**Vikope (Trakoma):** Vikope ni ugonjwa wa kuambukiza unaoongoza kusababisha upofu, na unasababishwa na bakteria aina ya *Chlamydia trachomatis* (*Klamidia trakomati*); na unasambazwa na inzi na pia kwa njia ya kugusana baina ya mtu na mtu iwapo mmoja wao ana maambukizi. Kwa Tanzania Bara, ugonjwa wa vikope upo katika wilaya 71. Utekelezaji wa mkakati wa SAFE (ambapo inajumuisha: upasuaji, tiba kwa kutumia antibayotiki aina ya azithromycin, usafi wa usoni, na uboreshaji wa mazingira) umesababisha maendeleo makubwa kuelekea kutokomeza ugonjwa wa vikope. Kati ya wilaya 71 ambazo zilikuwa zina ugonjwa, 63 (89%) zimefikia kigezo cha kusimamisha matumzi ya dawa kwa jamii yote (azithromycin MDA) kulingana na taarifa za mwezi Februari 2019. Hii inamaanisha kwamba ukubwa wa tatizo la vikope upo kiwango cha chini ya asilimia 5 katika kundi la watoto wenye umri wa miaka 1-9.

## Hitimisho

Matokeo ya utoaji wa dawa aina ya ivermectin pamoja na

albendazole kwa jamii yote katika wilaya zilizoathirika na matende na mabusha na azithromycin kwa ajili ya vikope umedhihirisha kuwa ni mkakati madhubuti wa kutokomeza matende na mabusha na ugonjwa wa vikope nchini. Utekelezaji wa utoaji dawa bado unaendelea katika wilaya 24 zilizoathiriwa na mabusha na matende na wilaya 8 na kwa zile zenye maabukizi ugonjwa wa vikope. Hata hivyo, ili kufikia malengo ya kutokomeza ugonjwa wa matende na mabusha pamoja na vikope ifikapo mwaka 2020, nchi inazidisha juhudi zake za utekelezaji katika ngazi ya kitaifa, wilaya na jamii. Hii ikiwa ni pamoja na kuhakikisha kuwa watu wote wanaostahiki wanapata matibabu wakati wa zoezi la utoaji dawa kwa jamii yote, kuongeza wigo wa utoaji wa huduma za matibabu kwa madhara yatokanayo na matende na mabusha katika wilaya zote zenye ugonjwa wa matende na mabusha na huduma za upasuaji na uhamasishaji juu ya usafi wa usoni na uboreshaji wa mazingira kwa wilaya zote zenye ugonjwa wa vikope. Aidha nchi inaendelea kujengea uwezo watumishi wake katika ngazi mbalimbali za kutoa huduma za matibabu ili kuwepo na mwendelezo wa kudumu kwa hushirikisha wilaya ili kuweza kupatikana kwa fedha kupitia Mpango Kamambe wa Afya wa Halmashauri kwa kila wilaya.

## REFERENCES

1. World Health Organization: [https://www.who.int/neglected\\_diseases/diseases/en/](https://www.who.int/neglected_diseases/diseases/en/) accessed at May 30, 2019
2. Bockarie MJ, Pedersen EM, White GB, Michael E. Role of vector control in the global program to eliminate lymphatic filariasis. *Annu Rev Entomol.* 2009;54:469–87.
3. Malecela MN, Lazarus W, Mwingira U, Mwakitalu E, Makene C, Kabali C, et al. Eliminating LF: a progress report from Tanzania. *J Lymphoedema* 2009;4:10–2.
4. World Health Organization. Progress report 2000-2009 and strategic plan 2010-2020 of the global programme to eliminate lymphatic filariasis: halfway towards eliminating lymphatic filariasis. Geneva: WHO;2010. Available from: <http://www.who.int/iris/handle/10665/44473>. Accessed May 30, 2019.
5. Simonsen PE, Derua YA, Kisinza WN, Magesa SM, Malecela MN, Pedersen EM. Lymphatic filariasis control in Tanzania: effect of six rounds of mass drug administration with ivermectin and albendazole on infection and transmission. *BMC Infect Dis.* 2013;13:335.
6. Derua YE, Kisinza WN and Simonsen PE. Lymphatic filariasis control in Tanzania: infection, disease perceptions and drug uptake patterns in an endemic community after multiple rounds of mass drug administration. *Parasites & Vectors* (2018) 11:42 <https://doi.org/10.1186/s13071-018-2999-x>
7. Ngondi J, Reacher M, Matthews F, Brayne C, Emerson P. Trachoma survey methods: A literature review. *Bull World Health Organ.* 2009; 87(2):143–51. <https://doi.org/10.2471/BLT.07.046326> PMID: 19274367
8. Hu VH, Harding-Esch EM, Burton MJ, Bailey RL, Kadimpeul J, Mabey DCW. Epidemiology and control of trachoma: Systematic review. *Tropical Medicine and International Health.* 2010; Vol. 15. p. 673–91. <https://doi.org/10.1111/j.1365-3156.2010.02521.x> PMID: 20374566
9. World Health Organization, Trachoma Fact Sheet, April 5, 2019. <https://www.who.int/news-room/fact-sheets/detail/trachoma>. Accessed on June 12, 2019.
10. John O Gyapong, Irene O Owusu, Frances B da-Costa vroom, Ernest O Mensah and Margaret Gyapong` Elimination of lymphatic filariasis: current perspectives on mass drug administration. *Research and Reports in Tropical Medicine* 2018;9 25–33
11. Rabi, M. M., Muhammed, N., & Isiyaku, S. (2011). Challenges of trachoma control: an assessment of the situation in northern Nigeria. *Middle East African journal of ophthalmology*, 18(2), 115–122. doi:10.4103/0974-9233.80699



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