TANZANIA PUBLIC Health Bulletin

The United Republic of Tanzania
Ministry of Health, Community Development, Gender, Elderly and Children

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Government Statement

Inaugural Message

IDSR report for six months January – June 2018

Updates on Ebola outbreak

Factors associated with Cholera outbreak

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Contents

Government Statement on Tanzania Public Health Bulletin

Dear Colleague,

The Ministry of Health, Community Development, Gender, Elderly and Children (MOHCDGEC) is proud and honored to launch the inaugural issue of the new online publication, The Tanzania Public Health Bulletin (TPHB) which will be under the Chief Medical Officer.

There is evidence to suggest that every public health threat can be reduced if the public and health professionals know its scope and cause. Health threats can now be identified, quantified, and mitigated in weeks rather than years if accurate information reaches policy makers, the public, and health professionals, who can act to prevent the spread of disease and limit the impact of natural disasters. Getting that accurate information to those who need it is the responsibility of the MOHCDGEC. It can use a highly regarded and user-friendly public health bulletin (PHB) to rapidly disseminate critical public health information to policy makers, health professionals, and the public.

The MOHCDGEC established the TPHB to provide health professionals, policy makers, media, researchers, academicians, and the public with an authoritative, and timely source of information and recommendations for actions to minimize public health threats.

As a public health bulletin, we expect the TPHB to do the following:

1. **Disseminate important new findings rapidly**: Other media can be as fast as the TPHB (e.g., press conferences, press releases, blast e-mails), but the TPHB is more likely to influence behaviour of the targeted audiences because it is trusted and authoritative and will become an indexed component of the medical literature.
2. **Displace misinformation:** The TPHB is a reliable source in the absence of trusted and authoritative information. Media channels, especially the Internet, can provide incomplete or erroneous information.
3. **Inform the public:** Directly (and indirectly through the press), the TPHB will provide information on current health threats, what the government is doing to reduce the threats, and what individuals can do to protect themselves.
4. **Provide a central voice for national public health authorities:** The TPHB will be a single, go-to source for key public health recommendations.

The TPHB will help build national public health capacity by fostering a culture of rigorous scientific analysis of health data as the basis for public health dialogue and policy. The TPHB will also provide opportunities for new authors from the MOHCDGEC Directorates and its Agencies to work directly with skilled editors to increase their ability to create publishable reports.

The TPHB will help promote and integrate national public health establishments with the international scientific community, provide recognition for public health workers at peripheral, as well as national levels, by publishing their work.

We strongly believe that this bulletin will stimulate the interest of the press and the public in public health by publishing authoritative yet understandable reports on interesting and important public health topics.

To achieve its purpose, the TPHB differs in important ways from most government, academic, and health education products, such as:

- Using clear, concise, plain, and explicit language that is understandable by professionals and laypersons;
- Publishing a wide range of accurate evidence-based information on different government policies, guidelines, reports, and recommendations for public consumption to minimize speculation, rumours, and distortion of information;
- Acting as a main source of information for media to use to communicate accurate information to the public.

The MOHCDGEC is requesting its staff and researchers to use this new communication channel to inform the public of new developments. The Ministry also invites health professionals, media, policy makers, researchers, academicians, and public to make use of the published educative information to minimize public health threats and improve health and social wellbeing.

Thank you,

Permanent Secretary

MINISTRY OF HEALTH COMMUNITY DEVELOPMENT, GENDER, ELDERLY AND CHILDREN

Tamko la Serikali Juu ya Jarida la Afya ya Jamii Tanzania

Ndugu Mshirika

Wizara ya Afya, Maendeleo ya Jamii, Jinsia, Wazee na Watoto, inayo furaha na heshima kubwa kuzindua toleo la kwanza la **Jarida la Afya ya Jamii Tanzania** (Tanzania Public Bulletin, TPHB) ambalo linamilikiwa na Wizara chini ya Mganga Mkuu wa Serikali.

Upo ushahidi kuonyesha kwamba kila tishio la kiafya kwa jamii linaweza kuzuilika ikiwa wataalamu wa afya watafahamu chanzo na ukubwa wake. Kwa sasa matishio ya kiafya yanayoweza kuathiri afya ya jamii yanaweza kutambuliwa, kuthibitishwa na kudhibitiwa katika kipindi kifupi tu badala ya kuchukua miaka endapo taarifa sahihi zitawafikia wataalamu wa afya na watunga sera, ambao wanaweza kuchukua hatua ili kudhibiti kuenea kwa magonjwa na kupunguza madhara yatokanayo na majanga ya asili. Upatikanaji wa taarifa sahihi za afya ni wajibu na jukumu la Wizara ya Afya, Maendeleo ya Jamii, Jinsia, Wazee na Watoto. Kwa hiyo wizara inaweza kutumia Jarida la Afya ya Jamii Tanzania (TPHB) kusambaza kwa haraka habari muhimu za afya ya jamii kwa watunga sera, wataalamu wa afya na umma kwa ujumla. Jarida hili ni mahsusi kwa kusambaza taarifa za afya ya jamii na linatumia lugha nyepesi inayoeleweka.

Wizara ya Afya, Maendeleo ya Jamii, Jinsia, Wazee na Watoto imeanzisha Jarida la Afya ya Jamii Tanzania (TPHB) ili wataalamu wa afya, watunga sera, waandishi wa habari, watafiti, wanazuwoni na umma kwa ujumla kuweza kupata taarifa zinazohusu afya ya jamii na mapendekezo yanayohitaji utelekezaji kwa muda mwafaka kutoka chanzo sahihi chenye kuaminika ili kupunguza matishio ya kiafya yanayoweza kuathiri afya ya jamii.

Hivyo, matarajio ya Jarida la Afya ya Jamii Tanzania (TPHB) ni pamoja na yafuatayo:

1. **Kusambaza matokeo muhimu mapya kwa haraka:** Vyombo vya habari vingine vinaweza kutoa taarifa kwa haraka kama Jarida la Afya ya Jamii Tanzania (TPHB) (kwa mfano, utoaji wa taarifa za mikutano kwa vyombo vya habari, utoaji wa taarifa wa matukio maalum kwa vyombo vya habari, usambazaji wa taarifa za matukio kwa barua pepe kwa watu wengi kwa wakati mmoja), lakini TPHB lina uwezo mkubwa wa kipekee wa kushawishi na kuwavutia wasomaji lengwa kwa sababu jarida hili linaaminika na taarifa zake ni za uhakika na kwamba litakuwa sehemu ya machapisho yatakayohifadhi kumbukumbu za kiafya.
2. **Kurekebisha taarifa zenye upotoshaji:** Endapo katika hali ya kutokuwepo kwa chanzo mahususi cha kutoa taarifa za afya zenye kuaminika kwa umma, TPHB litakuwa chanzo muhimu cha kutumainiwa kwa taarifa za kuaminika na zilizo hakikiwa na mamlaka za Afya. Ikumbukwe kuwa njia za mawasiliano, husani kwenye mitandao, zinaweza kutoa taarifa zisizo jitosheleza ama zisizo sahihi.
3. **Kujulisha umma:** Kupitia jarida hili moja kwa moja (na kupitia vyombo vingine vya habari), TPHB litatoa taarifa kwa umma juu ya matishio yanayoweza kuathiri afya ya jamii yaliyopo, nini serikali inafanya ili kudhibiti matishio hayo, na hatua ambazo wananchi wanapaswa kuchukua ili kujikinga ama kujiepusha na matishio hayo.
4. **Kuwa chanzo kikuu kitaifa cha taarifa ya afya ya jamii:** TPHB litakuwa chanzo pekee kwa ajili ya umma kupata taarifa juu ya mapendekezo muhimu kuhusu afya ya jamii.

Zaidi ya hapo, TPHB litasaidia kuongeza uwezo wa kitaifa juu ya afya ya jamii kwa kuimarisha utamaduni wa uchambuzi wa kina wa kisayansi wa takwimu za afya kama msingi wa kuwezesha majadiliano ya kisera juu afya ya jamii. TPHB pia litatoa fursa kwa waandishi wapya wa makala kutoka Kurugenzi za Wizara na Mashirika yake kufanya kazi moja kwa moja na Wahariri wenye ujuzi ili kuongeza uwezo wao wa kuandaa ripoti zinazoweza kuchapishwa na jarida hili.

Jarida la Afya ya Jamii Tanzania pia litasaidia kukuza na kuunganisha taasisi za afya za Tanzania na jumuiya ya kisayansi ya kimataifa, kutoa fursa ya kutambulika kwa wafanyakazi wa afya ya umma kutoka maeneo mbalimbali hata yale ya pembezoni, pamoja na ngazi za kitaifa, kwa kuchapisha kazi zao.

Aidha, ni matumaini ya Wizara kwamba jarida hili litasaidia kuinua hamasa kwa waandishi wa habari na umma kwa ujumla juu afya ya jamii kwa kuchapisha taarifa zenye ukweli ambazo zinaeleweka juu ya mada muhimu zinazozungumuzia afya ya jamii.

Ili kufikia lengo lake, Jarida la Afya ya Jamii Tanzania linatofautiana sana na machapisho mengine kutoka serikalini, taasisi za kitaaluma, na za elimu ya afya, kwakuwa:

- Linatumia lugha nyepesi na rahisi ambayo inaeleweka na wataalamu wa afya na watu wa kawaida;
- Linachapisha taarifa mbalimbali sahihi zenye uthibitisho juu ya sera mbalimbali za serikali, miongozo, ripoti na mapendekezo kwa matumizi ya umma ili kupunguza uvumi, na upotoshaji wa taarifa;
- Kuwa chanzo kikuu cha taarifa za afya kwa vyombo vya habari ili viweze kutumia kwa ajili ya kutoa taarifa sahihi kwa umma.

Wizara inapenda kuchukua fursa hii kuwaelekeza wafanyakazi wake na watafiti kutumia njia hii mpya ya mawasiliano kuchapisha mada mbalimbali za afya ili kuujulisha umma kuhusu maendeleo mapya ya kiafya yanayojitokeza. Wizara pia inawakaribisha wataalamu wa afya, vyombo vya habari, watunga sera, watafiti, wasomi, na umma kwa ujumla kutumia taarifa zinazochapishwa na Jarida la Afya ya Jamii Tanzania ambazo zinaelimisha ili zitumike kuweza kupunguza madhara yananoweza kusababishwa na matishio yanayoweza kuathiri afya ya jamii kwa ajili ya kuboresha afya na ustawi wa kijamii.

Aksanteni,

Katibu Mkuu

WIZARA YA AFYA, MAENDELEO YA JAMII, JINSIA, WAZEE NA WATOTO

Inaugural Editorial

We are extremely pleased and honored to publish this inaugural issue of the Tanzania Public Health Bulletin (TPHB). The bulletin provides a unique forum for sharing new and practical public health information with national and global communities.

The TPHB is a publication of the Ministry of Health, Community Development, Gender, Elderly and Children (MOHCDGEC) that brings to the public recent scientific findings with implications for public health along with the government's messages in order to promote health and minimizing health threats. It will be published quarterly. The initial issues will being English with Swahili translations in a few articles. Later issues will be in both English and Swahili.

The government through the Ministry of Health, Community Development, Gender, Elderly and Children is obliged to ensure that accurate information on health issues and the work of the MOHCDGEC reaches the public promptly to promote health and minimize health threats. TPHB will complement existing channels through which the Ministry communicates public health information by providing authoritative, science-based information in a form that can be easily understood by specialists and non-specialists alike by giving priority to information for immediate and practical use.

The TPHB will contain news, commentary, IDSR and other surveillance data, outbreak investigation reports, guidelines, policies, and results of studies with public health impact. Its content will come from public health professionals, MOHCDGEC Directorates (Departments, Units, Programmes, and its agencies), health researchers, academicians, and other organizations working in public health. Its target audience includes government officials, policy makers, opinion leaders, clinicians, public health practitioners, health educators, researchers, academicians, the media, and the general public.

TPHB is freely accessible on the Internet through the ministry website. Anyone is free to download, print, copy, and distribute TPHB content at no cost; we only ask that the source of the content be acknowledged. There will be neither subscription fees nor author charges, and TPHB will contain no advertising.

TPHB editors will strive to maintain the highest standards of scientific quality and integrity. All articles will be reviewed by the editors and peer reviewers, and will be vetted by government officials before publication.

We aspire to make TPHB your "go-to" source of information on public health issues in Tanzania. We thank you for being part of TPHB success, and will be pleased to receive your comments and contributions.

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EDITOR-IN-CHIEF

Tahariri ya uzinduzi wa jarida

Tunayo furaha na heshima kubwa kuchapisha toleo la kwanza la Jarida la Afya ya Jamii Tanzania (Tanzania Public Health Bulletin –TPHB). Jarida hili linatoa fursa ya kuwa jukwaa la kipekee kwa jamii ya Kitanzania na ya Kimataifa kwa upashanaji taarifa mpya na za muhimu zinazohusu afya ya jamii.

Jarida la Afya ya Jamii Tanzania, ni jarida la Wizara ya Afya, Maendeleo ya Jamii, Jinsia, Wazee na Watoto (MOHCDGEC) ambalo lengo lake ni kuchapisha taarifa za serikali zinazolenga kuboresaha afya na kupunguza matishio ya kiafya yanayoweza kuathiri afya ya jamii ikiwa ni pamoja na matokeo ya tafiti za kisayansi zenye manufaa ya kutatua matatizo ya kiafya kwa jamii. Jarida hili litachapishwa mara nne katika mwaka. Matoleo ya awali ya Jarida hili yatakua kwa lugha ya Kiingereza, ambapo muhtasari wa kila makala utakuwa umetafsiriwa kwa lugha ya Kiswahili. Katika mipango ya muda mrefu, jarida likuwa likitachapishwa kwa lugha za Kingereza na Kiswahili.

Serikali kupita Wizara ya Afya, Maendeleo ya Jamii na Watoto, inao wajibu wa kuhakikisha kuwa taarifa sahihi kuhusu afya na shughuli za wizara zinaufikia umma ili kuboresha afya na kupunguza matishio ya kiafya yanayoweza kuathiri afya ya jamii. Kwa hiyo, ikiwa ni pamoja na mifumo inayotumika kutoa taarifa za wizara kwa umma, Jarida la Afya ya Jamii limelenga kwa kiasi kikubwa kuchangia katika utoaji wa taarifa za afya ya jamii kwa umma. Kwa ujumla, Jarida litatoa taarifa za afya ya jamii zenye uhakika na za kisayansi katika lugha nyepesi inayoeleweka kwa wataalamu na wasio wataalamu wa afya. Taarifa hizi zitatoa kipaumbele kwa kuwezesha umma kuzitumia na kuchukua hatua sitahiki mapema iwezekanavyo.

Jarida la TPHB lichapisha taarifa za ufafanuzi, takwimu za mfumo wa taifa wa ufuatiliaji magonjwa (IDSR) na takwimu za ufuatiliaji wa mifumo mingine, ripoti za uchunguzi ya milipuko ya magonjwa, miongozo na sera za serikali. Aidha jarida litachapisha makala za matokeo ya tafiti za kisanyansi zenye manufaa kwa afya ya jamii. Makala za jarida hili zitatoka kwa wataalmu wa afya ya jamii, Kurugenzi za Wizara ya Afya (Idara, Vitengo, Miradi Msonge na Mashirika yake), watafiti wa afya, wanazuwoni na mashirika mengine yanayofanya kazi zinazolenga afya ya jamii. Wasomaji lengwa wa jarida hili ni pamoja na viongozi wa serikali, watunga sera, watu wenye ushawishi mkubwa katika jamii, wataalamu wa afya, waelimishaji afya, wanazuwoni, watafiti, vyombo vya habari na umma kwa ujumla.

Jarida la Afya ya Jamii Tanzania linapatikana kwa urahisi kwenye mtandao wa Intaneti kupitia tovuti ya wizara. Mtu yeyote anaruhusiwa kupakua, kutoa nakala, kunakili na kusambaza makala za jarida bila kulipa gharama zozote. Hata hivyo, mtumiaji yeyote wa taarifa hizi atalazimika kulitaja jarida la TPHB kama chanzo cha taarifa yoyote anayoisambaza ama kutumia. Hivyo Jarida la Afya ya Jamii Tanzania litapatikana bila malipo kwa wasomaji au wale wanatokata kuchapisha makala zao hawatachangia; na pia jarida halitachapisha matangazo ya kibiashara.

Wahariri wa Jarida la Afya ya Jamii, watahakikisha kuwa jarida linaandaliwa kwa ufanisi kwa kuzingatia viwango vya juu vya ubora na maadili ya kisayansi. Makala zote zitahaririwa na Wahariri, kupitiwa na timu ya watathmini na kuhakikiwa na serikali kabla ya kuchapishwa.

Ni nia yetu kulifanya jarida hili kuwa chanzo kikuu cha taarifa zinazohusu masuala ya afya ya jamii nchini Tanzania. Tunashuruku kwa wewe kuwa sehemu ya mafanikio ya Jarida ya Afya ya Jamii Tanzania, na tuko tayari kupokea maoni ushauri na mawasilisho kutoka kwako.

Jarida la Afya ya Jamii Tanzaia limeidhinishwa na serikali kama chombo cha kutolea habari kwa liseni Namba 00000246, limeodheshwa na kusajiliwa kama jarida kwa namba ISSN 2665-0576 na linapatikana mtandaoni kwenye tovuti ifuatayo: http://moh.go.tz/en/about-tphb

MHARIRI MKUU

Integrated Disease Surveillance and Response (IDSR): Cumulative report for Six Months, January – June 2018 (WHO Week 1-26)

The Ministry of Health, Community Development, Gender, Elderly and Children, Department of Epidemiology and Disease Control

ABSTRACT

BACKGROUND: The Ministry of Health, Community Development, Gender, Elderly and Children (MOHCDGEC) established an Integrated Disease Surveillance and Response (IDSR) strategy in 1998. The strategy is to help public health managers and decision makers improve the detection of and response to the leading causes illness, death and disability in the country. The strategy guides national disease surveillance and response system activities.

METHODS: IDSR disease data is collected from all health facilities (private and government) countrywide and is electronically reported to MOHCDGEC. IDSR data for 13 epidemic diseases are reported immediately, as they occur, and entered as case-based information. Epidemic disease data are analyzed daily and analyzed by time, place and person. In addition, IDSR data are analyzed and reported weekly and monthly. In this paper, we present cumulative IDSR data reported for the6 months, January to June 2018, which are WHO weeks 1 to 26.

RESULTS: All 26 regions of the Tanzania Mainland submitted reports to the national level. Cumulatively, 22160 cases and 118 deaths were reported for all IDSR priority diseases and conditions in the 6 months. Assessing reporting performance, the average timeliness and completeness was 62.6% and 75.0% respectively only in January and March did the average completeness reach the national target of ≥80%. The most commonly reported IDSR disease or condition was animal bite, accounting for about two-thirds (14 329) of the 22160 cases. Animal bites were reported from all 26 regions, with Dar es Salaam, Manyara, Dodoma and Arusha reporting 1678 (11.7%), 1369(9.6%), 1343(9.4%) and 1263(8.8%) cases respectively. March had the high number of reported cases, 4143 (18.7%) out of 22160. For all reported diseases and conditions, the population aged 5 years and over had more reported suspected epidemic prone cases than children aged less than 5, except for Severe Acute Respiratory Illness (SARI). Children aged less than 5 years accounted for 1479 (66.3%) of the 2232SARI cases reported. Of the 118 deaths reported, 48 (40.7%) were attributed to cholera. The disease or condition with the highest case fatality rate (CFR) was suspected rabies; 16 (40%) of the 40 persons reported with suspected rabies died.

CONCLUSIONS: The average timeliness and completeness were below the national target of ≥80%. This might affect the timely detection of diseases and rapid responses. Plans are ongoing to improve timeliness and completeness by upgrading the system used for data collection so as to allow immediate data capture, analysis and response to prevent outbreaks to happen. On the other hand, data show that for the 6 months from January to June 2018, more cases and deaths were caused by animal bites and cholera, respectively, with CFR being high among suspected rabies cases. To address this, the government will continue with decisive preventive strategies including health education to the public as well as reinforcing laws, and bylaws on better hygiene to prevent cholera outbreaks and those requiring vaccination of animals (dogs and cats) to prevent rabies and its spread.

***Abstract in Kiswahili is at the end of each article |** *Muhtasari kwa Lugha ya Kiswahili upo mwisho mwa kila makala*

BACKGROUND

Disease surveillance has been recognized as an effective strategy for increasing the effectiveness of disease control and prevention programs [1]. Disease surveillance systematically collects, collates, and analyzes health data and disseminates the information, along with a scientific interpretation, to health authorities for their action. In 1998, WHO AFRO adopted the Integrated Disease Surveillance and Response (IDSR) strategy.

What is Integrated Disease Surveillance and Response?

IDSR is a comprehensive strategy that aims to provide an evidence base for rational decision-making and for implementing public health interventions that efficiently respond to priority communicable diseases. The IDSR strategy links community, health facility, district, regional and national levels. The information collected through this strategy is intended to inform district health teams so that they can mount timely responses to outbreaks and efficiently set priorities, plan interventions, and mobilize and allocate resources for the control and prevention of communicable and non-communicable diseases.

IDSR strategy in Tanzania

Tanzania adopted the IDSR strategy, and in 2001, developed the first IDSR Guidelines in Tanzania. The strategy initially included 13 priority diseases [2]. In 2011, the Guidelines were revised to incorporate the International Health Regulations (IHR 2005) [3], as well as non-communicable diseases. The strategy has now expanded the scope of diseases to 34 from 13 priority diseases that have been divided into four major groups: (i) Epidemic-prone diseases: cholera, bacillary dysentery (bloody diarrhea), plague, measles, yellow fever, cerebrospinal meningitis (CSM), rabies, animal bite, smallpox, anthrax, viral hemorrhagic fevers (such as Rift Valley fever, Ebola, Marburg, dengue, Lassa fever etc), human influenza (such as avian influenza), severe acute respiratory syndrome (SARS), severe acute respiratory infection (SARI) and Keratoconjuctivitis (eye inflammation). (ii) Diseases targeted for elimination/eradication: acute flaccid paralysis (AFP), neonatal tetanus, trachoma, and onchocerciasis (river blindness). (iii) Diseases of public health importance: diarrhea in children aged <5years, pneumonia in children aged <5 years, malaria, typhoid, trypanosomiasis (sleeping sickness), tick-borne relapsing fever, tuberculosis (multi-drug-resistant/ extensively drug-resistant (MDR/XDR), HIV/AIDS (new cases), sexually transmitted infections, leprosy, lymphatic filariasis, schistosomiasis and soil-transmitted helminthiases. (iv) Others: Diabetes mellitus, high blood pressure, cataract, maternal deaths, road traffic accidents and cancers [4].

In addition, IDSR also reports, on a quarterly basis, diseases from specific programmes such as tuberculosis and leprosy, HIV, and AIDS, which are also reported through National Tuberculosis and Leprosy and National AIDS Control programmes, respectively.

In Tanzania, the IDSR database is hosted at the Department of Epidemiology and Disease Control of the Ministry of Health, Community Development, Gender, Elderly and Children.

In an effort to strengthen real-time surveillance and to improve the timeliness and data quality in the country, in 2014, the Ministry in collaboration with partners established an electronic system of reporting IDSR diseases from health facilities using mobile phone technology (e-IDSR). The e-IDSR specifically uses Unstructured Supplementary Service Data, which is commonly used in mobile money. This code is pre-paid; thus the user does not incur any charges. Currently, the report is sent through three main telephone networks operating in Tanzania: Vodacom, Tigo and Airtel. The reports submitted are stored in the District Health Information Software system (DHIS2), which can be accessed by officials at district, regional and national level.

To date, e-IDSR has been established in 25 out of 26 regions in the Tanzania mainland, and plans to complete the remaining region, Mtwara, are ongoing. There is a commitment from GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit) to support roll out of e-IDSR in Mtwara region. The roll out of e-IDSR in the 24 regions has been supported by various Development and Implementing Partners which include World Health Organization, The U.S. President's Emergency Plan for AIDS Relief (PEPFAR), East African Public Health Laboratory Networking -World Bank Project, Centers for Disease Control and Prevention (CDC) through Global Health Security, The United States Agency for International Development (USAID), Research Triangle International (RTI) and Maternal and Child Survival Program (MCSP).

METHODS

In the present paper, we report analyzed IDSR diseases data which is captured and reported to Ministry of Health for the6 months from January to June 2018.The dataset was obtained from the IDSR database (derived from DHSI2 platform) and cleaned and analyzed using SPSS version 20. The analysis was performed to determine the cumulative number of cases and deaths reported and cross-tabulations were performed to observe the distribution by age group, sex, region and month. The probability of specific infections or conditions being fatal (case fatality rate) was calculated. Timeliness and completeness, which are key WHO indicators, were calculated to assess the overall and regional surveillance system performances. Timeliness is described as the proportion of all expected IDSR summary reports (weekly or monthly) that were submitted to the national database on time (due date) while completeness is described in this study as the proportion of all expected IDSR summary reports (weekly or monthly) that were submitted to the national database. The Ministry has set target of *80%* of timeliness and completeness for reporting.

RESULTS

Health Facilities Performance

All the 26 regions from Tanzania mainland submitted the reports to the national level. The overall performance was 62.6% and 75.0% for timeliness and completeness respectively. All monthly averages for timeliness were below the set national target of ≥80%), whilst, the average completeness in January and March met the national target. Table 1 shows the overall average timeliness and completeness of health facilities reporting by month.

Table 1: Average Timeliness and Completeness of Health Facility Reporting by Month, January – June 2018

Months	% of Timeliness	% of Completeness
January	68.4	81.1
February	66.5	76.3
March	64.2	80.0
April	67.4	78.5
May	53.4	67.9
June	55.7	66.0
Overall Performance	62.6	75.0

Data has shown that the national target for timeliness of ≥80% was not met in any week. The target for completeness was met in only 9 out of 26 weeks (weeks 3, 4, 8, 11, 12, 13, 14, 15, and 16). Reporting was most delayed in weeks 9 and 21. Figure 1 below describes the trend of timeliness and completeness of health facility reporting from week 1 – 26.

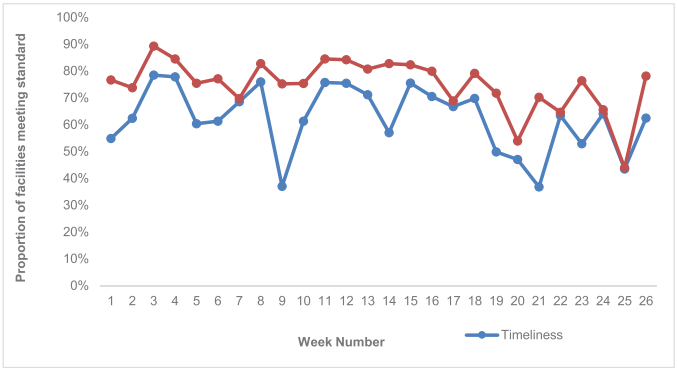

Figure 1: Timeliness and Completeness of Health Facilities reporting by week, January-June 2018 (week 1 – 26)

The overall average of timeliness and completeness of health facilities reporting by region for the 6 months show that only three regions, Lindi, Njombe and Shinyanga, had both their overall average of timeliness and completeness met the national target of ≥ 80%.Figure 2 below show timeliness and Completeness of Health Facility Reporting from the 26 regions.

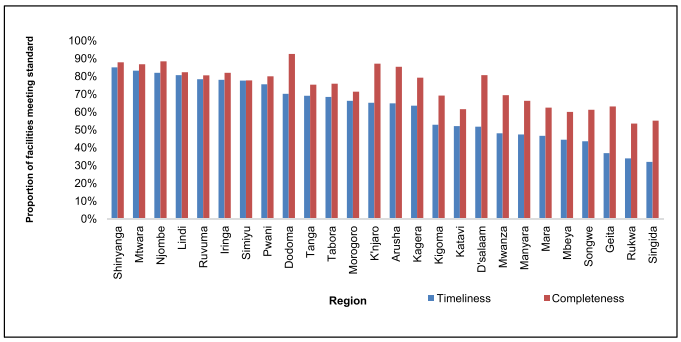

Figure 2: Timeliness and Completeness of Health Facility Reporting from the 26 regions, January – June 2018

On the other hand, there is no specific trend or pattern of timeliness and completeness across the months from health facilities in all the regions as shown in Table 2 below.

Table 2: Proportions of Health Facilities Meeting Reporting Standards, by month by Region, January – June 2018

Region	January		February		March		April		May		June		Overall	
	Timeliness (%)	Completeness (%)	Timeliness (%)	Completeness (%)	Timeliness (%)	Completeness (%)	Timeliness (%)	Completeness (%)	Timeliness (%)	Completeness (%)	Timeliness (%)	Completeness (%)	Timeliness (%)	Completeness (%)
Arusha	68.0	91.1	69.9	84.3	62.3	91.7	71.0	88.8	61.6	85.0	57.2	69.5	**65.0**	**85.1**
Dodoma	76.7	94.2	76.0	92.2	66.8	96.1	74.4	95.2	62.6	94.2	67.6	82.0	**70.7**	**92.3**
D'salaam	58.7	88.0	56.3	81.0	44.3	81.4	54.3	79.5	47.4	78.9	52.5	75.3	**52.3**	**80.7**
Geita	41.4	70.2	49.0	70.8	34.8	65.2	42.7	69.7	32.8	61.8	22.3	40.8	**37.2**	**63.1**
Iringa	75.9	83.8	65.3	71.2	80.3	82.2	81.9	85.9	84.4	87.1	78.4	80.4	**77.7**	**81.8**
Kagera	61.3	81.0	64.1	77.5	58.7	81.4	75.2	86.1	59.7	76.0	64.2	73.4	**63.9**	**79.2**
Katavi	64.3	71.5	64.1	71.9	52.9	67.9	51.5	59.5	38.1	47.0	44.9	53.2	**52.6**	**61.8**
Kigoma	60.9	79.7	61.4	73.7	55.4	79.2	59.9	72.8	39.5	57.9	42.2	51.9	**53.2**	**69.2**
K'njaro	69.5	91.9	69.5	84.3	61.7	93.3	73.6	91.9	57.8	84.8	61.8	75.4	**65.7**	**86.9**
Lindi	91.7	91.7	64.6	64.6	86.1	86.1	84.7	84.0	87.9	87.9	65.6	76.9	**80.1**	**81.9**
Manyara	53.4	76.7	58.2	74.9	43.8	69.9	53.0	69.3	39.3	56.8	39.2	51.0	**47.8**	**66.4**
Mara	57.0	75.0	55.5	66.1	42.6	66.8	55.3	68.2	30.0	45.3	44.5	56.3	**47.5**	**63.0**
Mbeya	54.0	68.5	49.9	61.7	40.9	64.3	52.8	66.9	31.0	47.1	42.2	53.8	**45.1**	**60.4**
Morogoro	76.6	78.6	80.0	82.2	81.8	85.2	84.8	86.5	37.4	48.1	40.5	49.9	**66.9**	**71.8**
Mtwara	82.5	86.8	86.1	89.3	82.0	85.5	83.1	86.1	82.0	86.2	84.0	87.4	**83.3**	**86.9**
Mwanza	45.9	68.3	53.8	68.6	44.4	74.8	56.7	74.6	39.7	63.2	50.5	67.2	**48.5**	**69.5**
Njombe	72.8	79.5	80.3	89.0	85.1	88.3	85.4	88.7	81.9	93.5	85.4	90.5	**81.8**	**88.3**
Pwani	89.8	91.3	87.8	90.9	88.4	90.4	88.3	89.4	46.4	57.1	56.5	63.8	**76.2**	**80.5**
Rukwa	40.0	61.5	41.5	58.1	35.8	63.0	42.8	59.8	22.8	40.1	23.4	39.2	**34.4**	**53.6**
Ruvuma	90.2	91.8	58.3	60.1	89.8	91.5	76.9	79.3	78.3	80.2	73.8	77.5	**77.9**	**80.1**
Shinyanga	83.4	83.4	78.7	84.3	82.4	86.0	87.1	90.3	90.0	90.4	88.2	92.7	**85.0**	**87.9**
Simiyu	86.3	86.3	71.8	71.8	86.0	86.3	83.4	83.4	81.7	82.0	53.4	53.4	**77.1**	**77.2**
Singida	47.8	75.1	45.3	66.3	31.9	60.3	33.8	56.4	16.8	35.8	20.3	40.1	**32.7**	**55.7**
Songwe	51.5	74.4	50.7	66.9	45.1	67.1	41.5	55.4	30.3	47.2	44.9	58.1	**44.0**	**61.5**
Tabora	71.3	71.3	75.2	75.2	72.1	76.1	56.3	73.9	62.1	78.6	74.0	79.0	**68.5**	**75.7**
Tanga	79	83.4	80.3	84.3	78.9	82.4	73.2	78.3	49.6	58.9	55.9	67.0	**69.5**	**75.7**
Overall	**68.4**	**81.1**	**66.5**	**76.3**	**64.2**	**80**	**67.4**	**78.5**	**53.4**	**67.9**	**55.7**	**66**	**61.7**	**71.4**

Distribution of cases and deaths

The numbers of suspected cases and deaths caused by reportable conditions are shown in Table 3. There were 22 160 cases and 118 deaths reported from all regions of Tanzania mainland for the 6 months beginning January 2018. Most cases were animal bites: 14 329 (65%). More cases were reported among males than females. Among cases in children aged <5 years, 57% were among males, and males accounted for 71% of the 42 deaths. Among cases in persons aged ≥5 years, 62% were among males, and males accounted for 79% of the 76 deaths.

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

Condition		Total	Below 5yrs Male	Below 5yrs Female	Above 5yrs Male	Above 5yrs Female
Animal bite	Cases	14329	2022	1598	6556	4153
	Deaths	2	0	0	1	1
Acute flaccid paralysis	Cases	75	19	14	29	13
	Deaths	2	0	0	2	0
Anthrax	Cases	149	41	23	61	24
	Deaths	2	0	0	2	0
Bloody diarrhea	Cases	2476	378	297	1096	705
	Deaths	0	0	0	0	0
Cholera	Cases	2467	384	292	1112	679
	Deaths	48	7	2	30	9
Cerebrospinal meningitis	Cases	18	1	5	10	2
	Deaths	3	1	0	2	0
Keratoconjunctivitis	Cases	2	0	1	1	0
	Deaths	0	0	0	0	0
Measles	Cases	144	42	30	55	17
	Deaths	0	0	0	0	0
Neonatal tetanus	Cases	2	0	0	2	0
	Deaths	0	0	0	0	0
Rabies	Cases	40	5	4	27	4
	Deaths	16	0	2	13	1
Severe acute respiratory illness	Cases	2232	879	600	425	328
	Deaths	45	22	8	10	5
Dengue fever	Cases	226	3	4	141	78
	Deaths	0	0	0	0	0
Total	Cases	22160	3774	2868	9515	6003
	Deaths	118	30	12	60	16

Table 4 below shows the number of cases and deaths caused by immediate reportable conditions each month during January through June, 2018. Most cases were reported every month, with the exception of neonatal tetanus and Keratoconjuctivitis, which were only reported in February and March, respectively. The monthly totals of reported cases varied from 2675 in January to 4143 in March. Of 118 reported deaths, 48 (41%) were caused by cholera whereas 45 (38%) by SARI. The condition with the highest case fatality rate was suspected rabies; 16 (40%) of 40 persons with suspected rabies died.

Table4: Number of cases and deaths caused by reportable conditions, by month, January - June 2018

Condition	January		February		March		April		May		June		Total		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	CRF %
AFP	10	0	13	1	21	1	13	0	8	0	10	0	75	2	2.7
Animal bites	1488	0	2036	0	2693	0	2778	0	2542	2	2792	0	14329	2	0.01
Anthrax	25	0	15	0	36	0	61	2	3	0	9	0	149	2	1.3
Dengue fever	8	0	14	0	40	0	79	0	85	0	0	0	226	0	-
Bloody diarrhea	530	0	611	0	654	0	372	0	237	0	72	0	2476	0	-
CSM	0	0	2	0	5	1	5	2	2	0	4	0	18	3	16.7
Cholera	326	9	743	15	142	0	155	1	639	16	462	7	2467	48	1.9
Cholera	326	9	743	15	142	0	155	1	639	16	462	7	2,467	48	1.9
Keratoconjuctivitis	0	0	0	0	2	0	0	0	0	0	0	0	2	0	-
Measles	17	0	16	0	41	0	21	0	10	0	39	0	144	0	-
Neonatal Tetanus	0	0	2	0	0	0	0	0	0	0	0	0	2	0	-
Rabies	6	4	4	1	11	6	6	1	5	1	8	3	40	16	40.0
SARI	265	4	488	6	498	6	403	5	286	8	292	16	2232	45	2.0
Total	**2675**	**17**	**3944**	**23**	**4143**	**14**	**3893**	**11**	**3817**	**27**	**3688**	**26**	**22160**	**118**	

During the 6 months beginning January 2018, a total of 22 160 cases of reportable conditions were reported, of which two-thirds were animal bites (Table 5). Bloody diarrhea was reported from 23 of the 26 regions; Lindi reported 575 (23%) of the 2476 cases. Cholera was reported from 9 of 26 regions; Rukwa reported 823 (33%) of the 2467 cases. All 226 cases of dengue fever were reported in Dar es Salaam and both cases of Keratoconjuctivitis were reported from Morogoro region. Figure 3: Below illustrates the distribution of suspected cases of different illnesses reported during the period of 6 months in pictorial format. Most regions had more than one reported epidemic disease.

Table 5: Number of reported cases of illnesses by region, January - June 2018

Region	Acute flaccid paralysis	Animal Bites	Anthrax	Bloody diarrhea	Cerebrospinal Meningitis	Cholera	Dengue fever	Keratoconjuc-tivitis	Measles	Neonatal tetanus	Rabies	SARI	Total
Arusha	4	1263	133	35	1	526	0	0	18	0	1	955	**2936**
Dodoma	1	1343	0	15	0	551	0	0	0	0	3	47	**1960**
D'salaam	6	1678	1	3	0	0	226	0	5	0	0	298	**2217**
Geita	1	469	0	0	1	0	0	0	0	0	2	0	**473**
Iringa	0	104	0	17	0	70	0	0	1	0	0	0	**192**
Kagera	2	630	1	3	6	0	0	0	10	0	2	0	**654**
Katavi	3	170	0	11	0	0	0	0	7	0	1	0	**192**
Kigoma	4	466	0	0	0	163	0	0	6	0	2	13	**654**
K'njaro	4	984	11	8	1	0	0	0	7	0	3	0	**1018**
Lindi	1	116	0	575	0	0	0	0	0	0	0	0	**692**
Manyara	1	1369	3	40	0	9	0	0	2	0	6	251	**1681**
Mara	1	615	0	11	0	0	0	0	4	0	0	0	**631**
Mbeya	0	566	0	8	1	0	0	0	2	0	1	0	**578**
Morogoro	6	633	0	255	2	11	0	2	5	0	3	0	**917**
Mtwara	6	31	0	391	0	0	0	0	17	0	0	374	**819**
Mwanza	3	849	0	0	2	0	0	0	0	0	1	294	**1149**
Njombe	0	155	0	157	1	0	0	0	1	0	1	0	**315**
Pwani	4	440	0	67	0	0	0	0	32	1	2	0	**546**
Rukwa	4	227	0	7	0	823	0	0	5	0	1	0	**1067**
Ruvuma	0	413	0	93	0	254	0	0	13	0	2	0	**775**
Shinyanga	2	146	0	40	0	0	0	0	0	0	3	0	**191**
Simiyu	7	212	0	143	1	0	0	0	0	0	0	0	**363**
Singida	1	283	0	8	2	0	0	0	1	1	4	0	**300**
Songwe	1	168	0	14	0	60	0	0	1	0	0	0	**244**
Tabora	0	500	0	42	0	0	0	0	0	0	1	0	**543**
Tanga	13	499	0	533	0	0	0	0	7	0	1	0	**1053**
Total	**75**	**14329**	**149**	**2476**	**18**	**2467**	**226**	**2**	**144**	**2**	**40**	**2232**	**22160**

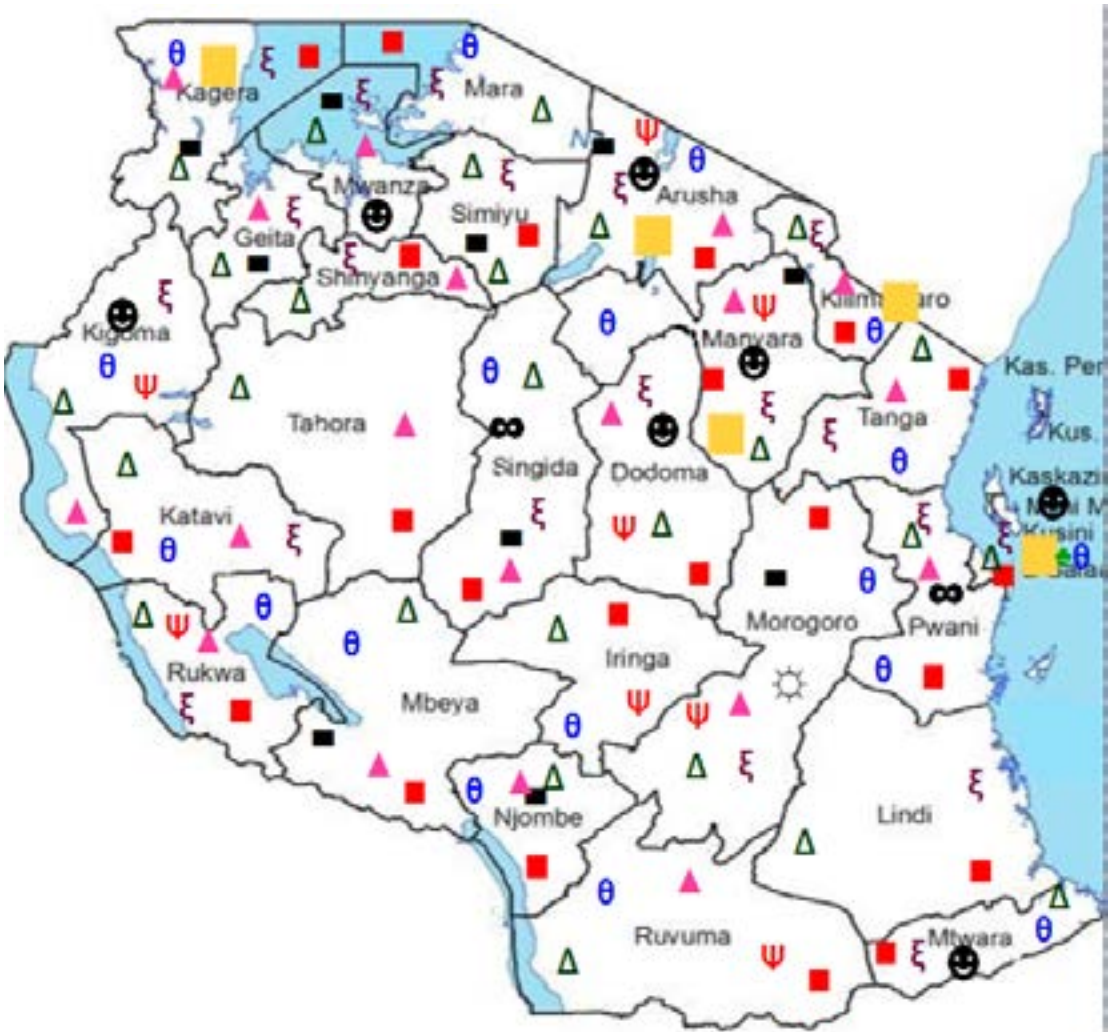

Figure 3: Incidence of Conditions from January – June 2018

KEY			
Ψ	Cholera	▲	Rabies
■	Cerebrospinal meningitis	ξ	Acute flaccid paralysis
θ	Measles	■	Anthrax
●	SARI	■	Diarrhea with blood
♣	Dengue	∞	Neonatal tetanus
Δ	Animal bite	☼	Keratoconjuctivitis

Lessons learnt

The reported data from health facilities in Tanzania mainland for the 6 months from January to June 2018 showed that;

- The average performance of health facilities reporting at national level was below the government standard; as the reported timeliness and completeness were less than 80% except for completeness in the month of January and March.
- Most cases reported were animal bites, which were reported from all 26 regions. Cases of animal bites were reported in every month, but data did not show types of associated animals. Cases of bloody diarrhoea, cholera and severe acute respiratory illness (SARI) also contributed many of the total number of reported cases.
- The numbers of cases of diarrhoea with blood (dysentery) was high. It has been noted that most cases originated from outpatient clinics where information collected was based on information from patients without laboratory confirmation. It is likely that a standard case definition was not used.
- Based on the monthly totals, the month of March had the highest numbers of cases reported.
- Overall, a high number of cases and deaths were reported among males and most were reported among persons aged ≥5 years.
- Of 118 reported deaths, 48 (41%) and 45 (38%) were caused by cholera and SARI respectively.
- Case fatality rate was high among rabies suspected cases, i.e. out of 40 cases, 16 were fatal, giving a CFR of 40%. This indicates that rabies, which is spread through bites or scratches by an infected animal, which most commonly in African setting infections is astray dog, needs to be better controlled by reinforcement of laws requiring vaccination of pets to prevent the spread of the disease. In addition, the population should be educated on first aid for bitten persons. Any bite by a puppy or stray dog not known to be vaccinated against rabies should be washed for 15 minutes with soapy water to try to neutralize viral particles. Afterwards, the bitten person should seek medical attention at nearby health facility.

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Mkakati wa Ufuatiliaji na Udhibiti wa Magonjwa ya Mlipuko (IDSR): Ripoti ya miezi Sita, Januari-Juni 2018 (wiki ya 1 hadi 26 za Shirika la Afya Duniani (WHO)

Muhtasri

UTANGULIZI: Wizara ya Afya, Maendeleo ya Jamii, Jinsia, Wazee na Watoto ilianzisha Mkakati wa Ufuatiliaji na Udhibiti wa Magonjwa ya Mlipuko (Integrated Disease Surveillance and Response-IDSR) mwaka 1998. Mkakati huu ulikusudia kuwawezesha mameneja wa afya ya jamii na watoa maamuzi kuboresha utambuzi na kutoa suluhisho kwa vyanzo vikuu vinavyoweza kusababisha magonjwa, vifo na ulemavu nchini. Mkakati huu unatoa dira ya shughuli za ufuatiliaji wa magonjwa na mfumo wa mwitikio kutoa suluhisho Kitaifa.

MBINU: Taarifa za magonjwa katika mpango wa IDSR hukusanywa kutoka kwenye vituo vyote vya afya nchini (binafsi na serikali) na kutumwa Wizara ya Afya, Maendeleo ya Jamii, Jinsia, Wazee na Watoto kwa njia ya kielektroniki. Takwimu za magonjwa ya mlipuko 13 katika mpango wa IDSR huripotiwa kwa haraka, pale magonjwa yanapotokea, na taarifa zake huingizwa kwenye kanza data (database). Takwimu za magonjwa ya mlipuko huchambuliwa kila siku kufuata vigezo vya wakati, mahali na watu. Takwimu za IDSR pia huchambuliwa na kuripotiwa kila wiki na kila mwezi. Hivyo, katika makala hii, tunawasilisha takwimu za IDSR zilizopatikana kwa kipindi cha miezi 6, Januari hadi Juni 2018, ambayo ni wiki ya 1 hadi 26 za Shirika la Afya Duniani (WHO).

MATOKEO: Mikoa yote 26 ya Tanzania Bara iliwasilisha ripoti kwa ngazi ya kitaifa. Kwa ujumla katika miezi 6, katika mpango wa IDSR kwa magonjwa yanayopewa kipaumbele kuliripotiwa, matukio 22,160 ya ugonjwa na vifo 118. Katika kupima utendaji bora wa utoaji taarifa, kwa wastani ufanisi ulikuwa asilimia 62.6 na ukamilifu ulikuwa asilimia 75.0. Kwa mwezi Januari na Machi, wastani wa ukamilifu ulifikia lengo la kitaifa la asilimia 80 au zaidi (≥ 80%). Katika kipindi hiki, matukio ya ugonjwa yaliyoripotiwa kwa wingi katika mpango wa IDSR yalikuwa yale ya kuumwa na wanyama, ambapo matukio hayo yalikuwa karibu theluthi mbili (14,329) ya matukio yote 22,160 ya magonjwa. Inaonyesha kuwa taarifa za matukio ya kuumwa na wanyama zilitolewa kutoka mikoa yote 26. Pamoja na taarifa hizo, mikoa ifuatayo iliongoza kuwa na matukio mengi ya kuumwa na wanyama: Dar es Salaam 1678, (11.7%) Manyara 1369 (9.6%) Dodoma 1343 (9.4%) na Arusha 1263 (8.8%). Ukifuatilia matukio kwa miezi, mwezi wa Machi kwa ujumla ulikuwa na idadi kubwa ya matukio yaliyoripotiwa, ambapo kulikua na matukio 4143, au asilimia 18.7 ya matukio yote 22,160. Kwa matukio yote ya magonjwa yaliyoripotiwa, kundi lililoathirika zaidi ni la watu wenye umri wa kuanzia miaka 5, na kuwazidi hata wale watoto wenye umri wa chini ya miaka 5, isipokuwa kwa ugonjwa wa Mafua Makali (Severe Acute Respiratory Illness, SARI). Watoto wenye umri wa chini ya miaka 5 waliripotiwa kuwa na matukio 1479 au asilimia 66.3 ya matukio yote 2232 yatokanayo na SARI. Upande wa vifo, kati ya vifo

118 vilivyoripotiwa, 48 au asilimia 40.7 ya vifo vilitokana na ugonjwa wa kipindupindu. Ugonjwa ambao ulionekana kuwa na kiwango cha juu cha uwezekano wa kuua washukiwa (case fatality rate, CFR) ni ugonjwa wa kichaa cha mbwa (rabies) ambapo wagonjwa 16 sawa na asilimia 40 kati ya shukiwa 40 kuwa na ugonjwa huo walikufa.

HITIMISHO: Kwa ujumla, wastani wa ufanisi na ukamilifu wa utoaji taarifa kutoka vituo vya kutolea huduma ulikuwa chini ya lengo la kitaifa la asilimia 80 na zaidi (≥ 80%). Hii inaweza kuathiri utambuzi wa magonjwa kwa wakati na kutokuwa na mwitikio wa haraka. Serikali inamipango inayoendelea ya kuboresha ufanisi na ukamilifu wa taarifa zinazotumwa kwa kuimarisha mfumo unaotumika kwa ukusanyaji wa takwimu ili kuwezesha upatikanaji wa takwimu kwa wakati, kufanya uchambuzi na kuwa na mwitikio wa haraka ili kuzuia kuzuka kwa milipuko ya magonjwa kutokea. Kwa upande mwingine, twakimu zinaonyesha kwamba kwa miezi 6 kuanzia mwezi wa Januari hadi Juni 2018, matukio mengi ya ugonjwa na vifo yalikua yanasababishwa na kuumwa na wanyama na na ugonjwa kwa kipindupindu. Aidha uwezekano wa mgonjwa kupoteza maisha (CFR) ulikuwa mkubwa kwa wagonjwa waliokuwa wanashukiwa kuwa na ugonjwa wa kichaa cha mbwa. Ili kukabiliana na hili, Serikali itaendelea na mikakati yake thabiti ya kujikinga ikiwa ni pamoja na kutoa elimu ya afya kwa umma ikijumuisha na uimarishaji wa sheria, na sheria ndogo ndogo juu ya usafi bora ili kuzuia kuzuka kwa milipuko ya ugonjwa wa kipindupindu na kutoa chanjo kwa wanyama (mbwa na paka) kuzuia ugonjwa wa kichaa cha mbwa na kuenea kwake.

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Is Tanzania prepared to respond and prevent Ebola Outbreak?

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ABSTRACT

BACKGROUND: An Ebola Virus Disease (EVD) outbreak is a real public health threat in Tanzania bearing in mind that the country borders the Democratic Republic of Congo (DRC), where there is an ongoing 2018 Ebola outbreak. Preparedness is key so as to ensure countries are ready to effectively and safely detect, investigate and report potential EVD. We present Tanzania readiness activities towards EVD, which have been done under the coordination of the Ministry of Health, Community Development, Gender, Elderly and Children (MOHCDGEC).

ACTIONS TAKEN: The MOHCDGEC used the WHO Ebola Virus Disease Consolidated Preparedness Checklist (WHO Checklist) and risk assessment to identify gaps for planning and prioritization. The WHO Checklist assessed the existence of coordination, trained Rapid Response Team (RRT), infection prevention and control (IPC), public awareness and community engagement, case management including safe dignified burial, epidemiological surveillance, and contact tracing. The risk assessment identify the regions with a high risk which included whether it borders neighboring regions in DRC and the trafficking of high load of passengers in the Point of Entry. The Ministry also used WHO external evaluators so as to ensure quality of results.

OUTCOMES: Eight regions were selected as priority regions, which included Kigoma, Kagera, Mwanza, Songwe, Rukwa, Mbeya, Katavi and Dar es Salaam. Generally, WHO Checklist scores indicated that gaps exist in the priority regions and that they need to improve their preparedness status. Areas that scored below 25% included rapid response systems, epidemiological surveillance, contact tracing, and safe and dignified burial. As a result, a total of 438 health care workers (HCWs) have been trained; 190 on RRT, 106 on case management, and over 142 on event based surveillance and contact tracing. Over 122 community health workers have also been trained on event-based surveillance and contact tracing. Risk communication guidelines were developed and distributed to all priority regions. Medical equipment and supplies, personal protective equipment (PPE), standard case definitions (SCD), factsheets, and laboratory standard operations procedures (SOPs) on Ebola sample collection, storage, and transportation were also distributed to priority regions. Public awareness creation and sensitization campaigns were implemented through media, social networks, and Ebola National Walks campaigns; moreover targeted trainings were done for the media, musicians, and community groups.

CONCLUSIONS: With the existence of porous borders and constant movement of travelers from DRC to Tanzania, the likelihood of having an EVD outbreak in the country is high. Tanzania is on high alert and is operationally prepared to respond to and prevent an EVD outbreak in the country. The ongoing initiatives will clearly increase the country readiness scores to a target required.

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BACKGROUND

Ebola Virus Disease (EVD) is a rare but often fatal disease most commonly affecting people and nonhuman primates like monkeys, gorillas, and chimpanzees. Ebola viruses belong to the family Filoviridae and genus Ebolavirus, which has five identified species: Zaïre, Bundibugyo, Sudan, Reston and Taï Forest. The first three, Bundibugyo ebolavirus, Zaïre ebolavirus, and Sudan ebolavirus, have been associated with large outbreaks in Africa. Reston virus is not known to cause disease in humans [1, 2].

EVD was first discovered in 1976 in two simultaneous outbreaks, one in Nzara, South Sudan, and the other in Yambuku, Democratic Republic of the Congo (DRC). The outbreak in DRC occurred in a village near the Ebola River, from which the disease derives its name [1, 2]. Since then, the virus has been causing outbreaks in various countries in Africa with DRC and Uganda having more episodes. The predominant species of the majority of the outbreaks is Zaïre ebolavirus [1, 2]. The 2013–2016 outbreak in West Africa

was the largest and most complex since the virus was first discovered in 1976. There were more cases and deaths in this outbreak than in all others combined. It also spread between countries, starting in Guinea then moving across borders to Sierra Leone, Liberia, Italy, UK, Spain, USA and Nigeria [1, 2].

As of August 2018 to date, there is an ongoing EVD outbreak in North Kivu Province, DRC. This outbreak marks its tenth wave with a total of 274 cases and 174 deaths and a case fatality rate of 63.5%, which means that for every three patients with EVD, approximately two die [3]. Therefore, the threat in East African countries including Tanzania in terms of case importation is real. We present how Tanzania, through the MOHCDGEC, is operationally positioned and prepared to prevent and respond to EVD entry in the country.

ACTION TAKEN

Rapid Assessment

MOHCDGEC conducted a rapid risk assessment to identify priority regions and their status of preparedness. Criteria used in selecting regions included a border with DRC and high numbers of visitors from DRC. The assessment included interview with key National Task Force (NTF) sub-committees representatives including, site visits to observe the actual preparedness, and record review.

Preparedness Assessment

Preparedness was assessed with the assistance of an external evaluator using the WHO Checklist [4]. The WHO Checklist focused on the following components: coordination, RRT, public awareness and community engagement, infection prevention and control (IPC),

case management including safe dignified burial, epidemiological surveillance, contact tracing, laboratory, port of entry (PoE), budget and logistics. The assessment was based in terms of availability or presence of personal protective equipment (PPE), chlorine, standard EVD isolation units, an area Ebola Treatment Centre (ETC) or designated facility for an ETC, an ambulance, burial areas, a rapid response team (RRT), triple packaging for sample storage and transportation, a Regional Ebola Task Force, information education communication materials, a regional EVD contingency plan, thermo-scanners, and a port of entry (PoE) screening protocol.

OUTCOMES

Risk Assessment

The likelihood of an EVD outbreak in Tanzania is high given the porous borders with DRC and the constant movement of travelers between the two countries. The impact of an imported EVD case in Tanzania is estimated to be very high due to lack of previous experience in managing the disease and a weak health care system to manage cases.

Eight regions were selected as priority regions: Kigoma, Kagera, Mwanza, Songwe, Katavi, Mbeya, Rukwa and Dar es Salaam (Figure 1).

Figure 1: Regions at high-risk for an EVD outbreak

Level of Preparedness

Preparedness was moderate, needed to improve in all the prioritized regions. All regions had minimum of five sets of PPE in their region and adequate chlorine for one week. Only one region had a standard ETC/ isolation unit, but all had identified areas to establish an isolation unit if necessary. Identification of burial places was a challenge as only two regions managed to identify burial place for Ebola cases. Information education communication materials were missing in all high-risk regions, and functional thermo-scanners were available in only three high-risk regions. Only one region had managed to update its Ebola Contingency Plan.

Figure 2 summarizes the preparedness as assessed by an external evaluator using the WHO Checklist. The scores for the capacity and readiness for RRT, cases management- safe dignified burial, epidemiological surveillance and contact tracing were below 25%. To this effect, capacity building has been done for health workers, as well as community health workers/volunteers. The government has established a 24/7 hotline to ensure existing emergency numbers that can manage alerts, and trained staff on alert processes. To ensure appropriate staffing and a plan for escalation if needed, the ministry has identified human resources for community surveillance (community health workers, volunteers, NGOs, traditional healers, community leaders, etc.). In addition the government had disseminate simplified case definitions for community use.

Figure 2: Score of Operational Readiness for specific components

Coordination

All EVD outbreak preparedness activities are being coordinated through the Public Health Emergence Operation Centre, which at this point in time, continues to monitor the EVD outbreak in DRC with the intention of collecting and analyzing information to improve resource mobilization and hence ensure adequate EVD preparedness at all levels.

The Chief Medical Officer (CMO) is fully in charge in overseeing EVD preparedness at all levels through the NTF, which meets regularly, usually every other week. The NTF is co-chaired by the CMO and the WHO Country Representative. This NTF serves as decision-making body regarding the implementation of preparedness activities and is made up of a multi-sectoral and trans-disciplinary workforce of experts from the government and non-government sectors. All personnel involved in the preparedness phase are attached to sub-committees relating to their individual subject of expertise regardless of the organization type.

Rapid Response Teams

The presence of trained and equipped RRTs is one of the important capacities for EVD response that needs to be well developed during preparedness. With regard to EVD preparedness in Tanzania, the capacity for RRTs in the country was found to be limited at 17% in June 2018. Therefore, training aimed at equipping teams from national level and high-risk regions. A total of 40 experts from the national level and 150 from seven regions were involved in training that formed national and regional RRTs respectively and the regional RRT acted as trainers for their individual regions. About 20 to 35 members from each of the regions were trained. The training included case management, specimen acquisition and transport, surveillance, contact tracing, decontamination, outbreak investigation, and social mobilization. Team leaders have

been identified and assigned, and the roles and responsibilities for the activation and coordination of the RRT in response to potential EVD cases have been done. Plans are underway to conduct simulation exercise.

Case Management and Infection Prevention and Control (IPC)

The EVD contingency plan also prioritised capacity development training for case management teams of health workers identified to be ready to work in the ETCs. Teams also include health workers to support decontamination and other IPC activities as well as transportation and burial of the deceased. A total of 85 participants from three regions: Mwanza (35) Kagera (25) and Kigoma (25) undertook a 4-day training on case management and IPC measures. In addition, the government managed to designate and set up at least one facility with adequate supplies and isolation room(s), ready to provide care to a patient or cluster of patients with suspected EVD.

Laboratory

Twenty-one (21) laboratory technicians from Kigoma, Kagera, Mwanza and Dar es Salaam were trained on sample collection, transportation and management. Three laboratories have been capacitated to be functional ready to confirm Ebola virus, and these include National Health Laboratory Quality Assurance and Training Center, Kilimanjaro Christian Research Institute of Kilimanjaro Christian Medical Centre and National Institute for Medical Research, Mbeya Centre.

Public Awareness and Community Engagement

Community awareness and social mobilization trainings were conducted targeting influential people such as religious leaders. Regional as well as District Health promotion coordinators and local journalists were trained on EVD whereby 126 individuals from Mwanza, Kigoma, Kagera and Dar se Salaam were involved. The training also focused the importance of community based EVD reporting and surveillance. The community based surveillance and contact tracing were areas that were given priority among HCWs and community health workers in high-risk regions and districts. Over 142 HCWs and 122 community health workers were trained on community based surveillance and contact tracing in Dar es Salaam and Kigoma. This workforce will work hand-in-hand with respective community leaders and trained RRT to support appropriate response should the EVD importation occur across borders.

Travel/Point of Entry

The Ministry has ensured the PoEs are well equipped by ensuring a contingency plans are in place at all designated PoE (airports, ports and ground crossings). Efforts are also made in, identifying referral health-care facilities for each PoE and developing SOPs to safely identify cases. In addition, the government has put in place a system to manage and refer potential EVD cases from PoE to designated hospitals or isolation facilities, including the identification of ambulance services.

Each PoE has trained a team, proportional to the volume and frequency of travellers, which is able to detect, assess and correctly manage any potential EVD cases. Mechanisms are in place for each PoE to have immediate access to equipment and supplies (PPE, infrared thermometers, cleaning and disinfecting products, observation/isolation facilities and an ambulance, depending on location). A review and a test of the current communication system between PoE health authorities and conveyance operators, and between PoE health authorities and national health surveillance systems have been done and are functional. Roles and processes for handling potential EVD cases, and the need of conveyance operators to immediately notify PoE health authorities of suspect EVD cases has been reviewed and emphasized.

Despite all efforts done, it was noted that the government is in the process addressing the pending issues: identifying the application of proper IPC procedures, development of SOPs for implementing exit screening in the event of a confirmed EVD case and sensitization to EVD for public health authorities and identification of relevant stakeholders at PoE.

Safe and Dignified Burials

Burial teams have been identified in Kagera, Dar es Salaam and Kigoma. The training package has been finalized by WHO. Ongoing efforts include training on the remaining regions and scaling down to the district level and advocacy to respective regions to identify burial sites in case dies.

Epidemiological Surveillance and Contact Tracing

Tanzania has well-established immediate lines of reporting for IDSR priority diseases including potential EVD cases (dead or alive) with clear authority for such actions. Regions and districts had been trained on alert processes and requests for information related to EVD. EVD guidelines, case definitions and case investigation forms have been disseminated to all regions. However, event-based surveillance system to enable timely follow-up of information/rumors from the community and media was partially implemented in few regions and districts. Community health workers had not received specific trainings on EVD case definition in most high-risk regions and districts. Contact tracing training has been done to the 8 high risk regions and districts; where they have established a community based surveillance in additional to four EVD high risk districts. Supportive supervision of eIDSR has been carried out which has also emphasized the use of EVD case definitions; timely reporting of alerts and monitoring, follow up and investigation of rumors from all sources including the community, media etc.

Logistics

The government had evaluated the communication network capacity and established a telecommunication system to ensure all operations. It has also defined and implemented all SOPs related to the logistics component (procurement, stockpile mobilization, sample transport, telecommunications uses, structures support and maintenance, transport resources mobilization, security management). However, there was no mechanism in place for ensuring that identified medical structures are functioning according to infection control guidelines, with adequate isolation, waste management, water and power supply, with ensured consumables replenishment, and maintenance support.

Plans, Guidelines and Risk Communication

Risk communication guidelines were developed and distributed to all high-risk regions along with medical equipment and supplies, PPEs, standard case definitions, factsheets and laboratory SOPs on Ebola sample collection, storage, and transportation. Regular press releases on the EVD situation in DRC and action taken by the Government were distributed to media outlets, and health education messages were disseminated through media, social networks, and national walks. The Ministry also established a toll free number (*152*05*04#) for Ebola questions and answers.

Budget

The country has prepared Ebola Contingency plan (June- December 2018). The plan costs USD 2,391,578. To date 20% has been supported. The country is planning to conduct a review of the plan basing on the assessment done in January 2019 and also will hold a workshop to do resource mobilization.

Conclusions

The likelihood of an EVD outbreak in Tanzania is high given the porous borders with DRC and the constant movement of travelers between the two countries. The impact of an imported EVD case in Tanzania is estimated to be very high due to lack of previous experience in managing the disease and a weak health care system to manage cases. However, through the MOHCDGEC, Tanzania is on high alert and is operationally prepared to prevent and respond to an EVD outbreak in the country. There is a need ensure preparedness and interventions at all subnational levels are operational and also to continue engaging community so as cases of EVD are identified early.

Acknowledgements

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Je, Tanzania imejiandaa kupambana na kuzuia kuzuka kwa mlipuko wa Ebola?

MUHTASARI

UTANGULIZI: Mlipuko wa ugojwa wa Ebola ni tishio la afya kwa jamii nchini Tanzania hususan ikizingatiwa kuwa nchi yetu imepakana na Jamhuri ya Kidemokrasia ya Kongo (DRC) ambako kuna mlipuko wa Ebola. Hata hivyo, kujiandaa ni hatua mojawapo muhimu ya kuhakikisha nchi ziko tayari katika ubora na ufanisi wa kutambua, kuchunguza na kutoa taarifa muhimu za ugonjwa wa Ebola. Kwa hiyo, katika makala hii tunawasilisha taarifa ya shughuli zinazoonyesha utayari wa Tanzania kupambana na mlipuko wa ugonjwa wa Ebola chini ya uratibu wa Wizara ya Afya, Maendeleo ya Jamii, Jinsia, Wazee na Watoto (MOHCDGEC).

HATUA ZILIZOCHUKULIWA: Wizara ya Afya, Maendeleo ya Jamii, Jinsia, Wazee na Watoto imetathmini kujua hali ya utayari wa kupambana na kudhibiti kuzuka kwa mlipuko wa Ebola katika mikoa yenye tishio kubwa kwa kutumia dodoso maalum lililoandaliwa na Shirika Afya Dunia (WHO). Kwa ajili ya umuhimu wake, tathimini ya utayari ilifanywa kwa msaada wa mtaalam kutoka nje ya nchi. Dodoso hili lilitathmini uwepo wa kamati za uratibu, uwepo wa timu za watu wenye elimu na ujuzi wa kupambana haraka na maafa (RRT), uwezo wa kuzuia na udhibiti maambukizi (IPC), uelewa na ushiriki wa jamii, utoaji wa matibabu kwa wagonjwa ikiwa ni pamoja na kutenga eneo maalum salama kwa wagonjwa na kwa ajili ya mazishi, mfumo wa ufuatiliaji wa kiepidemiologia inayobaini matukio na uwepo wa mtandao wa mawasiliano unaomwezesha mtu husika ama waathirika kufuatiliwa. Aidha wizara imefanya tathmini kujua ukubwa wa tisho la mlipuko na uwezekano wa ugonjwa wa Ebola kuingia Tanzania. Tathmini hii ilibainisha mikoa ambayo iko kwenye hatari kubwa ya kukumbwa na mlipuko wa Ebola hususan mikoa inayopakana na DRC na mikoa yenye idadi kubwa ama inayopokea wageni wengi kutoka DRC.

MATOKEO: Mikoa nane ilibainika kuwa ni mikoa ambayo ipo kwenye hatari zaidi kukumbwa na mlipuko wa Ebola. Mikoa hii ni Kigoma, Kagera, Mwanza, Songwe, Katavi, Mbeya, Rukwa na Dar es Salaam. Kwa ujumla, dodoso la WHO lilionyesha kuwa maandalizi ya kupambana na mlipuko wa Ebola unahitaji kuboreshwa katika mikoa hiyo. Uwezo wa mikoa hii ulionekana uko chini ya asilimia 25 katika maeneo yafuatayo: mfumo wa mwitikio wa kupambana kwa haraka, mfumo wa ufuatiliaji wa kiepidemiologia unaobaini matukio, mtandao wa mawasiliano unaomwezesha mtu husika ama waathirika kufuatiliwa na sehemu maalum kwa ajili ya mazishi. Kutokana na hali hii, wizara ilichukua hatua za kuimarisha mikoa hii kama ifuatavyo: - Ilitoa mafunzo kwa wafanyakazi wa huduma za afya 438 (HCWs); kati yao 190 walipewa mafunzo ya elimu na ujuzi wa kupambana haraka na milipuko, 106 walipewa mafunzo ya kusimamia na kutibu wagonjwa na 142 walipewa mafunzo ya mfumo wa ufuatiliaji wa matukio ya magonjwa na mafunzo ya kutumia mtandao wa mawasiliano unaowezesha kufuatilia waathirika. Wafanyakazi 122 wa afya ngazi ya jamii walipewa mafunzo juu ya mfumo wa ufuatiliaji wa matukio na juu ya mtandao wa mawasiliano wa kufuatilia waathirika. Katika mikoa hiyo miongozo inayotoa maelekezo ya mawasiliano ya taarifa ya ugonjwa wa Ebola iliandaliwa na kusambazwa. Vifaa tiba na vitendanishi, mavazi maalum kwa ajili ya watu kujikinga na maabukizi (PPE), mwongozo wa kumtambua na kumthibitisha mgonjwa wa Ebola (SCD), vipeperushi, miongozo inayo elekeza taratibu za uendeshaji wa maabara (SOPs), ukusanyaji sahihi wa sampuli za Ebola, jinsi ya kuhifadhi na usafirishaji pia zilisambazwa.

Aidha, wizara ilitoa mafunzo ya jinsi ya kumtambua mgonjwa wa Ebola, njia za kuzuia na kukabiliana na ugonjwa wa Ebola. Mafunzo haya yalitolewa kwa wafanyakazi wa afya, vyombo vya habari, wanamuziki na vikundi mbalimbali vya kijamii. Kampeni za uhamasishaji umma zilifanyika na kutekelezwa kupitia vyombo vya habari, mitandao ya kijamii, na kampeni maalum za matembezi ya kitaifa juu ya Ebola.

HITIMISHO: Kwa ujumla, kutokana na uwepo wa mipaka yenye mianya na mienendo ya wasafiri wengi kutoka DRC kuja Tanzania, kuna uwezekano mkubwa wa nchi kukumbwa na mlipuko wa ugonjwa wa Ebola. Hata hivyo, Tanzania ipo katika tahadhari ya hali ya juu sana na imejiandaa na kujidhatiti vizuri kumbanana na kuzuia kuzuka kwa mlipuko wa Ebola nchini. Kulingana na utekelezaji wa mipango inayoendelea, ni wazi kuwa nchi itaongeza kiwango cha utayari kwa kufikia lengo la uwezo unaohitajika kupambana na mlipuko wa ugonjwa wa Ebola

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Factors associated with cholera outbreaks: A case study of Sumbawanga District Council, Rukwa Region, Tanzania

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ABSTRACT

BACKGROUND: Cholera remains a public health threat worldwide. It is characterized by frequent outbreaks and high mortality rates. Frequent outbreaks are associated with populations living in environments with limited access to clean water and sanitation facilities. Tanzania has experienced frequent outbreaks, recently in the Rukwa Region. In the view of established factors associated with cholera outbreaks worldwide, we report factors that prevailed and instigated a cholera outbreak investigation in Sumbawanga District Council (DC), Rukwa Region in May 2018.

METHODS: The field investigation was carried out in Sumbawanga DC in Rukwa region during July 2-6, 2018. The investigation included record reviews and assessment of the regional and district cholera response capacity. In the investigation, a case was defined as a suspected case residing in Sumbawanga DC, with onset of acute watery diarrhoea, during November 2017 to July 2018. A line list of all suspected cases was created covering a period from November 2017 to July 2018 and updated with detailed demographic information using medical records from health facilities and laboratory. On regional and district response, the team assessed several critical areas, including surveillance, information management and laboratory, organization of response teams, case management, Water Sanitation and Hygiene (WASH), and community involvement. Different data collection approaches were applied for specific areas as deemed necessary. Data were entered into Excel spreadsheets and analyzed to determine frequencies and measures of central tendency as well as measures of dispersion by time, place and person.

RESULTS: A total of 1006 cases were line listed (recorded) with a median age of 23 years (range: 6 month - 90 years) whereas the age group of 16-25 years was most affected and accounted for 25.6%. Males contributed 55% of all cases. A total of 14 administrative wards were affected. Over the period of 9 months, Kaoze/Kapenta was the most affected with an attack rate of 0.87% (279 cases/32,242 ward population). Most of cases (601/1006) 59.7% were peasants. Of 1006 cases, 21 died giving a Case Fatality Rate (CFR) of (21/1006) 2.1%. The index case was a fisherman with a history of travelling to Lichili in Songwe Region where he was forced back to return to Sumbawanga DC for medical attention, reported to a health facility on 15 November 2017, and died on 20 November 2017. Afterwards, cases sharply increased, peaking on 22 December 2017. The investigation showed that there were two waves of cholera cases, one started in November 2017 and continued to March 2018 while the second wave started in May 2018. The two waves coincided with two important agricultural seasons, those being cultivating (farming) for the first wave and harvesting for the second wave. During the two seasons, the population was exposed to an environment with limited access to clean drinking water and inadequate sanitation due to open defecation, as there were no latrines in their temporary shelters on the farms. Household surveys similarly showed unhygienic practices in the community related to poor storage and use of drinking water, poor disposal of human faeces, and limited hand washing especially after latrine use. The investigation also revealed that there were poorly equipped cholera treatment centres (CTCs), cases were inadequately managed at CTC, and community knowledge on cholera and its preventive measures was very limited.

CONCLUSIONS We conclude that there is continuous transmission of cholera in Sumbawanga DC after the introduction by a fisherman in November 2017 who travelled to Songwe, where there was an active disease. The outbreak was associated with drinking of contaminated water as a result of poor sanitation and unhygienic practices. Lessons learnt from this investigation, is districts need to improve the knowledge of cholera in the community (how is contracted, symptoms, as well as preventive and control measures with special attention to WASH), improve surveillance systems for case detection and monitoring, and improve case management, ensuring adequate supply of recommended medical supplies and medication, improve water sources, ensure a constant supply of Aquatabs® (chlorine tablets), improve financial resource allocation and reinforce bylaws for aggressive implementation of preventive and control measures.

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BACKGROUND

Cholera is an acute intestinal infection caused by ingestion of food or water contaminated with the bacterium Vibrio cholerae[1]. It has a short incubation period, from less than one day to five days, and produces an enterotoxin that causes copious, painless, watery diarrhea that can quickly lead to severe dehydration and death if rehydration is not promptly given. Vomiting also occurs in most patients [1, 2].

Cholera is characterized by persistence and frequent outbreaks worldwide and has been associated with populations having limited access to clean water and sanitation facilities [1,3]. This means that the affected population is living in an environment where water sources are contaminated following inadequate sanitation linked with poor disposal of human faeces. Nevertheless, apart from unimproved water sources and inadequate sanitation, poor hygienic practices have similarly been associated with cholera outbreaks. This includes poor water use and storage, use of untreated water, hand washing (before eating and after defecation, with soap) and eating habits (semi-cooked and raw food) [7]. Other reported factors include poverty (socioeconomic status), level of education, and intrinsic patient factors [7].

In Tanzania, the most recent wave of cholera outbreaks started in August 2015. From August 2015 to July 2018, the number of cholera cases is more than 31,000 with 525 deaths giving a CFR of 1.7%. This paper reports factors that contributed to the cholera outbreak in Sumbawanga DC in Rukwa Region in May 2018.

METHODS

The field investigation was carried out in Sumbawanga DC in Rukwa Region from July 2-6, 2018. The district and regional administrative health authorities approved the outbreak investigation. The investigation team from Ministry of Health Community Development, Gender, Elderly and Children (MoHCDGEC) worked in collaboration with district and regional response teams.

Record Review

A line list of all suspected cases registered from November 2017 to July 2018 was obtained from the district surveillance officer. The line

list was updated with detailed demographic information using medical records from health facilities and laboratory. Data were directly entered in Excel spreadsheets. Descriptive analysis was done where frequencies/ proportions, measures of central tendency and measures of dispersion were calculated. Data were analyzed based on time, place and person. Categorical variables were displayed using tables, while continuous variables were described using histogram/epidemic curve. In the investigation, a case of cholera was defined as a suspected case with onset of acute watery diarrhea detected within the period November 2017 to July 2018 in a resident of Sumbawanga DC.

Assessment of Regional and District Cholera Response Activities

Regional and district response activities were assessed. Several critical response areas were assessed, which included surveillance, information management and laboratory, organization of response team, case management, WASH and community involvement. Different data collection approaches were applied for specific areas as was deemed necessary. This included documentary review, discussion and observation.

RESULTS

Outbreak Detection

The current wave of cholera outbreaks in the district started November 15, 2017 when a 25-year-old fisherman from Muze ward in Sumbawanga DC presented with profuse watery diarrhea at a health facility. This index case had history of travelling to Lichili in the Songwe Region. He became sick while in Lichili and was forced to travel back to Sumbawanga for medical attention. Unfortunately, the index case died on November 20, 2017. After the death of the index case, the number of cases increased with the first peak noted on 22 December 2017.

Since then, a total of 1006 cases were documented. However, the number of cases that have been reported to the MOHCDGEC since November 2017 was 1130 cases, i.e. 10.9% higher than the number line listed. The median age of 1006 cases was 23 years with the youngest being 6 months and the oldest 90 years. Age group 16-25 years had the highest number of cases; males contributed 55% of all cases (Table 1).

Table 1: Distribution of cases by sex and age group in Sumbawanga DC, Rukwa Region

Category	Number of cases	Percentage (%)
Sex		
Famales	449	44.7
Males	556	55.3
Age group (years)		
0-5	189	19.9
6-15	239	25.2
16-25	252	26.5
26-45	223	23.5
46-55	35	3.7
56-90	12	1.3

Since the outbreak began a total of 14 wards have been affected with Kaoze/Kapenta being the most affected (Table 2). Of the 1006 cases that were line listed, 21 died giving a case fatality rate (CFR) of 2.1%. Of the 25 samples that were taken, 15 (60%) tested positive for V.cholerae serogroup 01 serotype Ogawa.

Table 2: Cholera attack rate by administrative ward, Sumbawanga DC, Rukwa Region, Nov 2017-July 2018

Ward	Population	Number of cases	Attack Rate
Ilemba	31,962	10	0.03
Kaoze/kapenta	32,242	279	0.87
KIPETA/k'wana	31,566	168	0.53
K'nzite	25,476	7	0.03
Laela	29,083	44	0.15
Lusaka kaminyazya	16,995	11	0.06
Mfinga	15,072	58	0.38
Milepa	19,319	73	0.38
Mtowisa	26,143	83	0.32
Muze	27,441	125	0.46
Sandulula	22,987	11	0.05
Zimba	-	12	
K/leza	-	29	
Mwadui	-	96	

The distribution of cholera cases based on occupation is presented in Table 3. Surprisingly, most cases were among adult peasants, accounting for about 60% (601 out of 1006 cases).

Table 3. Distribution of cholera cases by occupation, Sumbawanga DC, Rukwa Region, November 2017-June 2018

Variable	Number	Percent
Peasants	601	59.7
Pupils(school children)	132	13.1
*Children	207	20.6
Fishermen	44	4.4
Laborers	22	2.2

* Children = all children not started schooling

As illustrated in Figure 1, the epi curve depicts two waves of cholera outbreaks. One started in November 2017 and ended early March 2018 while the second wave started in May 2018 and is ongoing. The two waves coincided with two important agricultural seasons. The first waves occurred during cultivating season (preparation of rice field and planting), which occurred from November 2017-March 2018 while the second wave coincided with harvesting season that is from May –June 2018. There is continuous transmission of cholera in the peasantry after the introduction of cholera by a person believed to be a fisherman.

District Cholera Response Capacity Surveillance System

On assessment of surveillance system reports, the investigation team noted gaps that need to be rectified to meet the recommended standards. The gaps included poor data quality, whereby the number of cases captured in the line list (recorded cases) was lower than

the number reported to the national level. There was inconsistent documentation. For example, it was noted that over 90% of the cases in the line list had the date of onset and the date seen in the facility as the same date. This is very surprising considering that most persons in our community take time to seek medical care. The other noted gaps were missing variables, insufficient line list entry forms in some facilities, and data entry error.

Response Team

Review of meeting minutes revealed that the Response Teams were formed at regional and district level immediately after the index case was confirmed. The teams consisted of recommended personnel, including the Regional Health Officer, Regional Laboratory Technologist, Regional Nursing Officer, District Health Officer, District IDSR focal persons, and Cholera Treatment Centres (CTC) health personnel. The team had several meetings since the beginning of the outbreak and had conducted supportive supervisory visits.

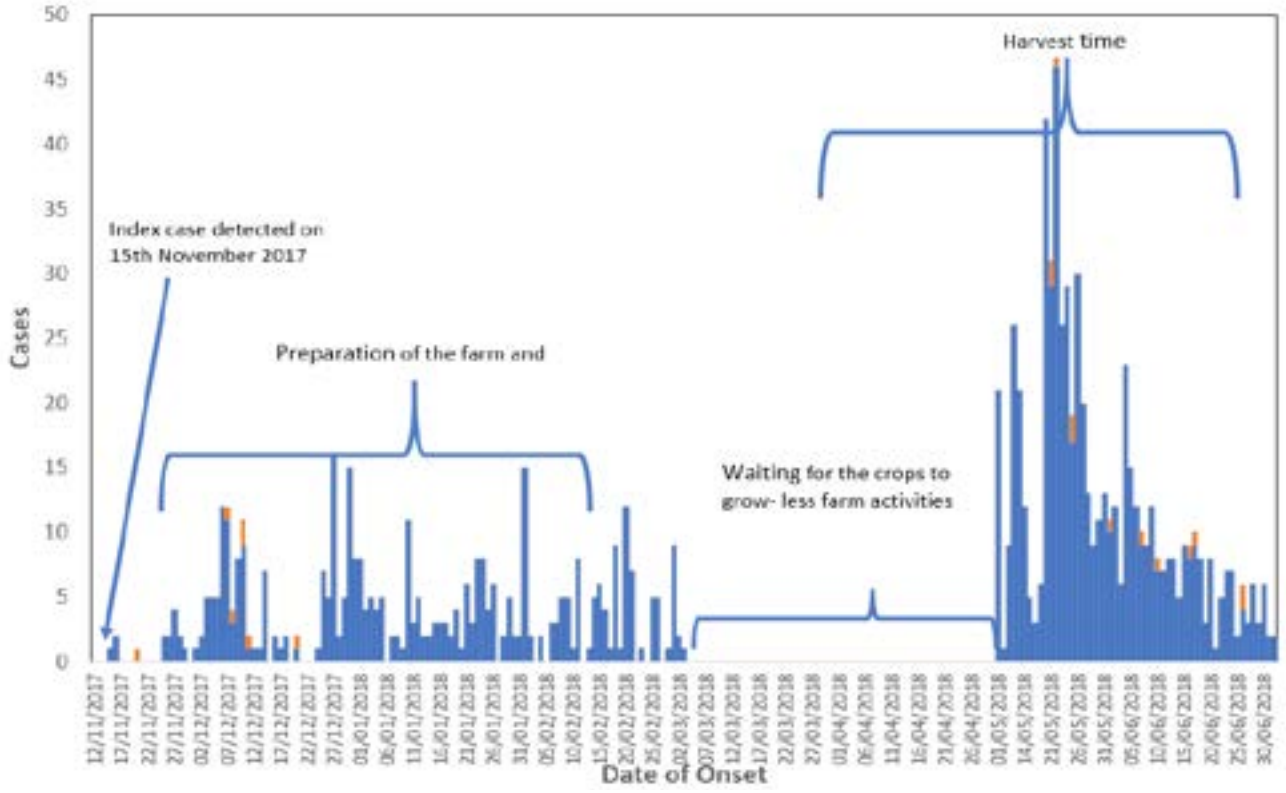

Figure 1: Epidemic curve, cholera outbreak, Sumbawanga DC, Rukwa Region, November 2017-June 2018

Case Management

Case management was assessed in different CTCs in Sumbawanga DC. Of the three CTCs, only one had flowcharts illustrating proper management of cholera. The flowchart provided clear information on how to assess dehydration stage and the treatment protocol.

The investigation team noted that all cases were given antibiotics regardless of their status of severity. Cases and their relatives were informed on cholera preventive measures. However, on interview, some patients and their relatives could not explain how they could prevent themselves from contracting cholera.

All the three health facilities visited had an isolation centre, however the CTCs did not meet the required standards such as there was no cholera beds or improvised cholera beds and no running water. Patients were sleeping on the floor, and infection control measures were inadequate. For infection control, health workers working in CTC improvised by making sure that the clothes of the confirmed cases were soaked in hot water before leaving the CTC. Also they used Lysol to disinfect the floor. In addition to these shortcomings, Kipeta CTC had an unimproved and unclean pit latrine. All CTCs had sufficient stocks of antibiotics and Ringer's lactate fluids. The CTCs had clinicians, nurses and medical attendants who were available twenty-four hours a day, seven days a week (24/7).

Community sensitization

The district sanitation campaign team conducted a Community Led Total Sanitation campaign in the three villages in 2016. Since the beginning of the ongoing cholera outbreak, it was reported that 26

community sensitization meetings had been conducted. The meetings involved 10 wards, namely Milepa, Kipeta, Kilangawana, Kaoze, Kapenta, Myangania, Kasanzama, Laela, Lusaka and Kalambanzile. The meetings took place between May and June 2018 and were attended by different stakeholders including District Security Committees, CMTs and District Health Officers. The meeting objectives concentrated on: how to identify a cholera case, preventive and control measures and how to use Aquatabs, and community sensitization. Community sensitization on WASH was also done through posting and distribution of information education communication materials (i.e. posters and leaflets).

Water Sanitation and Hygiene (WASH)

Household WASH reports were reviewed to assess latrine coverage, access to clean water, hand washing and household water treatment. This was supplemented with household surveys. The three villages Ilambo, Mpande and Kipeta that were visited by the investigation team had 543,370 and 1976 households respectively.

Latrine

The reported latrine coverage for the three villages was 99.4%, 94.3% and 89.4% for Ilambo, Mpande and Kipeta respectively. The coverage included all types unimproved or improved, temporary or fixed structures. When the investigation team assessed some of the latrines, there was no evidence of utilization.

Source of Water

Access to clean water was averaged at 52.8%. In Ilambo, Mpambe and Kipeta villages, about 36.3%, 0%, and 44.3% of the households had handwashing facilities, respectively. Despite the fact that chlorine tablets were distributed in every household in all the affected wards, their utilization couldn't be ascertained. The main sources of water were Momba River and shallow wells. A total of 14 shallow wells at Ilambo village were reported to be treated with chlorine tablets (i.e. 100 Aquatabs per shallow well). This concentration was noted to be ineffective to protect the community from cholera outbreaks.

Environment

As part of WASH, the investigation team visited a household of a 9-year-old child confirmed to have cholera case in Kipeta village. The household had eight people (i.e. two grandparents and six grandchildren). The household had unimproved latrine with openings on the floor, visible feces on the floor, and no door (Figure 2). The latrine seemed to be used occasionally.

Figure 2. Unimproved latrine at a household of one of the confirmed case of cholera. Dust, open floor with faeces on it

Fresh feces were observed on the household compound just 5 meters on the backside of the house. Goat, cow, pig, and dog feces where also scattered around the premises.

Hand washing

Regarding hand washing in this household, there was poor hand washing practices especially after using latrine. The team noted that there was no hand washing facility or use of soap or ashes.

Use and storage of drinking water

The household had set aside a special vessel for storage of drinking water with a lid. However, there was no specific cup used to draw water from the vessel, this could easily lead to contamination. It was informed that the household had received its share of chlorine tablets and it had one tablet left during the visit. However, despite chlorination of water, the use and storage practices exhibited in this household might not be of much help.

Knowledge about cholera

Household members had limited knowledge about cholera in relation to transmission and preventive measures. The investigation team provided health education on WASH to the household members and neighbors. Handwashing practice was demonstrated to family members by one of the investigating team members who has a sanitation background and knowledge.

DISCUSSION

Inadequate access to clean water and sanitation

The main risk factors associated with cholera outbreaks include inadequate access to clean water and sanitation facilities [1]. Based on our findings from Sumbawanga DC, the cholera outbreak was due to lack of clean drinking water and inadequate sanitation. It was observed that the current wave of cholera outbreak in Sumbawanga DC started in November 2017, and it was reported to coincide with cultivation and harvesting seasons, which exposed most of the population to poor environments with an absence or shortage of safe drinking water and inadequate sanitation

It is the practice of the Sumbawanga DC population during cultivation and harvesting seasons to temporarily relocate and stay at the farm site with temporary shelters without pit latrines; therefore open defecation is widely practiced leading to contamination of the environment and water sources. The prevailing and reported situation in Sumbawanga DC of limited access to safe drinking water and poor sanitation is in line with findings observed elsewhere [1, 5,6,7].

Figure 3. An example of tippy tap (kibuyu chirizi). (A gallon of 5lts with water is hanged connected with a string to a piece of wood below such that when the wood is pressed by foot downwatds will tilt the gallon and water will flow slowly like coming from a tape water to allow hand washing using soap which is hanged nearby). Photo from Tippy Tap Instruction Manual.

Poor hygienic practices

Besides the poor environment and inadequate access to safe water, the Sumbawanga DC population had poor hygienic practices. Among households visited in Sumbawanga DC, there was poor handling of drinking water, limited use of latrine (poor disposal of human and animal excreta), and limited hand washing practices especially after latrine use, as there were no handing washing facilities (no tippy tap and soap). Because of the lack of tap water in most rural communities, the Government of Tanzania has introduced the tippy tap *(Kibuyu Chirizi* - Figure 3) to be positioned at pit latrines. This is a simple and economical technology where a water container is hung so that it releases water slowly when tilted or opened [8]. It should be noted that poor hygienic practices is one of the key risk factors associated with cholera outbreaks in different parts of the world [6, 7] because people are likely to drink and eat contaminated water and food.

Low level of knowledge

With the current situation, it is likely to be difficult to prevent cholera outbreaks in Sumbawanga DC. This is because despite community involvement and community sensitization and health education, there is limited knowledge on preventive measures as well as changes in behavior toward hygienic practices. This was clear among cases and relatives were not aware of cholera preventive measures that could be generalized to the entire Sumbawanga DC population. Similarly, limited change in hygienic behavior was vividly observed in the household of a sick child that was visited where there was unhygienic sanitation. These practices are likely to escalate the outbreaks. Since WASH solutions for cholera are aligned with those of the United Nations Sustainable Development Goals (SDG 6), efforts should be put in place to ensure preventive measures are well understood and effectively implemented.

Poor cholera case management

The CFR in the district was 2.1%, which is above what would be expected when cases are managed properly. With proper treatment, CFR should remain less than 1% [4]. As noted from CTCs, only one had the flowchart illustrating the proper management of cases and all cases were given antibiotics regardless of their severity. It is clear that management of cases did not follow the standard treatment guidelines hence this could be the reason for the observed high CFR. In addition, the CTCs did not meet the required standards, a standard CTC is supposed to have cholera beds, running safe drinking water, and adequate infection control measures [1]. Inadequate management and high use of antibiotics call for reorientation of clinicians and other health workers to offer proper and standard treatment to cholera patients.

CONCLUSIONS

There is continuous transmission of cholera in Sumbawanga DC after the introduction by a fisherman in November 2017, who had initially travelled to Songwe where there was an active cholera outbreak. The outbreak was associated with drinking water contaminated as a result of poor sanitation and unhygienic practices. For the district to prevent and control future cholera outbreaks, we recommend, councils improve the community knowledge of cholera (i.e., transmission and preventive measures), improve surveillance systems to detect and monitor cases, and improve case management by clinicians, ensuring provision of recommended medical supplies and medications. The council should also improve water sources including a constant supply of chlorine tablets and reinforce bylaws to allow aggressive implementation of preventive and control measures.

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Njia zinazochangia kuzuka kwa milipuko ya kipindupindu: Makala ya Uchunguzi katika Halmashauri ya Wilaya ya Sumbawanga, Mkoa wa Rukwa, Tanzania

MUHTASARI

UTANGULIZI: Ugonjwa wa Kipindupindu bado ni tishio la afya duniani. Kipindupindu kinajulikana kuwa na milipuko ya mara kwa mara na kusababisha vifo vingi. Milipuko ya mara kwa mara ya kipindupindu inahusishwa na watu kuishi katika maeneo yenye uhaba wa maji salama na mazingira yasiyo safi. Tanzania imekuwa na milipuko ya kipindupindu ya mara kwa mara, hivi karibuni umetokea katika Mkoa wa Rukwa. Kulingana na njia zinazohusishwa kuchangia milipuko ya kipindupindu ulimwenguni pote, makala yetu inaoanisha njia hizi na zile zilizokuwepo na ambazo zilichangia kuzuka kwa mlipo wa kipindupindu katika Halmashauri ya Wilaya ya Sumbawanga (DC) katika Mkoa wa Rukwa Mwezi Mei 2018.

MBINU: Uchunguzi ulifanyika Sumbawanga DC katika mkoa wa Rukwa kati ya tarehe 2 na 6 Julai, 2018. Uchunguzi ulijumuisha uchambuzi wa takwimu na kutathmini uwezo wa wilaya na mkoa katika kukabiliana na mlipuko wa kipindupindu. Katika uchunguzi, mgonjwa wa kipindupindu alidhihirishwa endapo alikuwa ni mkazi wa Sumbawanga DC aliyeanza kuhara maji maji kwa kasi kati ya mwezi wa Novemba 2017 hadi Julai 2018. Orodha ya wagonjwa wote waliodhaniwa kuwa na ugonjwa wa kipindupindu iliandaliwa kwa kipindi cha kuanzia

Novemba 2017 hadi Julai 2018. Orodha hii ilihuishwa kwa kutumia maelezo ya kina ya mtu binafsi kwa kutumia taarifa za matibabu kutoka vituo vya afya na maabara. Katika kutathimini uwezo wa wilaya kupambana na mlipuko wa kipinduoindu, uchunguzi ulitathimini maeneo kadhaa muhimu, ambayo ni pamoja na mfumo wa ufuatiliaji matukio, ukusanyaji na usimamizi taarifa za afya na maabara, muundo wa kikosi maalum cha kuratibu na kupambana na kipindupindu, matibabu ya wagonjwa; Maji, Usafi wa Mazingira na Usafi binafsi (WASH), na ushiriki wa jamii. Mbinu tofauti za ukusanyaji wa takwimu zilitumika kwa maeneo maalum muhimu. Takwimu ziliingizwa kwenye kompyuta na kuchambuliwa zikioanisha muda, mahali na mtu.

MATOKEO: Jumla ya matukio 1006 yaliorodheshwa na umri wa wastani wa wagonjwa ulikuwa miaka 23 (wigo: umri wa chini ulikuwa miezi 6 na umri wa juu ulikuwa miaka 90) wakati watu wa umri wa miaka 16-25 waliathirika zaidi na kufikia asilimia 25.6. Wanaume walichangia asilimia 55 ya wagonjwa wote walioorodheshwa. Jumla ya kata 14 ziliathirika. Kwa kipindi cha miezi 9, kata ya Kaoze / Kapenta iliathirika zaidi na kiwango cha maambukizi kilikuwa cha asilimia 0.87 (wagonjwa 279 kati ya wakazi wa kata 32242). Wagonjwa wengi (601/1006) sawa na asilimia 59.7 walikuwa wakulima. Kati ya wagonjwa 1006, 21 walikufa; hivyo vifo kutokana na ugonjwa wa kipindupindu (CFR) ulikuwa ni asilimia 2.1 (21/1006).

Mtu wa kwanza aliyedhaniwa kuwa na ugonjwa wa kipindupindu alikuwa ni mvuvi mwenye historia ya kusafiri kwenda Lichili katika Mkoa wa Songwe. Alipopata ugonjwa huko Lichili akalazimika kurudi Sumbawanga DC kwa matibabu. Uchunguzi unaonyesha kuwa aliripoti kwenye kituo cha afya mnamo tarehe 15 Novemba 2017, na alifariki dunia tarehe 20 Novemba 2017. Baada ya hapo wagonjwa waliongezeka kwa kasi, na kufikia kiwango cha juu kabisa ilipofika tarehe 22 Desemba 2017. Aidha, uchunguzi wetu ulionyesha kwamba kulikuwa na mawimbi mawili ya milipuko ya kipindupindu. Wimbi la kwanza lilianza mnamo Novemba 2017 hadi Machi 2018, wakati wimbi la pili lilianza Mei 2018. Mawimbi haya mawili yalihusishwa na kutokea wakati wa misimu miwili muhimu ya kilimo ikiwa wakati wa kulima (kuandaa mashamba na upandaji) kwa wimbi la kwanza na wakati wa kuvuna (uvunaji) kwa wimbi la pili. Wakati wa msimu wa kilimo, idadi kubwa ya watu huhamia mashambani hivyo wanakuwa kwenye mazingira hatarishi yenye upungufu wa upatikanaji wa maji salama ya kunywa na kwenye mazingira yasiyokuwa na usafi wa kutosha kutokana na watu kujisaida ovyo. Hii inatokana na kutokuwepo kwa vyoo katika makazi yao ya muda huko mashambani.

Uchunguzi wa kaya pia ulionyesha mazoea yasiyo ya usafi katika jamii yanayohusiana na kuhifadhi pamoja na matumizi ya maji ya kunywa, matumizi duni ya vyoo hivyo vinyesi vya binadamu kutapakaa na kutokunawa mikono hasa baada ya mtu kutumia choo. Uchunguzi pia umebaini kwamba vituo vya matibabu vya kipindupindu (CTCs) vilikuwa na upungufu wa vifaa tiba na vitendanishi, wagonjwa walio kuwa kwenye CTCs hawakupatiwa matibabu kama inavyositahili, na kulikuwa na uelewa mdogo wa jamii juu ya ugonjwa wa kipindupindu na hatua za kijikinga.

HITIMISHO: Tunahitimisha makala yetu kwa kuthibitisha kuwa kuna mwendelezo wa milipuko ya ugonjwa wa kipindupindu katika Halmashauri ya Wilaya ya Sumbawanga ambao ulianzia kwa mvuvi mnamo Novemba 2017 ambaye alisafiri kutoka Mkoa wa Songwe ambapo kulikuwa na mlipuko. Mlipiko wa kipindupindu ulihusishwa na idadi kubwa ya watu kunywa maji yasiyo salama kutokana na uchafuzi wa mazingira na watu kuwa na mazoea yasizo zingatia usafi. Kwa hiyo, kwa kuzingatia matokeo yaliyotokana na uchunguzi huu, ili wilaya ya Halmashauri ya Sumbawanga iweze kuzuia na kudhibiti milipuko ya kipindupindu, mapendekezo yetu ni kwa Halmashauri kuboresha uelewa wa jamii kuhusu kipindupindu (jinsi inavyoambukizwa, dalili, pamoja na hatua za kuzuia na kudhibiti kwa kukazia zaidi juu ya WASH), kuboresha mfumo wa ufuatiliaji wa kutambua wagonjwa, kuboresha matibabu yanayotolewa kwa wagonjwa, kuhakikisha upatikanaji wa vifaa vya matibabu na dawa zinazohitajika, kuboresha vyanzo vya maji, kuhakikisha upatikanaji wa mara kwa mara wa Aquatabs® (vidonge vya klorini), kuboresha mgawanyo wa rasilimali fedha, na kuimarisha sheria ndogo ndogo kwa utekelezaji thabiti wa hatua za kujikinga na kudhibiti.

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