LOCAL GOVERNMENT PREPAREDNESS AND COMMUNITY KNOWLEDGE AND PRACTICES TO CHOLERA OUTBREAKS: THE CASE OF KINONDONI MUNICIPAL IN DAR ES SALAAM, TANZANIA

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By

Yisambi Zumba Mwanshemele

A Dissertation Submitted in (Partial) Fulfillment of the Requirement for the Degree of Master of Public Health of

Muhimbili University of Health and Allied Sciences
October, 2017

CERTIFICATION

The undersigned certify that he has read and hereby recommends for acceptance by Muhimbili University of Health and Allied Sciences a dissertation titled **"*Local Government Preparedness and Community knowledge and Practices to Cholera Outbreaks: The case of Kinondoni Municipal in Dar es Salaam, Tanzania*"** in (partial) fulfillment in the requirement for the degree of Master of Public Health of Muhimbili University of Health and Allied Sciences.

_____

Prof. Japhet Killewo

(Supervisor)

_____

Date

DECLARATION AND COPYRIGHT

I, **Yisambi Zumba Mwanshemele**, declare that this **dissertation** is my original work and that it has not been presented and will not be presented to any other university for a similar or any other degree award.

Signature……. **Date**……

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Praise is the almighty God who kept me alive, healthy and energetic and gave me the ability to develop and successfully undertake this study

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Last but not least I would like to thank all the respondents whose acceptance to participate has made this work possible.

DEDICATION

This dissertation is dedicated to my late mother Alikojujo Mwaituka for raising me and instilling traditional values which I still cherish until today. She also taught me how to celebrate, enjoy and embrace life.

AND

My wife Siah Mtui for loving me unconditionally and for her sacrifice to my education which has enable me to be where I am today.

ABSTRACT

Back ground: Cholera is an acute diarrhea infection caused by ingestion of food or water contaminated with the bacteria Vibrio-Cholera (WHO, 2000). Cholera is a highly infectious disease and it affects both children and adults. The bacteria affect the transport of water in the small intestine, and secrete cholera toxin (CT) which causes severe fluid loss into the digestive track leading to dehydration and ultimately death if untreated (Vicki Symington).Much has been done by the government of Tanzania in collaboration with other donor agencies to prevent cholera outbreaks, but little is still known about coping strategies during and after cholera outbreaks. It is against this background that the proposed research aimed at assessing Local Government Preparedness and Community knowledge and Practices to cholera outbreaks so that the impacts of future cholera outbreaks are minimized. The aim of this study was to assess local government authority's preparedness and community knowledge and practices to cholera outbreaks.

Methods: This study combined both qualitative and quantitative data collection methodologies. The study was conducted at Kinondoni Municipal where a total of 6 key informants and 402 households were interviewed. The study assessed the local government authority's preparedness and community knowledge and practices to cholera outbreaks. Quantitative data were entered, cleaned, analyzed and summarized in percentages and numbers per need using SPSS version while the qualitative data was read, arranged by themes and analyzed by using grounded theory approach. The findings were used to answer the study objectives.

Results: Overall the Local Government Authorities preparedness and community knowledge and Practices are inadequate. Regarding the Knowledge about cholera preparedness and prevention, the multiple data analysis responses indicated that the most common known causes of Cholera was 152 (38%)‘’Ingesting faces and Vomiting‘’, and ‘Vomiting’’ was 261(65%) the most known symptoms of Cholera. Regarding the Cholera Treatment, ‘’Medicine given by health workers ‘’ was known by all respondents 402

(100%).Practices regarding cholera preparedness and prevention are still inadequate in terms of water treatments, hygienic practices, food safety practices, methods to empty the toilets and sanitations though households found with average knowledge of Cholera.

Conclusion: This study confirmed that the Kinondoni Municipal is not well prepared to respond quickly to Cholera outbreaks though it has well skilled staff and households have sufficient knowledge about Cholera and how it can be prevented.

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ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
CCHP	Comprehensive Council Health Plan
CHMT	Council Health Management Team
CT	Cholera toxin
CFR	Case Fatality Ratio
CDC	Centre of Disease Control
DEFF	Estimated Design Effect
EWURA	Energy and Water Utilities Regulatory Authority
HIV	Human Immune Virus
IEC	Information and Education Communication
IDS	In-Depth Interview
LGA	Local Government Authority
MUHAS	Muhimbili University of Health and Allied Sciences
M&E	Monitoring and Evaluation
NGO	Non-Government Organization
RHMT	Regional Health Management Team
ORS	Oral Rehydration Salts
SPSS	Statistical Package for Social Science
URT	United Republic of Tanzania
UN	United Nations
PHC	Primary Health Care
WaSH	Water, sanitation and Hygiene

WHC	Ward Health Committee
WHO	World Health Organization
WSP	Water Sector Program

DEFINITION OF TERMS

1. Cholera Preparedness- is the process of ensuring readiness for a cholera outbreak in advance so that the response will be more effective; staff knows what they should do, the required supplies are available, and the systems for coordination, communication, monitoring, and support are agreed in advance.
2. Response- is the provision of emergency services and public assistance during or immediately after a disaster to save lives, reducing health impact, ensures public safety and meeting basic subsistence needs of the people affected.
3. Risk- is the combination of the probability of an event and its negative consequences
4. Capacity/capability- Is the combination of all the strengths, attributes and resources available within a community, society or organization that can be used to achieve agreed goals.
5. Cholera outbreak- is defined by the occurrence of at least one confirmed case of cholera and evidence of local transmission
6. Participant- is a key informant or heads of households who were interviewed or to whom questionnaires shall be administered to either by PI or research assistant.
7. Unimproved sanitation-o not ensure a hygienic separation of human excreta from human contact and include, pit latrines without slabs or platforms or open pit, hanging latrines bucket latrines and open defecation in fields, forests, bushes, bodies of water or other open spaces, or disposal of human feces with other forms of solid waste
8. Improved sanitation-as one that hygienically separates human excreta from human contact.

CHAPTER ONE

1.0 INTRODUCTION AND BACKGROUND

1.1. Background Information

Cholera is an acute diarrhea infection caused by ingestion of food or water contaminated with the bacteria Vibrio-Cholera (WHO, 2000). Cholera is a highly infectious disease and it affects both children and adults. The bacteria affects the transport of water in the small intestine, and secretes cholera toxin (CT) which causes severe fluid loss into the digestive track leading to dehydration ultimately death(Vicki Symington).Cholera is potentially explosive with patterns of an outbreak if not well managed. Long-term cholera control and prevention requires investment in improved drinking water and sanitation infrastructure, which are resource intensive. In the interim, immediate disease control and prevention efforts, especially in risk areas and outbreaks situation, focus on treatment (oral and intravenous rehydration and antibiotics) and household-level safe water supply, sanitation and hygiene promotion and practices can help to reduce the disease fatality rate. The ability of the Government to mobilize resources and respond quickly helps to reduce the spread of the disease.

1.2 Dynamics of Cholera in Africa

The first case of cholera in Africa was reported in 1970, (Gaffga, Tauxe, & Mintz, 2007). Since then, sub-Saharan Africa has remained Cholera prone zone. The dramatic increase of cholera in Africa was noted in 1998 (WHO, 2000). Africa reported 211748 cases (WHO, 2000) this number accounts for 72% of the global total 293,121. The sub-Saharan Africa was highly affected; the major outbreak occurred in the Democratic Republic of Congo, Kenya, Mozambique, Uganda and the United Republic of Tanzania. In 2008-2009, Zimbabwe experiences the worse Cholera outbreak resulting to a fatality rate of 22%-48% (Mason, 2009). The high fatality rate is mainly attributed to the ability of the Government and health system to respond to the outbreak; many patients died at home and for those ones who managed to access the health care system the fatality rate was above 5% (Mason, 2009).

Moreover, explosive outbreak of cholera in Zimbabwe was mainly attributed to the poor health services, Government preparedness and infrastructure problems (Farmer et al., 2011). Urbanization and increase of population in most African cities poses a greater risk of spreading of infectious disease. In 2014, the United Nations estimated 54% of the world 3.9 billion is living in urban areas. Asia and Africa are experiencing high urban growth; respectively 48 and 40% of the population are living in cities, and by 2050 will reach 64% and 56% respectively. The decade was marked by 1.2m (0.88m in Asia and 0.23 in Africa) increase of the urban population per week (Neiderud, 2015). In Africa, urbanization is occurring fast with less investment on infrastructure and economic opportunities (Freire, Lall, & Leipziger, 2014). Informal settlements are faced with challenges including poor infrastructure for Water, Sanitation and Hygiene - WaSH and health services. The large percentage of the population lacks access to tape water hence depends on shallow wells with no consideration if those well are located far from pit latrines.

1.3 Cholera Infections in Tanzania

The history of cholera in Tanzania can be traced back from 1970s. The first 10 cases of cholera were reported in Rufiji in 1974 and since 1977 each year new cases were being reported with case fatality rate (CFR) 10.5 % averaging between 1977 and 1992 (WHO, Cholera country Profile report, 2008). Cholera remains an epidemic in Tanzania, according to Mpazi (2005) the major outbreak occurred in 1992 and 1997 respectively in Tanzania, the outbreaks were reported to have started in Dar es Salaam and spread to other regions. In another outbreak of 2006, Dar es Salaam was the most affected region, accounting for 63% of the total cases (14,297) and 40% of the total deaths (254)(WHO, 2008).

In connection to the background, in 2015, Cholera emerged again in Tanzania and the first cases were reported in Dar es, Salaam. In 2 months since the first cases were reported; cholera spread to other 12 regions, namely Morogoro, Pwani, Kigoma, Kilimanjaro, Iringa, Dodoma, Geita, Mara, Singida, Shinyanga, Mwanza, and Zanzibar. A cumulative number of cases were 4,835 including 68 deaths. Dar es Salam account for 72% (WHO, 2015) of all reported cases

(3460).Reports shows as October 2015, the fatality rate was above 1% (WHO, 2015) It is not yet established the strain involved in this outbreak however, it spread quickly in several regions in Tanzania in a short period of time.

Cholera preventive measures include awareness raising, response to the outbreak and treatment of people with Cholera (WHO, 2015). Also, the health services and LGAs, needs to have a strong programme for the control of diarrhea diseases and surveillance as another preventive measure. In a community with the weak health services; cholera case fatality can cause death in as many as 50% of severe cases. However; places with good health services fatalities among patient may be less than 1%.

1.4 Statement of the problem

Cholera is remains a Public health problem and, almost every country has an interest in preventing its outbreak. In 2011 the World Health Assembly reported that cholera is not well addressed and called for more efforts in cholera prevention and control(WHO, 2013).Literatures reviewed indicated that each year there are 1.3 to 4.0 million cases of cholera and 21000 to 143000 deaths worldwide. Similarly, there are an estimated 2.86 million cases of cholera annually in endemic countries. Countries with estimates of more than 100,000 cases annually include: India, Ethiopia, Nigeria, Haiti, the Democratic Republic of the Congo, Tanzania, Kenya, and Bangladesh(Ali M et al 2015).

Cholera is endemic in Tanzania, meaning that Tanzania has been experiencing Cholera outbreaks frequently. The United Republic of Tanzania Government (URT) in collaboration with other stakeholders such as humanitarian organizations such as United Nation agencies, the Centers for Disease Control - CDC, and the Red Cross Society have been addressing Cholera outbreaks before it spreads nationally and internationally. Despite efforts shown by government and stakeholders to address the outbreaks, there have been significant fluctuations in the general trend of the Cholera outbreak in Tanzania and in some regions such as Dar es Salaam where interventions to deal with Cholera after its outbreak seams not to be effective(WHO, 2015). Between august 2015 and April 2016, it was reported by WHO that

least 378 people died due to Cholera pandemic in Tanzania. This number is too huge to ignore because Cholera has both economic and social impact number of deaths due to cholera has social and economic impacts whereby people businesses (especially petty trades) are affected (WHO 2016).

Despite the efforts made to prevent Cholera in the past outbreaks, coping strategies during and after cholera outbreaks are not well understood and, failure to ensure community access to clean water are some of the reasons on why there is a need to have preparedness to outbreaks. It is against this background that the proposed research aims at assessing Local Government Preparedness and Community knowledge and Practices to cholera outbreaks so that the impacts of future cholera outbreaks are minimized.

1.5 Research questions

Main Research question

- What is the extent of local government authority's preparedness and community knowledge and Practices to cholera outbreaks?

Specific Research questions

1. What is the status of resources availability in LGAs to respond to outbreak of cholera?
2. What is the extent of use of available resources by LGAs to prevent cholera outbreak
3. What is the level knowledge and practices surrounding cholera?

1.6 Objectives

1.6.1 Broad objective

- To assess local government authority's preparedness and community knowledge and Practices to cholera outbreaks.

1.6.2 Specific objectives

- To determine availability of resources for LGAs to respond to cholera outbreaks
- To determine the extent of use of available resources by LGAs to prevent cholera outbreaks
- To determine level of knowledge and practices about cholera among residents of local communities.

1.7 Rationale of the study

This study provides an understanding of LGA preparedness and community knowledge and practices. This study provides useful information such as coping strategies that could be used to strengthen community resilience to future Cholera Outbreak Academically, the study contributes knowledge in public health studies especially on cholera outbreak for public health practitioners, policy makers, and members of CHMT Committees and NGO staffs engaged in interventions for prevention of cholera outbreak. The report with findings will be made available at MUHAS library and be published in forms of academic articles in peer-reviewed journals.

1.8 Conceptual Framework

Preparation for the rapid response to an epidemic of cholera requires a strong diarrheal disease control program at all levels of the health services. The health workers and the community are supposed to be prepared for an outbreak of diarrheal diseases to be able to respond adequately. Cholera case fatality ratios can be lowered if necessary preparations are in place(WHO, 1997). The conceptual framework of this study focuses on prevention of the outbreak and control of the

Figure: The conceptual framework



In the context of cholera preparedness and community knowledge and practices, we can consider individual knowledge and practices influence behavior and cholera risks at the community level. Knowledge and practices are likely influenced by socio-economic status and structural barriers to practice hygienic behavior. At the Local Government level, investment in the infrastructure including supply of safe drinking water, improved sanitation facilities and health care facilities as well as the existence or absence of cholera surveillance system affects cholera risks in the community. The community mobilization plays a key role to listen,

inform, facilitate and promote participation in preventing and control measures. For Social mobilization to become effective it requires a good understanding of vulnerabilities, and a genuine community perspective on the cholera or any infectious disease. Within the social mobilization, there is recognition of the influence of social and cultural norms, poverty and population density as one of the causes of cholera. This is not an exhaustive list of factors influencing cholera occurrence but serves to illustrate the concept that Local Government preparedness and community practices and knowledge surrounds cholera influence by multiple factors. The study recognized the complex nature of factors affecting cholera preparedness by investigating a range of factors which determined preparedness

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Cholera Overview

Cholera first emerged from the Ganges Delta of the Indian subcontinent as early as the nineteenth century, and later swept the world in the form of seven pandemic since 1817. The current seventh pandemic began in Indonesia in 1961, and subsequently spread to Africa and the Americas in 1970 and 1991 respectively(Centre for Health Protection, 2004). The majority of Cholera outbreaks worldwide remain endemic in much of Africa and Asia. For the past decade, cholera has been largely confined to developing countries especially in parts of Asia, Africa, South and Central America where clean water and sanitation are lacking. The global incidence of cholera has been decreasing. In 2015, a total of 42 countries reported cases 172,454 to the WHO, a decrease by 23% compared with 221,226 cases in 2009. It implies that there was a significant decline in the overall case fatality rate from 2.24% (4,946 deaths) in 2009 to 0.8% (1304 deaths) in 2015. In 2015, cases were reported from all regions, including 16 countries in Africa, 13 in Asia, 6 in Europe, 6 in the Americas and 1 in Oceania. Afghanistan, the Democratic Republic of Congo (DRC), Haiti, Kenya and the United Republic of Tanzania accounted for 80% of all cases (WHO, 2016).

2.2 Causes of Cholera

Cholera is caused by the bacterium Vibrio cholera. The bacteria grow rapidly in the optimum temperature at 37°C, with average of 10 to 43°C. The organism can be activated at pH value less than 4.5 at room temperature and it grows in optimum pH of 7.6 with a range of 5.0 to 9.6. The pathogenesis of V.cholerae involves both the colonization of the intestine and the production of cholera toxin (CT) which acts locally to stimulate excessive electrolyte and fluid secretion, primarily from the crypt cells of the small intestine. The cholera bacterium is found in water of food sources that have been contaminated by feces from a person infected with cholera. Cholera is most likely to be found and spread in places with inadequate water treatment, poor sanitation and inadequate hygiene (CDC, 2016).

2.3 Cholera Transmission

Cholera is transmitted through drinking water or eating food contaminated with the cholera bacterium. In an epidemic area, the source of the infection is usually the feces of an infected person that contaminates water and /or food. The disease can spread rapidly in areas with inadequate treatment of sewage and drinking water .Population movement also helps to spread cholera from one area to another. In a study carried out in South Sudan (Thomas T.A et al,2014). While the routes of transmission are well known, controlling the cholera bacteria has remained a challenge. The cholera bacteria are evasive and very hard to detect in the inter-epidemic periods, even in endemic areas like Bangladesh. Also a study by Griffith et al, (2006), shows that water source contamination (29%), rainfall and flooding (25%) and refugee settings (13%) are the most common risks factors for cholera worldwide. Shortage of latrines also is another risk factors, according to a study by Breiman et al., (2009), identified that sharing of latrine with three or more households is another important risk factors for cholera.

2.4 Local Government Preparedness

Local Government Authorities plays critical role in ensuring the outbreak of cholera is prevented and managed well. The local authorities are responsible to ensure communities have access to clean water and sewage treatment is done properly. Also in case of the outbreak, the local authorities are tasked to investigate the source of outbreak, mobilize resources for response and coordinate key stakeholder on the ground to ensure response is done properly. Coordination between the Local Government authorities and Non-state actor is very crucial, according to Cowman, (2015), the Government response efforts includes non-government organization to implement various cholera outbreak response activities. The Non-government organization mainly focus on mass-media campaigning, cholera case management, distribution of water treatment and hygiene products, and environmental investigations consisting of collection and testing of water samples.

According to Kumate J *et al*., (1998), elimination of cholera in Latin America countries Peru, Honduras, Guatemala, Ecuador and Bolivia, was made possible through provision of potable water, sanitary regulations in food and beverages, appropriate disposal of human waste through latrines and sewer systems, sewage treatment plants and maintaining sewage free harvest beds, as well as improvements in educating the population about preventive measures.

Latin America countries targeted the poor community after the cholera epidemic of 1991.In time of the outbreak the Government increase access to treated water and raise awareness of way to prevent cholera. According to Tappero *et al*., (2010), during the outbreak of 2010 the Haitian government took emergency measure in coordination with other partners to ensure the community has access to safe drinking water In Internal Displaced camps, the Government worked with other partners to provide water storage vessels, soap and large quantities of emergency water treatment suppliers for households and piped water systems. Another report by WHO (2017), shows that in the outbreak of cholera in the Republic of South Sudan the Government carried out house to house hygiene promotion, a total of 417 households visit with 2,306 individuals received cholera messages. The above studies, didn't factor the local government preparedness before the outbreaks of cholera.

2.4.1 Local Government Intervention in Tanzania

Long-term cholera control and prevention require investments in improved drinking water and sanitation infrastructure. Which are time and resource intensive. In the interim, immediate disease control and prevention efforts, in risks areas is to focus on household-level safe water supply, sanitation, and hygiene promotion.

The supply of clean water and improved sanitation in rural and urban areas remains a problem in Tanzania. Only 24% of the population has access to improved sanitation facilities across the country (Thomas, 2013). Water waste disposal is still a challenge, according to UN water country brief; only 25% of waste water produced daily is collected and disposed through sewerage systems(systems (UN Water, 2012). As for drinking water, it has been observed that there has been no significant improvement of access to clean water since 1990. Data from Joint Monitoring Programme (WSP, 2015) indicates that water supply coverage is lower at

54% (45% rural, 80% urban), this level is below the Millennium development goals target which is 79%.The quality of piped water is unacceptable, basing on a survey done by EWURA in sampled districts where it was observed, that E-Coli requirements in some of the utilities was found to be unsatisfactory mainly due to failure to maintain the required amount of residual chlorine in their distribution systems(Goodwin, Ninkov, Randall, & Crow, 2013).

The local government is mandated to provide social services and ensure systems are in place in case of outbreak of disaster. According to literature, LGA's investment in good surveillance system from grass the community level, treatment, water treatment, good sanitation practices, trained health workers and communication (Tappero & Tauxe, 2011), helps to reduce the possibility of outbreak of cholera.

Even though cholera is identified as one of epidemic disasters(URT, 2012) in Tanzania, the LGAs lacks proactive approach in managing the epidemic. The LGA's remains reliant to the Prime Minister Office-Disaster Management Department (URT 1990) and there is no significant investment in primary health. The local government has set up Primary health committees from village to regional level, in order to ensure the health system is responsive to the local needs. Most of these committees are not functional and community involvement is very low (Mubyazi et al., 2007). The above studies dwell much on the infrastructure investment, and have not looked into the role of LGA in social mobilization interventions. This study focuses on infrastructure investment as well as social mobilization.

2.5 Community Knowledge and Practices

Human behavior plays an important role in shaping the complex epidemic and endemic pattern of a disease. According to Wang X et al., (2015), during the outbreak of fatal or novel pathogens, human behavior is more likely to be affected by the cumulative total number of cases and death than the real-time number of infectious individuals. One of lesson learned in the outbreak of cholera in Haiti in 2010, is that the population response to use clean water and hygienic practices was positive during the outbreak (Tappero & Tauxe, 2011), even though

they were confused about how cholera is spread and can be prevented. The change of hygienic practices is not sustained after cholera outbreak is controlled.

Studies indicate there are weaknesses of sustaining the community responses to the interventions put in place. The weakness is attributed to lack of access to safe drinking water even in the households which are connected to water pipes(Nyamusore, 2015). According to Jenkins M et al (2015), changes in community practices is limited by structural barriers especially in low income areas. The study shows that residents living in slums lacks hygienic pit emptying service providers who have invested in better quality latrines. There is no investment to install flood out drainpipe and leading to unhygienic pit-emptying methods. Moreover, dwellers in slums have poor access to a hygienic emptying service but shows willingness to upgrade to a safe and sustainable sanitation facility design.

According to Akter, T. (2014), poverty, traditional practices, lack of will and difficulty in carrying waters impede personal hygienic behavior. Poor people do not afford the price to buy soap. The study also found existence of difficulties in carrying water due to reluctance in consistently practicing hygiene behavior, such as hand washing at critical times and sanitation-related practices. These findings are supported by another study done in Zambia on factors associated with the recurring Cholera outbreak in Sinazongwe District of Southern Zambia(Phiri, Nzala, & Baboo, 2015). The findings suggested that water treatment is occasional in most households even though 89% of respondents knew about cholera. Many respondents did not use clean drinking water, because it takes long time to boil water and cannot afford to buy chlorine.

Risk perception bias makes community response on the key interventions to prevent cholera to be low. In a study which was done in Chad on factors determining water treatment behavior for prevention of cholera (Lilje, Kessely, & Mosler, 2015) , showed that the respondent did not perceive themselves at risk of acquiring diarrheal diseases, including cholera, despite the high risk environment they were living in. Another study by Mpazi et. Al (2005), shows that the public's level of knowledge and hygiene practices contributes to the type of proactive measures that are implemented in Dar es Salaam, the hygiene practices of the community

reflected a lack of knowledge and a negative attitude towards cholera as well as specific misconceptions about the disease. This is supported by the study by Lilje et AL (2015) in Chad where they found that, in the cholera endemic regions, misinterpretation and misconceptions on health due to lack of cholera prevention and control was a key barrier to behavior change

Health care utilization is another factor, which makes cholera to remain persistent. Early cases of cholera are detected through passive surveillance. Only patients who have gone to the health facilities can be identified. In a study analyzing health-seeking behavior on diarrhea in Bangladesh, a majority of the participants (80%) sought their care first from a non-professional healthcare provider. Even after failing to recover from the treatment offered by the first healthcare provider, they were less likely to visit to a professional healthcare provider as the second or third options. The reason for not seeking professional healthcare could be the perception that the episodes were not serious enough. The other cause could be due to not having cash to spend on treatment. In Bangladesh for instance, disadvantaged groups were reported to be unable to access quality healthcare because of their marginalized position in society. Despite a wide body of evidence investigating the Knowledge and Practices against cholera, the above studies have not been able to articulate clearly the gap between community knowledge and practices.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Study area

Kinondoni Municipality is a district in northern Dar es Salaam, Tanzania, others being Temeke , and Ilala . To the east is the Indian Ocean, to the north and west the Pwani Region of Tanzania. The area of Kinondoni is 531 km².the latest population census of 2012 showed that population of Kinondoni was 1,775,049: 914,247 female and 860,802 male. There are 446,504 households in Kinondoni with the average of 4 people per household.The study was conducted in the city of Dar es Salaam; Kinondoni Municipal. The Kinondoni municipal was selected purposively because of its frequent outbreaks of cholera.

3.2 Study Design

This study used a cross sectional research design. Cross sectional research design is applicable where either the whole population or subset of the study population is selected from which data is collected to meet the objectives of the study. The choice of this research design was due to consideration that the study will use current data in a given state of affairs on LGAs preparedness and community response to cholera outbreaks. It was therefore important to use the suggested study design in order to understand the phenomenon based existing situation during the time of undertaking the study because of outbreak of infectious diseases takes different forms at different times.

3.3 Population of the Study

The study involved Officials from Local Government Authorities in the fours wards in Kinondoni Municipal including Kawe, Manzese, Tandale and Kijitonyama and 2 at Municipal level. Also household representatives were involved as respondents.

3.3.1 Participants inclusion criteria

- Resident of Kinondoni Municipal for at least a year
- Working with Kinondoni Municipal

3.3.2 Participants exclusion criteria

- Cognitive impairment
- Refusal to give consent

3.4 Data collection techniques, Sample Size sampling strategies

The study collected both quantitative and qualitative data to answer the study questions. Quantitative data was collected through household survey; qualitative was collected through key informant interview. All respondents were gave an informed concert before participating in the study (Appendix I). The following are the details for each methods used to collect data.

Quantitative sample size and sampling strategies

The sample size of 402 respondents was interviewed assuming the = Z value (e.g. 1.95 for 95% confidence level); p = 50%, percentage picking a choice, expressed as a decimal; c = confidence interval of 5% and design effect of 2 (Rea & Parker, 1997).The quantitative data was collected through household survey questionnaire (Appendix VI). Questionnaire was administered to 402 households from Kinondoni Municipal. Questionnaire covered Knowledge, and practice about Cholera outbreaks. In terms of knowledge questionnaire covered Cholera awareness, causes, symptoms, and treatment while practices covered water treatment, hygienic practices, food safety practices, method to empty toilets, and Sanitation.

During the survey, the study applied multistage sampling strategies where 4 wards were selected randomly. Before conducting a household survey, the study team sought a list of respective street households from street leaders. From each randomly selected street, a head of household was interviewed and in case the head of the household was not available, a representative of the household who normally lived together in the same housing unit was interviewed. The first household was identified with the help of street leaders; this household was the first household in the street. Other respondents were identified by using a fixed

sampling interval, which was obtained by dividing total number of households (numerator) by desired sample size (denominator).

Qualitative sample size and sampling strategy

The qualitative data was collected through key informant interview (Appendix III&V). The key informant interviews involved the Municipal health official, Environmental officer, and wards health officers. Of 6 key informant interviews, 1 Municipal health official, 1 Environmental officer, and 4 wards health officers. The Key informant interview covered all questions regarding LGAs and Resource Availability for Cholera Outbreak. The Key informant interviews were selected purposively by virtue of being a leader or a member of CHMT who play roles in Cholera outbreak initiatives.

3.7 Validity and Reliability of the study

To ensure validity of the instruments, the tools were developed in line with the objectives of the study and reviewed by the research supervisors and ethical approval committee for reducing ambiguity. The instruments were later tested to ascertain that the data collection instruments are free from pitfalls and mistakes that would have surfaced in the main data collection process. The instruments were pilot tested twice where all pitfalls found were discussed and addressed.

3.8 Hiring and Training of enumerators

Two teams comprising of data enumerators each team with 3 members were hired to assist during data collection. Data collectors (enumerators) had social sciences degree, experience in data collection, M&E were selected and recruited from the study areas. The recruited assistants received one day training in order for them to gain familiarity with the research, data collection tools and techniques. The data collectors also participated in pre-testing of the tools prior to actual data collection.

3.9 Data Analysis and Processing

3.9.1 Qualitative Data Analysis

Qualitative data was recorded in-depth interview. The audio data were transcribed in Kiswahili into text documents using Microsoft office word in 2010 so as to be able to translate them into English. Having a transcript helped in reading carefully what was recorded on tape. The process of analysis involved formation of key categories organization and grouping together similar responses and interpretation of meaning of the data. Grounded theory was used to analyze the coded data.

3.9.2 Quantitative Data Analysis

Descriptive statistical analysis was used in analyzing quantitative data. Results are presented in tables, graphs/figures with frequencies and percentages. In this case, Statistical Packages for Social Scientists – SPSS in the analysis of quantitative data. After collection, data were sorted, coded and entered into the software by the research assistants.

3.10 Ethical Considerations

Ethical approval for this study was obtained from the Muhimbili University of Health and Allied Sciences (Appendix IX).Additionally, permission to conduct the study was obtained from the government authorities starting from Kinondoni Municipal council level to respective wards where the study was conducted. Informed consent was obtained from all respondents prior to their involvement in the study.

3.11 Limitations and Mitigation

The fact that a big part of this study was retrospective and involved discussing individual hygienic behavior and Local Government performance, there may be a tendency for respondents to hide information. This potential bias was reduced by conducting interviews in strict privacy and by probing during interviews.

CHAPTER FOUR

4.0 RESULTS

4.1 Chapter Overview

This chapter presents the findings from the study; it starts with social demographic characteristics followed by the findings on resources available for LGA to respond to cholera outbreaks. Subsequently, it presents findings on interventions by LGA to respond to cholera and the influence of LGA interventions in community practices in preventing cholera outbreaks.

4.2 Social Demographic Information

A total of 402 heads of households were interviewed. Among the households interviewed majority of households were self-employed; followed by those who were not employed. This study also found that, few households (23%) were employed.

Due to the relationships between awareness and practices of community members regarding cholera outbreak and prevention, the exploration of respondent's level of education was inevitably. It was found out that the majority (309) of heads of households had attained primary education; followed by secondary education (68) and few (8) were those with university (9) level of Education. Moreover, 16 of households interviewed had no any education level. In terms of gender, findings show that majority of household interviewed were female (293) and the rest males

Table 1: Social Demographic Information

Category	Frequency	Percentage
Level of education		
Primary	309	76.9
Secondary	68	16.9
University	9	2.2
No Education	16	4.0
Gender		
Male	109	27.1
Female	293	72.9
Employment status		
Employed	92	23
Self employed	205	51
Unemployed	105	26

4.3 LGAs and Resource Availability for Cholera Outbreak

The study looked Resource Availability for Cholera Outbreak in terms of skilled human resources, Financial and medications. To answer this study objective Council Health management Team, and ward health officers were interviewed.

In terms of human resources, Kinondoni District has adequate skilled workers who can be mobilized to respond quickly to Cholera outbreak. At the district level there is Cholera rapid response team comprised of 8 members and at the ward level there is ward health committee which works in collaboration with street health committee.

Regarding the financial resources, the district has no sufficient budget to respond quickly to Cholera outbreak. The study found out there is no sufficient stock of Oral Rehydration Salts (0RS), Intravenous (IV) fluids, equipment for rehydration, family hygiene kits (soap toilet bar, water containers, and bucket), and sanitation materials due to budget limitation. The following quote is from District Environment Officer

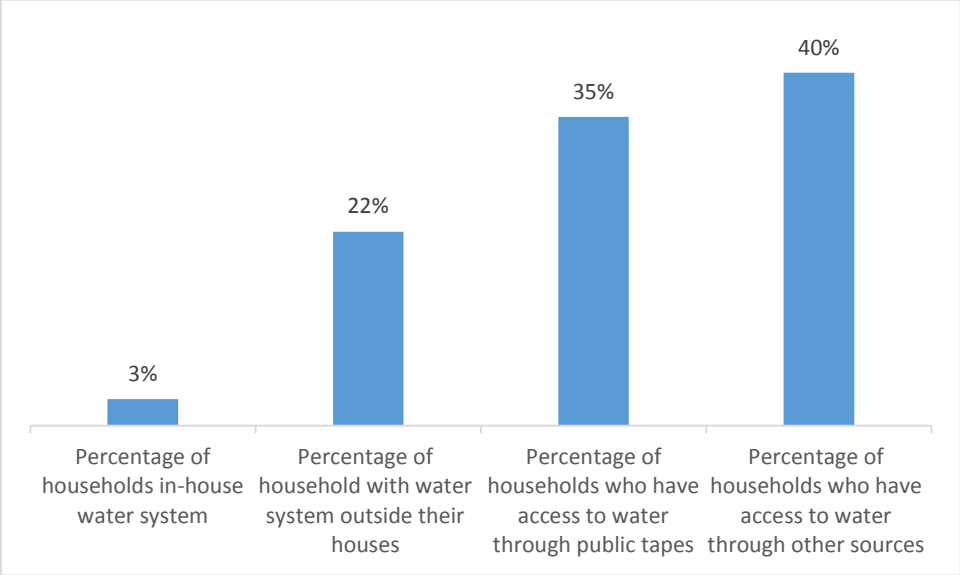
> *"To be honest, we do not have sufficient budget to support cholera interventions. During the outbreaks, it reached a time we did not have even IV fluids. The team had to move from facility to facility to collect IV fluid. If an outbreak occurs, we won't be able to support the community effectively. The role of the community health worker is to communicate information about cholera only. We distribute ORS and aqua tabs basing on the stock; once it is finished we rely on support from partners".*

While the district has cholera preparedness plan, the Ward Health workers do not provide information about cholera prevention continuously. Cholera information is shared when new cases are reported in the particular street or household. The following quote is from Ward Health Officer

> "*We normally provide information about cholera prevention and symptoms when we learn about a new case in our ward. We visit the house of the patient, water disinfectant and talk to the neighbours about cholera".*

In term of water sources, data demonstrates that only 38% of the households' homes were connected to water supply systems. Out of those connected with water supply systems, 35% were connected with water supply system outside their house while 3% were connected with water supply inside their house. This study found that 62% of the interviewed households were not connected with water supply system; 40% use Public water tapes and the remaining 22% access water through other means such rain water, water supplied by car/cart, constructed wells with a pump and natural springs.

Figure 2: Percentages of households with their respective water sources



4.4 Use of available resources by LGAs to prevent cholera outbreaks

The study looked at the extent of use of available resources by LGAs to prevent cholera outbreaks. To answer this study objective, members of the Council Health Management team and Ward Health Officers were interviewed

The district cholera communication plan is activated immediately after identification of the new cholera cases. The information is shared quickly with the ward health workers, the ward health workers in return work with ten cell leaders to communicate about the outbreak. The following quote is from Ward Health Officer

> *Once I receive the information about new case of cholera in my ward, I visit the patient house with ten cell leaders. We carry out inspection and provide water disinfectant and knowledge to the household members and neighbours"*

The LGA distribute ORS and water disinfectant to the neighbourhood with cholera cases. In high risk areas with shortage of supply of clean water, the LGA treat water supplied by water vendor before being sold to the community. The following quote is from Ward Health Officer

> *"We normally distribute ORS and water disinfectant in our stock to the community with reported cases of cholera. With support from UNICEF we treat water supplied by the water vendors"*

In areas with outbreaks, the ward health officers work with the local government officials at street level to sensitize the community about hygiene. The health officers also, ensure hot spot areas are monitored closely during the outbreaks to ensure that the disease does not spread.. The following quote is from Ward Health Officer

"*Food street vendors pose a challenge to us, especially in case of outbreaks cholera. During the outbreak or if there is any suspected case of cholera in the neighbourhood, I work closely with the ten cells leader to ensure the food vendor adhere to all hygienic practices"*

4.5 Knowledge and practices regarding cholera preparedness and prevention

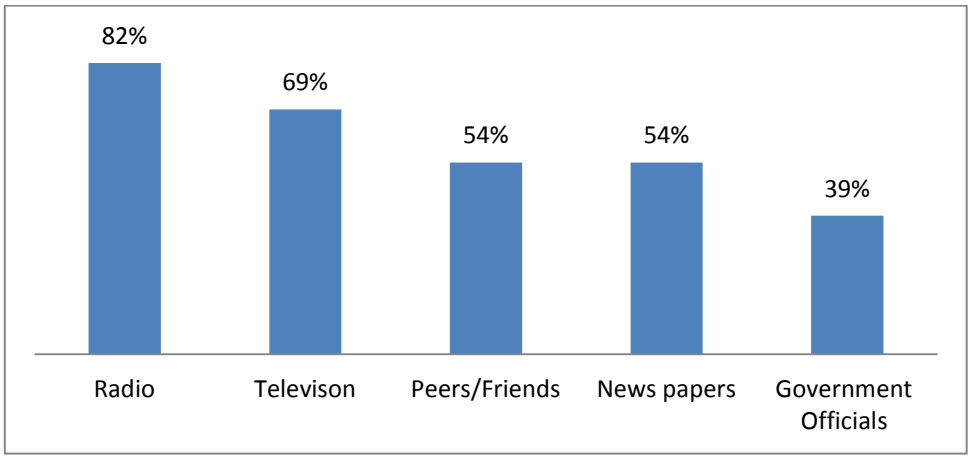
This section detailed the knowledge of households in cholera dieses and practices in order to prevent cholera out breaks. The following are the details of each section.

4.6 Knowledge regarding cholera preparedness and prevention

Information on causes of Cholera

The households were asked if they had heard about Cholera. Those who responded (97%) that they have heard about cholera were asked addition question on what sources they received this information. Multiple response data analysis indicated that radio was the most mentioned sources of information (82%), followed by, Television 64%, peers or friends, 54% and newspapers. The local government officials were the least mentioned sources of information.

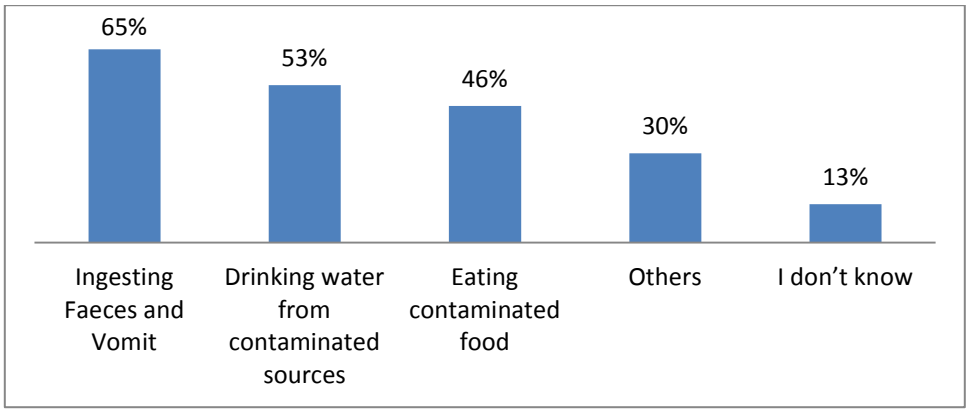
Figure 3: Household's knowledge sources on Cholera



Causes of Cholera

The households who heard about Cholera were asked to mention the causes of Cholera. The Multiple data analysis indicated that majority of the households knew the cause of Cholera. As indicated in the table below; the most mentioned causes of Cholera was ingesting Faeces and vomiting (65%), followed by drinking water from contaminated sources (53%) and eating contaminated food (46%).

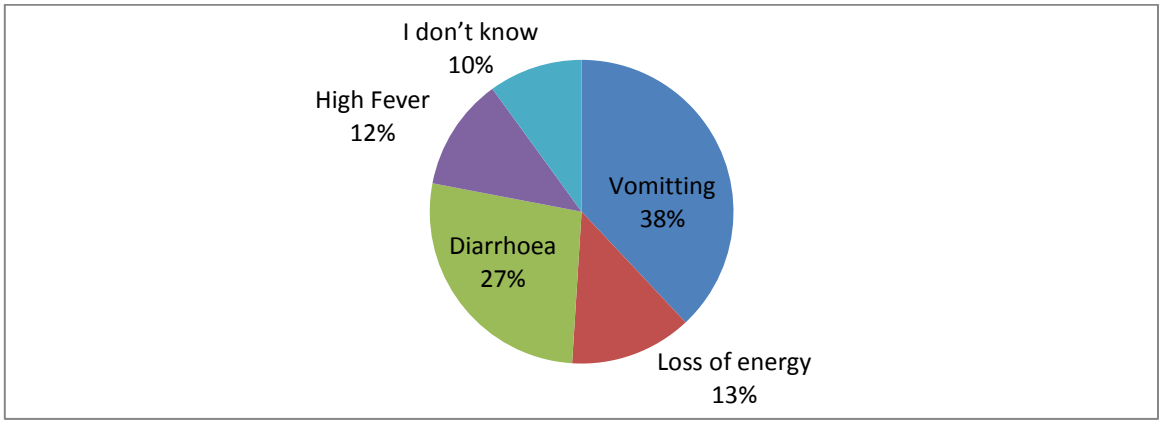
Figure 4: Known causes of Cholera



Symptoms of Cholera

The head of the households were also asked if they can recognize someone with Cholera. As indicated in the pie chart below, majority (48%) of the households interviewed knew that Vomiting is the main symptoms of the Cholera, followed by those who mentioned Diarrhoea and loss of energy. Few (12%) households mentioned high fever as the symptom of the Cholera and 10% they don't know the symptoms of Cholera.

Figure 5: Percentages of households who knows the main Symptoms of Cholera



Cholera Treatment

The table below indicates the multiple responses provided by households when asked to mention the methods used to treat Cholera. Medicine given by health workers was the most mentioned Cholera Treatment methods, followed by drinking more Water with salt and Sugar and Tradition medicine. The least mentioned method of treating Cholera was Prayer's.

Table 2: Household's knowledge of Cholera Treatment

Treatments	Responses	Percentage
Medicine given by health workers	402	100%
Drinking more Water with salt and Sugar	269	67%
Prayer's	16	4%
Tradition medicine	128	32%

4.7 Practices regarding cholera preparedness and prevention

The practices regarding cholera preparedness and prevention was looked in terms of water treatments, Hygienic Practices, Food safety Practices, methods to empty the Toilets and Sanitations.

Water treatment methods: The heads of households were asked to list the water treatment methods they normally apply to treat water. Multiple response data analysis indicated that water Boiling is the frequently (43%) used method to treat water, followed by Water guard (22) and Sun exposure (14%). The study also found that the least applied methods to treat water were filtration and sedimentation.

Hygienic Practices: This was also another area where the study looked at it. The multiple data analysis responses indicated that washing hands with soap before eating food was most mentioned (92%) Hygienic Practices, followed by Washing hand with soap before handling or preparing food and Dispose of human waste promptly, each scored 64%. In additional to that, Washing Hand with soap after using toilets, Wash hand with soap before feeding children, and Wash hand with soap after handling Uncooked food were the least mentioned Hygienic practices.

Food Safety Practices: The heads of households were also asked about their food safety practices. The multiple response data analysis indicate that majority of heads of house hold used clean water to clean utensils (89%), followed by avoiding uncooked food (61%) and use clean water to wash food (56%). Moreover, 40% of the head of households mentioned well cooked food and eating food while it is hot; and not eating uncovered food was least mentioned (28%).

Sanitation: The study investigated the sanitation status, improved or unimproved among the households. The study found out that only 54% of the interviewed heads of households use improved sanitation facilities.

Table 3: Practices regarding cholera preparedness and prevention

	Multiple Responses	
Water treatment Methods	No.	(%)
Filtration	32	8%
Water guard	88	22%
Boiling water	172	43%
Sedimentation	52	13%
Sun Exposure	56	14%
Hygienic Practices		
Washing hand with soap before handling or preparing food	257	64%
Washing hands with soap before eating food	369	92%
Washing Hand with soap after using toilets	132	33%
Wash hand with soap before feeding children	80	20%
Defecate in Toilet	160	40%
Dispose of human waste promptly	257	64%
Wash hand with soap after handling Uncooked food	76	19%
Food Safety Practices		
Wash Food with safety water	225	56%
Wash Utensils with clean water	357	89%
Cook food or reheat it thoroughly	160	40%
Avoid un cooked Food	245	61%
Eat Food while it is still hot	160	40%
Not eat uncovered	112	28%
Methods to empty Toilets		
Discharge the sewage waste at night	180	45%
Paying Waste Collectors	132	33%
Discharge sewage waste when it rains	180	45%
Sanitation		
Improved	217	54%
Unimproved	184	46%

CHAPTER FIVE

5.0 DISCUSSION

5.1 Introduction

This chapter presents the discussion of the study findings. It is organized in accordance with the objectives of the study. The chapter presents what the findings mean in a big picture, policy implications and looks at what other studies found on the studied subject matter.

5.2 Resource Availability

The participants understood and mentioned available resources for the LGA's to respond to cholera outbreaks. There were of those who only mentioned human resources, ORS, Aqua tab are the only needed resources and ones who mentioned ORS, Human resources, water disinfectant, funds, sanitation equipment and IV fluid. Despite the two differences all participants acknowledge that the LGA has limited resources to respond to the outbreak of cholera, there is no sufficient ORS, IV fluid, family hygiene kits (soap toilet bar, water container instrument. This suggests the LGA's response is limited and not comprehensive. Notably, explaining that there no minimum stocks of needed tools and medicine may hinder timely response to large outbreaks.

The Local Government faces budget constraints and depends on the development partners to fund some key interventions when the outbreaks occur. The consistence of budgetary constraints limits the Local Government Authority ability to respond on emergencies. The current preparedness is in-built culture of crisis management account for ill-preparedness at all levels within Tanzania. This is a consistence with the findings by Yayi et al., (2015)in Uganda where the study found that financial constraints as bottleneck to epidemic response at both local government and Central MoH

The study found that many residents living in the interviewed area lacks supply of clean water even though many of them were connected to the pipe water at their home. Many households also mentioned even though they were connected to water pipes but water do not floor for

days up to one month. This is supported by another study by Mpazi and Mnyika (2005) which found out that majority (84.3%) of the residents used piped water 84.3%. However, majority also used water from deep wells by 88.3% and shallow wells 71.4%. Despite being connected to water resources, residents explained that water could not be available all the time which is very important control factor in dealing with cholera. Treating water whether by boiling or using chlorine was recommended as the best method to prevent cholera infection and spread. This is consistent with the findings by Cowman (2015), in Kenya where he found out that during the outbreaks the Kenya Government efforts were focused on water treatment and hygiene products

In terms of sewage systems, it was found that almost half of the interviewed households are using unimproved sanitation facilities. The results explain why cholera outbreaks in Kinondoni have been a phenomenon during rain seasons. The findings are in-line with those reported in a study by Penrose (2010) who together with others things pointed out that poor sanitation has made cholera persistent in Dar es Salaam.

5.3 Utilization of the available resource

The findings showed that LGA resources were mainly used for creating awareness and surveillance. Majority of the households had received information about the causes of cholera. More specifically, some respondents reported to have been receiving information about cholera from health workers, their friends/peers, relatives and religious leaders during worship. The LGA surveillance system helped the LGA to deploy the resources where it is needed most, as reported by one key informant who mentioned that they visit the house and neighbourhood of the new case immediately after the case has been detected. This is supported by similar finding by Lindi, (2010) , who showed the LGA create awareness about cholera in the community effectively. The findings also reveal the LGA distributes water disinfectants to vendors distributing drinking water to the community. The vendors treat their water before selling to the community.

5.4 Community Knowledge and Practices

The findings revealed that majority of the interviewed households wash hand with soap before eating and after using latrines. However many interviewed households reported not to wash their hands after handling uncooked food and do not cook their food thoroughly. This finding is supported by the study done by Nakamura, (2008) in Lao Republic in East Asia who found out, the presence of Vibrio cholera bacteria and insisted on the need to wash food properly , cook it well and use of soap to wash hands after handling uncooked food. Moreover, the results implies that the community is quiet aware of the causes and practices to prevent cholera

Another important variable for preventive practices of cholera outbreak and response for community was accessibility of improved sanitation facility. The findings revealed that almost of half of interviewed households do not have improved sanitation facilities. Majority of the household poorly manage their waste, through discharging at nights or when it rains. There is a popular method called 'Vomiting'. A study by Tremolet, (2013) others found the same poor sanitation in the three Dar es salaam Municipals. This is also consistent with the study done by Adagbada et al (2012) , who found that most of behavioural changes intervention are not linked to removing structural barriers of preventing the disease.

5.5 Strengths or weakness of the study

- The strength of the study is a community based study, covering 4 wards in urban setting with large sample size.
- The weakness of the study is that is the study did not manage to interview all key informants to obtain all information that would be useful for the study

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

In conclusion, the findings show that the Local Government Authorities in the study area are not well equipped with interventions for cholera prevention as shown by the findings on the resources availability and utilization. In addition LGAs are not prepared to handle cholera epidemics when they occur. LGA's are not proactive to ensure the outbreak is avoided; community education activities are organized after detection of cholera cases even in high risk season and areas. On the other hand, community practices for care of cholera patients and prevention are inadequate as indicated by the findings on community knowledge and practices.

6.2 Recommendations

Based on the findings of the study, the following recommendations may be made

1. District Executive Officer needs to ensure Local Government Officials at all levels are familiarized with the District Cholera response plans.
2. District Medical Officer should promote Water treatmentpractices; e.g. organize mass campaigns for the demonstration of local and modem approaches used to treat water.
3. The District Executive Director need to work with councilors to increase the amount of clean water supply to the identified cholera hotspots in coordination with local water authorities.
4. District commissioner to seek support from religious leaders, as well as other male and female leadership committees, in ensuring that communal areas, especially food vendors and food stalls, maintain hygienic conditions.

5. Municipal councilors should consider to work with LGA to increase budget allocation for the distribution and supply of resources that include chlorine, water guards, hygiene kits and Oral rehydration solution so to ensure that community have a common tendency of treating drinking water and for home consumptions, LGA's should make sure there are enough reserve of these resources starting from local communities

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APPENDIXES

Appendix I: Consent Form-English Version

MUHIMBILI UNIVERSITY COLLEGE OF HEALTH SCIENCES DIRECTORATE OF RESEARCH AND PUBLICATIONS, MUHAS

CONSENT FORM.

ID NO

Consent to participate in study

Greetings! My name is Yisambi Mwanshemele. I'm a student at Muhimbili University of Health and Allied Sciences pursuing master in public health (MPH). I am doing a study on the level of preparedness of the health system to respond to the outbreak of cholera

Purpose of the study

The purpose of the study is to assess the LGA preparedness to the outbreak of cholera and determine and community response to outbreaks.

What Participation Involves

If you agree to join this study, you will be required to answer a series of question that have been prepared for the study in through interview in order to understand the level of health system preparedness and actions which needs to be taken to prevent the future outbreaks.

Confidentiality

All information that will be collect will be kept confidentially and will be used only for this study.

The form will not bear your name but we will use only the identification number.

Risks

We do not expect any harm to happen to you because of participating in this study.

Rights to Withdraw and Alternatives

Participating in this study is completely voluntary. You can choose not to participate in this study and even if you have already accept to participated in the study you can quit at any time if you feel so. Refusal to participate or withdrawal from the study will not involve penalty or loss of any benefits

Benefits

There are no direct benefits to you for participating in this study. However, there are benefits to the organizations, community and government institutions which works in cholera and infection disease preventions.

Payment

You will not receive any payment for participating in this study.

In Case of Injury

We do not anticipate that any harm will occur to you or your family as a result of participation in this study. There will be no additional compensations to you or your family

Who to contact

If you ever have questions about this study, you should contact the Principal Investigator Yisambi Mwanshemele, 0682016722

Dar-es-salaam. If you ever have questions about your rights as a participant, you may call Prof. Japhet Killewo 0754853257.

Signature:

Do you agree? Participant agrees..... Participant does not agree .....

I _____ have read the contents in this form. My questions have been answered. I agree to participate in this study.

Signature of Participant _____

Signature of Research Assistant_____ Date of signed consent

Appendix II: Consent Form-Swahili Version

FOMU YA RIDHAA

Namba ya utambulisho…….

Ridhaayakushirikikwenyeutafiti .

Habari ,jina langu naitwa Yisambi Mwanshemele. Mimi ni mwanafunzi wa shahada ya uzamili ya afya ya jamii katika chuo kikuu cha afya na sayansi ya tiba ya jamii cha Muhimbili. Ninafanya utafiti huu kuhusiana na utayari wa mfumo wa afya katika kuitikia mfumuko wa kipindupindu.

Lengo la utafiti

Lengo la utafiti ni kupima kiwango cha utayari wa serikali za mitaa katika kuzuia mripuko wa ugonjwa kipindupindu na jinsi jamii inavyokuwa katika wakati wa mlipuko

Ushiriki unahusisha nini

Kama utakubali kushiriki, utahitajika kujibu maswali mengi ambayo yameshaandaliwa kwa ajili ya utafiti huu kwa njia ya mahojiano ili kuelewa utayari wa mfumo wa afya na hatua zinazoweza kuchukuliwa ili kuzuia mifumuko ya baadae**.**

Usiri

Taarifa zote zitakazokusanywa zitawekwa kwa siri na zitatumiwa kwa ajili ya utafiti huu tu.

Jina lako halitaandikwa katika fomu hii lakini tutatumia namba ya utambulisho tu.

Hatari

Hatutegemei madhara yoyote kukupata kwa wewe kushiri katika utafiti huu.
Una hiari ya kujiondoa na kuweka mbadala

Ushiriki katika utafiti huu ni wa kujitolea. Unaweza kuchagua kutoshiriki katika utafiti na hata kama umeshakubali kushiriki katika utafiti unaweza kusitisha muda wowote kama ukihisi kufanya hivyo. Kukataa kushiriki au kujiondoa kwenye utafiti hakutahusisha adhabu au kupoteza faida yoyote.

Faida

Hakuna faida yoyote kwa wewe kushiriki katika utafiti huu.hata hivyo kuna faida katika Mashirika,Jamii na Taasisi za kiserikali ambazo zinafanya kazi za kuzuia kipindupindu na magonjwa ya kuambukiza.

Malipo

Hutapokea malipo yoyote kwa kushiriki katika utafiti hu.

Ikitokea kuumia

Hatutarajii madhara yoyote kutokea kwako au kwa familia yako kama matokeo yakushiriki katika utafiti huu.

Nani wa kuwasiliana nae

Kamautakua na swali kuhusu utafiti huu, uwasiliane na Msimamizi wa Uchunguzi Yisambi Mwanshemele kutoka chuo cha afya na sayansi cha Muhimbili –0682016722

Kama utakuwa na swali kuhusu unamaswali ya msingi unaweza kuwasiliana na Prof. Japhet Killewo 0754853257.

Utakubali kushiriki ?

Mshiriki amekubali

Mshiriki amekataa

Mimi ……nimesoma yaliyomo katika fomu hii

Maswali yangu yameshajibiwa. Nimekubali kushiriki katika utafiti huu

Saini ya mshiriki…….

Saini ya msaidizi utafiti…… tarehe ya ridhaa iliyosainiwa.

Appendix III: Municipal Officials Key informant interview English Version

1. Could you please briefly introduce yourself and say what you do?
2. Do you have an established cholera outbreak committee in case of outbreak?

   If yes probe the structure of the committee
3. Does your district have early warning system of surveillance for cholera?
4. *If yes… probe if the surveillance system for cholera has been set up as part of the national surveillance system in close collaboration with WHO*
5. Probe if a district has a district cholera control action plan
6. Probe if the district has pre-positioned materials to assist in community dialogue on cholera and diarrhea. *Probe if the materials are being used*
7. Is the stocks of ORS, IV fluids and equipment's for rehydration, and antibiotics active against cholera available?.*If the medication and equipment's are available, probe the quantity, probe if they have been distributed in the health facilities in a high risk areas*
8. Is the chlorine based disinfectants and residual chlorine test kits available to treat water points in the district. *If yes, probe when was the last time the municipal distributed the kits to households and water distributors*
9. Can the district distribute family hygiene kits stock to the households in areas affected with cholera?

a) If yes..probe what does the family hygiene kit contains

b) If no… probe why

1. Is cholera one of the prioritized diseases in the local government?

a. *If yes..probe action taken by the government to prevent the outbreak of cholera*

b. *If no…probe why*

2. Have you managed to address factors that contribute to cholera outbreaks in your district/ward

a. If yes....probe what were the action taken

b. If yes…probe how did the local government address those risk factors

3. Are community health workers equipped well to issue referrals to cholera infected patients?

a. If yes…. Probe if the referral system is functional

b. If yes….Probe how the referral system is working

Appendix IV: Municipal Officials Key informant interview Kiswahili Version

1. Je unaweza kujitambulisha na kusema unajihusisha na nini?

2. Je huwa mnatengeneza kamati ya kipindupindu pale panapokuwa na mlipuko?. / Kama ndiyo, dodosa muundo wa kamati hiyo

3. Je wilaya yako ina mfumo ambao hutoa taarifa ya ufuatiliaji wa kipindupindu?.*Kama ndio ,..dodosa kama mfumo huo wa kufuatilia kipindupinduni moja ya mifumo ya inchi iliyotengenezwa na ikihusisha na shirika la afya duniani.*

4. Dodosa kama wilaya ina mpango mkakati wa hatua ya kudhibiti kipindupindu.

5. Dodosa kama wilaya ina vifaa vya awali vilivyosaidia katika majadiliano ya jamii juu ya kipindupindu na kuharisha. *Dodosa Kama inatumia hivyo vifaa mpaka sasa katika elimu ya jamii*

6. Je kuna akiba ya dawa ya ORS, dripu za maji na vifaa kwa ajili ya kutibu upungufu wa maji mwilini, na dawa za kiuavijasumu zinazozuia kuharisha?.*Ikiwa dawa na vifaa vipo,dodosa ni za kiasi gani, dodosa kama zimegawanywa katika vituo vya afya katika maeneo yenye hatari ya mlipuko wa kipindupindu*

7. Je dawa za klorini ya kuzuia maambukizi na klorini ya za kutibu vyanzo vya maji zinapatikana hapa wilayani?.*Ikiwa ndio, dodosa je mara ya mwisho manispaa kusambaza klorini kwa kaya na wasambazaji wa maji*

8. Je wilaya ina uwezo wa kusambaza vifaa vya usafi vya familia majumbani kwenye maeneo yaliyoathirika na kipindupindu?

   a. Kama ndio…dodosa sanduku la vifaa vya usafi wa familia lina nini?

   b. Kama hapana ..dodosa ni kwanini?.

9. Je kipindupindu ni ugonjwa unaopewa kipaumbele katika serikali ya mtaa

   a *Kama ndio…dodosa serikali inachukua hatua gani kuzuia mfumuko wa ugonjwa wa kipindupindu?*.

   b. *kama hapana…. Dodosa ni kwanini?*

10. Je umeweza kuongelea sababu zinazochangia mfumuko wa kipindupindu katika wilaya/kata yako

   a. *kama ndio…dodosa ni hatua gani ulizochukua*

   b. kama ndio …dodosa jinsi gani serikali ya mtaa ilivyozuia hizo sababu hatarishi

11. Je wafanyakazi wa afya ya jamii wamejipanga vizuri kuruhusu rufaa kwa wagonjwa walio na maambukizi ya kipindupindu?

   a. Kama ndio…Dodosa hizo taratibu za rufaa zinafanya kazi kwa kiwango gani?

   b. Kama ndio …dodosa jinsi gani hizo taratibu za rufaa zinavyofanya kazi

AHSANTE KWA USHIRIKIANO WAKO MWISHO

Appendix V: Ward Officials Key informant interview English Version

Respondents: Ward Local Government Officials officers

Name of the Ward ……..

Job Position …….

1. Could you please briefly introduce yourself and say what you do?
2. What is your role in this ward?
3. Is there any cholera case reported in this ward/street in the last one year?
   If yes probe……how many cases? Which measures have been taken? If no go to question number 10
4. How did you learn about the first cholera cases in your ward?
5. Do you know what was/were the source(s) of the outbreak?
6. What action did you take after learning there was a new case of cholera in the area?
7. Did you receive any support from nearby health facility?
8. What kind support you received from the local government authorities?. *Probe if the ward still receive the support from LGA*
9. Do you have a health committee in your ward?

a) Probe….if yes what is its structure and roles?

b) Probe…if no how do you coordinate health related issues in your street/ward?

10. What would you comment about resource availability for LGA to respond to cholera outbreak?
11. On the prevention side, what has your office in general have been doing to prevent the outbreak of cholera?
12. On the prevention side, what has the LGA in your locality have been doing to prevent the outbreak of cholera?
13. Do you have any additional information regarding cholera outbreak, prevention and response by LGAs? Kindly share

END- THANK FOR YOUR COOPERATION

Appendix VI: Ward Officials Key informant interview Kiswahili Version

Wahojiwa: Wafanyakazi rasmi wa serikali ya mtaa

Jina la kata……

Cheo cha kazi……

1. Tafadhali unaweza kujitambulisha na kusema unajihusisha na nini?
2. Majukumu yako ya kazi yako ni yapi katika kata hii?
3. Je kuna kesi yoyote ya kipindupindu iliyoripotiwa katika kata /mtaa huu ndani ya kipindi cha mwaka mmoja uliopita

Kama ndio…dodosa…ni kesi ngapi? hatua zipi zimechukuliwa? kama hapana nenda swali la 10

4. Je uligunduaje kuhusu kesi ya kwanza ya kipindupindu katika kata yako?
5. Je ulijua nini kilikuwa/vilikuwa chanzo/vyanzo vya mlipuko wa kipindupindu?
6. Hatua gani ulizichukua baada ya kugundua kwamba kuna kesi mpya ya kipindupindu katika eneo lako?
7. Je ulipokea msaada wowote kutoka katika kituo cha afya cha karibu?
8. Ni msaada wa aina gani uliupokea kutoka mamlaka ya serikali ya mtaa?*Dodosa kama bado wanapata msaada huo kutokea serikali za mtaa*
9. Je kuna kamati ya afya katika kata yako?
    a) Dodosa…kama ndio, je muundo na kazi ya kamati hiyo ni nini?
    b) Dodosa ..kama hapana ni jinsi gani unaratibu masuala yanayohusiana na afya katika kata/mtaa wako?
10. Je unaweza kusema nini kuhusu uwepo wa rasilimali kwa mamlaka ya serikali ya mtaa kwa ajili mfumuko wa kipindupindu?
11. Katika upande wa kuzuia, kwa ujumla nini ofisi yako imekua ikifanya kuzuia mfumuko wa kipindupindu?

12. katika upande wa kuzuia, ni, nini mamlaka ya serikali ya mtaa imefanya katika eneo lako ili kuzuia mfumuko wa kipindupindu?
13. Tafadhali unaweza kuniambia kama una taarifa zozote za ziada kuhusu mfumuko wa kipindupindu, kinga, na majibu ya mamlaka ya serikali ya mtaa?

AHSANTE KWA USHIRIKIANO WAKO MWISO

Appendix VII: English Questionnaire Version

Respondents: Sampled Population in 4 Wards

1. Age…… in years

2. Sex……
   1. Female
   2. Male

3. Education level
   1. Primary school
   2. Secondary School
   3. University

4. What is your occupation?
   1. Employed
   2. Self employed
   3. Unemployed

5. In this area, have you had cholera outbreak?
   1. Yes
   2. No

   1 if no, have your heard about cholera?
      1. Yes
      2.No

   2 If yes, can you state what type of disease is it
      1. Fever
      2. Diarrhea
      3. Vomiting

6. Do you know what causes cholera?

   1. Yes
   2. No

   6.1 *If yes, mention what causes cholera …….*

   6.2 If the answer is yes- probe where did he/she get the information

a. Radio 1.Yes 2.No		b. Newspaper 1.Yes 2.No	
c. Television 1.Yes 2.No		d. Friends 1.Yes 2.No	
e. Government official 1. Yes 2.No		f. Others ……	

7. How does cholera spread from person to person?

a. Drinking unsafe water	1.Yes 2.No	
b. Food	1.Yes 2.No	
c. Poor hygienic behavior	1.Yes 2.No	
d. Others		

8. Have you heard about Cholera treatment?

   1. Yes
   2. No

9. What are the symptoms of cholera? …….

10. Have you ever been told about how can cholera be prevented?

1. Yes
2. No

11. Have you ever been told about how cholera can be treated

1. Yes
2. No (Skip to question 12)

If yes: From whom or what did you hear about treating cholera?

a.Family members 1. Yes 2. No		b.Neighbor/ Friend 1. Yes 2.No	
c.Newspaper media 1. Yes 2. No		d.Clinician /healthcare worker 1. Yes 2. No	
e.Radio 1. Yes 2. No		f.TV 1.Yes 2. No	
g.Community meeting 1.Yes 2.No		h. Community health workers visiting my neighborhood 1.Yes 2.No	
i.Religious leader 1. Yes 2. No		j.Other……	

12. Have you heard about Oral rehydration solution (ORS)?

1. Yes
2. No (*if no skip to question 14)*

12.1 If yes, from what did you hear about ORS

a. Radio 1.Yes 2.No		b. Community health workers 1.Ye 2.No	
c. Newspapers 1.Yes 2.No		d. Ward officer 1.Yes 2.No	
e.Fried/relative 1.Yes 2.No		f. Not sure 1.Yes 2.No	

12.2 If yes, have you used ORS for diarrhea?

1. Yes
2. No ☐

13. What does ORS do to a patient with diarrhea?

a. Stop diarrhea	1. Yes 2. No	
b. Replace body lost fluids	1.Yes 2.No	
c.Preventing dehydration	1.Yes 2.No	

WATER SOURCE, STORAGE, AND HANDLING PRACTICES

14. What is the main source of drinking water for members of your household?

a. Piped water, in house 1. Yes 2.No	b. Piped water, in court 1.Yes 2.No
c. River/stream 1.Yes 2.No	d. Bottled water/Company for selling water e. 1.Yes 2.No
f. Communal standpipe 1.Yes 2.No	g. Piped water/Piped water 1.Yes 2.No
h. spring water, unprotected 1.Yes 2.No	i. Rain water 1.Yes 2.No
j. Well, unprotected 1.Yes 2.No	k. Well with pump 1.Yes 2.No
l. Water truck/Water vendor 1.Yes 2.No	

15. Are there any times during the year when you have no access to clean and safe drinking water?

1. Yes. ☐
2. No

15.1 If yes- is there time of the year you don't have access of clean water for more than a week…..

15.1.2 If yes, how many times per year does that happen…….

16. Do you do anything to the water to make it safer to drink

1. Yes
2. No

17. During the last outbreak of cholera, what did you do to make water safe for drinking? (Do not read. Circles yes for all that mentioned and circle no for those that are not mentioned)

a.Boil the water	1.Yes	2.No	
b.Use water filter	1.Yes	2.No	
c. Strain it through as cloth	1.Yes	2.No	
d.Add water guard	1.Yes	2.No	
e.Let it stand/settle	1.Yes	2.No	
f.Solar disinfection	1.Yes	2.No	
g.Other Specify			

17.1. What do you decurrently to make the water safer to drink? (Do not read. Circles yes for all that mentioned and circle no for those that are not mentioned)

a.	Boil the water	1.Yes	2.No	
b.	Use water filter	1.Yes	2.No	
c.	Strain it through as cloth	1.Yes	2.No	
d.	Add water guard	1.Yes	2.No	
e.	Let it stand/settle	1.Yes	2.No	
f.	Solar disinfection	1.Yes	2.No	
g.	Other Specify			
h.				

HAND HYGIEN AND SANITATION

18. Do you regularly wash your hands before eating food?

1. Yes
2. Occasionally
3. No

19. Do you currently have soap or detergent in the house for hand washing?

1. Yes
2. No

20. What kind of toilet facility do members of your household usually use?

a. Flush, connected to system	b. Flush, connected to septic pits
c. Flush, connected to latrines	d. Flush connected to other system or do not know the system
e. Pit latrines with cement slab	f. Pit latrines, ventilated and ameliorated
g. Pit latrine, without cement slab	h. Bucket toilet
i. No toilets: Open defecation /Bush /field	j. other: Specify

21. Does your latrine/Toilet or its chambers become overflow at any part of the year? If yes, how many times per year? What do you do when your latrine is full?

1. Yes
2. No

22. How many times per year does the pit latrine/toilets or it chambers in your household become full. …….

What do you do when your latrine/toilet or chamber is full?

1. Discharge the sewerage waste at night
2. Pay waste collectors to collect waste
3. Discharge the waste when it rains

Appendix VIII: Kiswahili Questionnaire Version

1. Umri…… Miaka ☐
2. Jinsia……
    1. Mwanamke
    2. Mwanaume
3. Kiwango cha elimu
    1. Shule ya msingi
    2. Shule ya sekondari ☐
    3. Chuo Kikuu
4. Je unafanya kazi?
    1. Nimejiajiri ☐
    2. Nimeajiriwa
    3. Sinaajira
5. Je katika eneo hili, kumewahi kutokea mlipuko wa ugonjwa wa kipindipindu?
    1. Ndio ☐
    2. Hapana

    5.1 Kama hapana, je umewahi kusikia kuhusu ugonjwa wa kipindipindu?

    1. Ndio
    2. Hapana ☐

    5.2 Kama ndio, je unaweza kuelezea ugonjwa wa kipindupindu kwa dalili zipi?

    1. Homa
    2. Kuhara ☐
    3. Kutapika

6. Je unajua ugonjwa wa kipindupindu unasababishwa na nini?

   1. Ndio

   2. Hapana

   6.1. *Kama ndio, taja nini inasababisha ugonjwa wa kipindupindu……*

   6.2 Kama jibu ni ndio- uliza amepata taarifa hizo kupitia njia gani

1. Redio	1.Ndio 2.Hapana		2. Magazeti	1.Ndio 2.Hapana	
3. Runinga	1.Ndio 2.Hapana		4. Marafiki	1.Ndio 2.Hapana	
5. Watumishi wa serikari	1. Ndio 2.Hapana		6. Njia zingine……	1.Ndio 2.Hapana	

7. Je kipindupindu kinambukizwa kwa namna gani?

a.Kunywa Maji machafu	1.Ndio 2.Hapana	
b.Chakula	1.Ndio 2.Hapana	
c.Kutokuwa na tabia ya usafi	1.Ndo 2.Hapana	
d.Nyingine (taja)		

8. Je umewahi kusikia kuhusu njia za kutibu kipindundu?

   1. Ndio

   2. Hapana

8. Je dalili za kipindupindu ni zipi?.....

9. Je umewahi kupatiwa njia za namna ya kuzuia kupindupindu?

   1. Ndio

   2. Hapana

10. Je umewahi kufundishwa namna ya kutibu ugonjwa wa kipindupindu?

    1. Ndio

    2. Hapana (Nenda swali la 12)

Kama ndio:

*J*e ulipata taarifakuhusu namna ya kutibu ugonjwa wa kipindupindui?

a. Ndugu zangu 1. Ndio 2. Hapana		b. Jirani/ Marafiki 1. Ndio 2.Hapana	
c. Magazeti 1. Ndio 2. Hapana		d. Mtumishi wa afya 1. Ndio 2. Hapana	
e. Redio 1. Ndio 2.Hapana		f. Runinga1.Ndio 2. Hapana	
g. Vikao vya kijiji/mtaa 1.Ndio 2.Hapana		h. Bwana/Bibi Afya waliotembelea mtaa wangu 1.Ndio 2.Hapana	
i. Viongozi wa dini 1. Ndio 2. Hapana		j. Njia zingine……	

11. Ulishawahi kusikia kuhusu dawa ya ORS?

    1. Ndio

    2. Hapana*(nenda swali la 14)*

12.1 Kama ndio,umesikia kutoka wapi

a. Redio 1.Ndio 2.Hapana		b. Mhudumu wa afya wa jamii 1.Ndio 2./Hapana	
b. Magazeti 1. Ndio 2.Hapana		c. Mwenyekiti wa kitongoji 1.Ndio 2.Hapana	
d. Rafiki/Ndugu 1.Ndio 2.Hapana		e. Sina Hakika 1.Ndio 2.Hapana	

12.2 Kama ndio, Umeshawahi kutumia ORS unapokuwa unaharisha?

1. Ndio
2. Hapana

12. Je ORSinasaidia nini kwa mgonjwa anayeharisha?

a. Kuzuia kuharisha	1. Ndio 2.Hapana	
b. Kurudisha maji yaliyopotea mwilini	1.Ndio 2. Hapana	
c. Kuzuia kupungukiwa na maji mwilini	1. Ndio 2.Hapana	

CHANZO,UHIFADHI NA UTUNZAJI WA MAJI

a. maji ya bomba la ndani ya nyumba 1. Ndio 2.Hapana		b. maji ya bomba la nje ya nyumba 1.Ndio 2.Hapana	
c. Mto/kijito 1.Ndio 2.Hapana		d. Maji ya chupa/maji yanayouzwa na kampuni 1.Ndio 2.Hapana	
e.Bomba la Jumuiya 1.Ndio 2.Hapana		f. Maji ya bomba 1.Ndio 2.Hapana	
g. Maji ya chemchem 1.Ndio 2.Hapana		h. Maji ya mvua 1.Ndio2.Hapana	
i. kisima kilichowazi 1.Ndio 2.Hapana		j. kisima cha kisasa 1.Ndio 2.Hapana	
k. Gari ya maji/mkokoteni 1.Ndio 2.hapana			

13. Ni chanzo gani cha maji ya kunywa kwenye kaya yako?

14. Kuna kipindi chochote katika mwaka unakuwa hauna maji masafi kwa ajili ya kunywa?

1. Ndio

2. Hapana

14.1 Kama ndio, je kuna kipindi chochote cha mwaka haupati maji masafi ya kutumia kwa zaidi ya wiki mbili

14.2 *Kama ndio, je huwa unakosa maji masafi kwa zaidi ya wiki mbili mara ngapi kwa mwaka*

15. Mnafanyia chochote maji kuyafanya yawe salama kwa kunywa?

1. Ndio

2.Hapana

17. Wakati wa mlipuko uliopita wa ugonjwa wa kipindupindu, Je mlikuwa mnafanya nini ili maji yawe safi na salama?(Usimsomee. Zungushia duara kwa yale yaliyotajwa na usizungushie duara kwa yale ambayo hayajatajwa)

a.	kuchemsha maji	1.Ndio	2.Hapana	
b.	kuchuja maji kwa chujio	1.Ndio	2.Hapana	
c.	Kuchuja maji kwa nguo	1.Ndio	2.Hapana	
d.	Kutumia watergurd	1.Ndio	2.Hapana	
e.	Kuyaacha yatuame	1.Ndio	2.Hapana	
f.	Kuyaweka juani kuua vijidudu	1.Ndio	2.NHapana	
g.	Nyingine taja			

17.1 Kwa sasa huwa mnafanya nini ili maji yawe safi na salama?(Usimsomee. Zungushia duara kwa yale yaliyotajwa na usizungushie duara kwa yale ambayo hayajatajwa)

a.	kuchemsha maji	1.Yes/Ndio	2.No/Hapana	
b.	kuchuja maji kwa chujio	1.Yes/Ndio	2.No/Hapana	
c.	Kuchuja maji kwa nguo	1.Yes/Ndio	2.No/Hapana	
d.	Kutumia watergurd	1.Yes /Ndio	2.No/Hapana	
e.	Kuyaacha yatuame	1.Yes/Ndio	2.No/Hapana	
f.	Kuyaweka juani kuua vijidudu	1.Yes/Ndio	2.No/Hapana	
g.	Nyingine taja			

USAFI WA MIKONO NA MAZINGIRA

18. Je huwa unaosha mikono yako kabla ya kula chakura?

1. Ndio
2. Muda mwingine
3. Hapana

19. Je una sabuni au dawa ya uchafu nyumbani kwakokwa ajili ya kuoshea mikono?

1. Ndio
2. Hapana

20. Kama hapana,ni aina gani ya choo kaya yako huwa inatumia?

a. Choo cha kuflashi ndani ya nyumba	b. Choo cha kuflash kilicho nje ya nyumba
c. Choo cha kuflashi cha shimo	d. Choo cha kuflashi kimeunganishwa na shimo lingine
e. Choo cha shimo chenye sakafu ya saruji	f. Choo cha shimo kilichoboreshwa
g. Choo cha shimo kisicho na sakafu ya saruji	h. choo cha ndoo
i. Hakuna choo/kichakani/	j. Nyingine taja

21. Kama mna choo cha shimo/kuflashi au kilichounganishwa na shimo lingine, je huwa kina kinafulika pindi chochote katika mwaka?Kama ndio, ni mara/ ngapi kwa mwaka?

1.Ndio
2.Hapana

22. Je ni mara ngapi kwa mwaka choo chako kinajaa? …….

23. Unafanya nini choo chenu au shimo liikijaa?

    1. Kuruhusu kinyesi muda wa usiku
    2. Kulipia gari la maji machafu kukusanya kinyesi
    3. Kuruhusu kinyesi pindi mvua inaponyesha

Appendix IX: Ethical Approval Letter

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES
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Ref. No. MU/ PGS/SAEC/Vol.IX/ 15th September, 2017

Dr. Yisambi Mwashemele
MPH-Executive Track
MUHAS.

RE: APPROVAL OF ETHICAL CLEARANCE FOR A STUDY TITLED: "LOCAL GOVERNMENT PREPAREDNESS AND COMMUNITY RESPONSE TO CHOLERA OUTBREAKS: THE CASE OF KINONDONI MUNICIPAL IN DAR ES SALAAM"

Reference is made to the above heading.

I am pleased to inform you that, the Chairman has, on behalf of the Senate, approved ethical clearance for the above-mentioned study. Hence you may proceed with the planned study.

The ethical clearance is valid for one year only, from 14th September, 2017 to 13th September, 2018. In case you do not complete data analysis and dissertation report writing by 13th September, 2018, you will have to apply for renewal of ethical clearance prior to the expiry date.

Prof. Andrea B. Pembe
DIRECTOR OF POSTGRADUATE STUDIES

cc: Director of Research and Publications
cc: Dean, School of Public Health and Social Sciences