

**Effectiveness of community interventions to eliminate trachomatous inflammation –
follicular in Kongwa And Mpwapwa Districts, Dodoma Region**

Naomi Lugoe, BBA

**MSc (Project Management Monitoring & Evaluation in Health) Dissertation
Muhimbili University of Health and Allied Sciences
October, 2020
Muhimbili University of Health and Allied Sciences**

School of Public Health and Social Sciences



**EFFECTIVENESS OF COMMUNITY INTERVENTIONS TO
ELIMINATE TRACHOMATOUS INFLAMMATION – FOLLICULAR IN
KONGWA AND MPWAPWA DISTRICTS, DODOMA REGION**

By

Naomi Lugoe

**Dissertation Submitted in (Partial) Fulfillment of the Requirements for the Degree of
Master of Science (Project Management Monitoring and Evaluation in Health) of**

**Muhimbili University of Health and Allied Sciences
October, 2020**

CERTIFICATION

The undersigned certifies that he has read and hereby recommends for acceptance by Muhimbili University of Health and Allied Sciences a dissertation entitled: **“Effectiveness of community interventions to eliminate Trachomatous Inflammation – Follicular in Kongwa and Mpwapwa Districts, Dodoma Region”**, in (partial) fulfillment of the requirements for the degree of Master of Science (Project Management Monitoring and Evaluation in Health) of Muhimbili University of Health and Allied Sciences.

Dr. George Mugambage Ruhago

(Supervisor)

Date

DECLARATION AND COPYRIGHT

I, **Naomi Lugoe**, declare that this **dissertation** is my own 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.

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ACKNOWLEDGEMENT

The completion of this dissertation would not have been possible without the wisdom, strength, peace of mind and good health from the God Almighty!

I wish to express my sincere gratitude to my supervisor Dr. George Ruhago for his guidance, thoughtful comments and recommendations on this study.

I would like to thank Dr. Amani Anaeli- MSc. PMMEH program coordinator for encouragement and support in my academics and towards the completion of my study.

I also recognize the contributions of research assistants who worked very hard within a tight schedule to complete data collection in Mpwapwa and Kongwa districts, their efforts are highly recognized.

Nobody has been more important to me in the pursuit of this study than the members of my family. I would like to extend special thanks to my husband Bernard Kajamiti and our adorable children, Bazirio and Beatrice whose love and support is always with me. I wish to thank my parents who always stand by me and provide unending inspiration.

DEDICATION

This work is dedicated to my family, especially my husband who looked after our children in my absence to ensure that nothing can stop me from pursuing my Master degree. It has not been easy, but he stood by me through all the challenges and difficulties.

ABSTRACT

Background: Blinding trachoma is targeted for elimination by 2020 using the SAFE (Surgery, Antibiotics, Facial cleanliness, and Environmental improvements) strategy. Annual mass drug administration (MDA) with azithromycin for three years, is recommended by WHO, in combination with other elements (Facial cleanliness and Environmental sanitation) of the SAFE strategy to eliminate infection, in all endemic communities where the prevalence of Follicular Trachoma in children aged 1–9 years is between 5% to 10% TF, determined using trachoma population–based surveys.

Objectives: To evaluate the effectiveness of community interventions; its success and challenges in eliminating Follicular Trachoma in Kongwa and Mpwapwa districts in Dodoma Region.

Methodology: A cross sectional study design employing a mixed method approach was used to assess the effectiveness of community interventions in Kongwa District which has been declared Trachoma free and Mpwapwa district where there has been a recurrence of Trachoma in year 2017 after being TF free in 2014. Data about the population and implementation of the community interventions were obtained at the district levels through interview and document review while the information about environment and human cleanliness behavior were gathered at the household level through observation and semi-structured interviews. Quantitative data were analyzed using descriptive statistics to obtain the frequencies and proportions, and independent paired sample t-test to determine the statistical significance difference in proportion between the two districts.

Results: It was found that the proportional difference between household members who were not offered drugs in Kongwa as compared to Mpwapwa was statistically significant ($t_{868}=-14.048$, $p=0.000$), whereby only few people in Kongwa were not offered the drugs. Moreover, the study found an association between children unclean faces and the distance to water source in Mpwapwa district ($\chi^2=12.963$, $d.f= 1$, $p= 0.000$). Qualitative findings revealed that the communities were full involved in intervention through educational campaigns on personal hygiene and environment cleanliness, and also reporting trachoma cases.

Conclusion: Community interventions are effective for elimination of follicular trachoma. This has been observed in the study when Mpwapwa adopted the community approach after the recurrence of the trachoma; the prevalence started to go down as in Kongwa district.

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ABBREVIATIONS

A, F, E	Antibiotics, Facial cleanliness and Environmental improvement as strategies to eliminate TF as public health problem in the community
LGA	Local Government Authorities
MDA	Mass Drug Administration
MOHCDGEC	Ministry of Health, Community Development, Gender, Elderly and Children
RAs	Research Assistants
SAFE	Surgery for trichiasis (in-turned eyelashes), Antibiotics, Facial cleanliness and Environmental improvement
TF	Trachomatous Inflammation – Follicular
WHO	The World Health Organization

DEFINITION OF TERMS

Baseline mapping Population-based surveys conducted to determine the presence of trachoma within an identified population, usually a district.

Community interventions are the interventions that involve facilitating facial cleanliness and environmental hygiene, mass drug administration, and community involvement.

Elimination of trachoma as a public-health problem is defined as a reduction in the prevalence of the active trachoma sign “Follicular Trachoma” to be specific in children aged 1–9 years to less than 5% TF.

Endemicity The quality of being endemic (that is, the presence of a disease in a particular population)

Effectiveness of intervention: Is when the intervention has been active and successful in reducing transmission by removing the conditions that promote spread of the disease

GET2020 Alliance The WHO Alliance for the Global Elimination of Trachoma by 2020, website: <http://www.who.int/trachoma/partnership>

Health facility is a place that provides health care services.

Trachoma is the world’s leading infectious cause of blindness and one of the neglected tropical diseases that affect over 1 billion of the world’s poorest people.

Validation The process of documenting elimination as a public health problem.

Zithromax® A trade name for the antibiotic azithromycin, produced by Pfizer and used to implement the ‘A’ of SAFE.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Trachoma is the leading infectious cause of blindness worldwide. It is caused by an obligate intracellular bacterium called *Chlamydia trachomatis*. The infection is transmitted through contact with eye and nose discharge of infected people by sharing towels, cloths or fingers, also by flies particularly in young children who are usually the principal reservoir of infection due to persistent or repeated infections (1). Therefore, this infection is usually acquired through living in close proximity to persons with active disease, and household being the principal unit for transmission. An individual's immune system can clear a single episode of infection, but in endemic communities, re-acquisition of the organism occurs frequently. It is known to be a public health problem in 37 countries, and is responsible for the blindness or visual impairment of about 1.9 million people(2). As the world's leading infectious cause of blindness, is scheduled by WHO for elimination by 2020. Reaching this elimination target depends on successful implementation of the SAFE strategy (Surgery for trichiasis, Mass Antibiotics distribution to treat *Chlamydia trachomatis* infection, Facial cleanliness and Environmental improvement to reduce transmission of *C. trachomatis* from one person to another) whereby Mass Antibiotic distribution is the cornerstone for this strategy by breaking the cycle of transmission in a community (3). To eliminate trachoma, the SAFE strategy must be implemented for one to five years in districts determined to be endemic (depending on baseline prevalence) before impact assessments are conducted (4). There are 13 districts in Tanzania; that still needed effective public health interventions mass Antibiotics distribution, Facial cleanliness and Environmental improvement (A,F,E) to be specific as of April 2018 to eliminate trachoma (5). The elimination of trachoma in 6 districts from 2016 (6) to 2018 has been a result of great effort done by the Ministry of Health, Community Development, Gender, Elderly and Children in collaboration with different development partners and stakeholders. With proper A, F, E interventions in the community, Follicular Trachoma infection can be completely eliminated (basing on the eligibility criteria for stopping MDA <5%TF).

In November 2014, Mpwapwa DC was confirmed to stop MDA for trachoma at 3.5% TF, however data collected by the district in 2017 showed that Follicular Trachoma has been validated again and A, F, E interventions are needed at the community level as infection among children has recurred at 6.8% TF (3,7). On the other hand, Kongwa district which is neighboring Mpwapwa district and was similarly highly endemic has been confirmed to be free from Follicular Trachoma infections since 2014. This study was a comparative study evaluating the effectiveness of community interventions; success and challenges in eliminating Follicular Trachoma in Kongwa and Mpwapwa districts in Dodoma Region.

1.2 Problem statement

WHO has recommended a combination of SAFE strategies for at least three years to eliminate Follicular Trachoma in children aged 1–9 years. It emphasizes that if programmes aim for a Mass Drug Administration (MDA) treatment strategy, a coverage of at least 80% will reduce re-emergence of infection in mass treated communities (3). Programs to eliminate trachoma have been introduced among six regions in Tanzania including Dodoma region. Since 1999, Tanzanian National Trachoma Control Programme has been enrolling villages within the trachoma endemic districts, and enrolling new districts each year. The program strives to implement the full SAFE strategy and providing posters and radio program on face washing and importance of clean environments for each endemic district and MDA is scheduled every year.

However, in 2018 survey done demonstrated continued trachoma prevalence above the elimination threshold in Dodoma. Mpwapwa DC and Kongwa district in Dodoma region are among the endemic districts in Tanzania. By the year 2014, MDA was stopped in Mpwapwa and the district was declared trachoma free area. However, a recurrence of trachoma has been observed in 2017 to date in contrast to the neighboring district of Kongwa. The coverage of mass drug treatments alone appears insufficient to eliminate active trachoma infections in the community(8).

As abstracted in the background of this study there is limited documented evaluation to assess the implementation of community interventions (mass drug treatment, facial hygiene and environmental campaigns) in eliminating Follicular Trachoma in Mpwapwa. Therefore, this study sought to compare the implementation of community interventions (mass drug treatment, facial hygiene and environmental campaigns) against Follicular Trachoma between Mpwapwa and Kongwa districts. The findings were assessed to discover the lessons that Mpwapwa district have learnt from the success in Kongwa district hence share the lessons with all implementing stakeholders and ultimately eliminate Trachoma in Dodoma region by 2020.

1.3 Rationale

Trachoma remains endemic in many parts of Africa and Asia, and still affects many in Latin American and the Middle East, highlighting the needs and gaps in the provision of services (9). Similar to other parts of the world, antibiotic distribution, facial cleanliness, and environmental improvement interventions have been implemented for a number of years in Tanzania, conversely Follicular Trachoma recurrence has been observed in different communities.

The conceptual framework displays three major community interventions that have been implemented to eliminate follicular trachoma, these are; Mass Drug Administration, Facial Cleanliness and Environmental hygiene improvement, and community involvement. These interventions were the independent variables of the study, and elimination of follicular trachoma was the dependent variable. Results of this study will contribute to the Government of Tanzania, stakeholders and other development partner's efforts towards elimination of Trachoma by 2020.

1.4 Conceptual framework

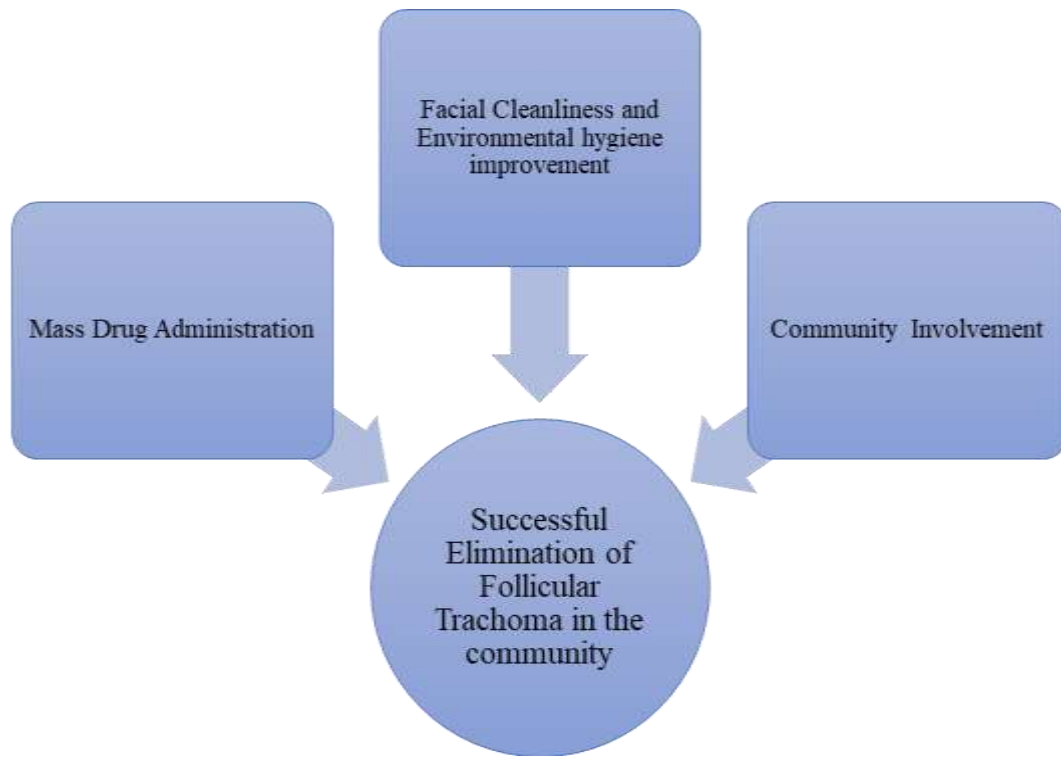


Figure 1: Conceptual framework showing the activities needed to complement Mass Drug Administration to eliminate Follicular Trachoma in the community

Source: Kasi Pashtoon, Gilani Ahmed, Ahmad Khabir, Janjua Naveed. *Blinding Trachoma: A disease of poverty*. PLoS Med [Internet]. 2004

1.5 Research Questions

1.5.1 Broad Question

What is the effectiveness of community interventions in eliminating trachomatous inflammation – follicular in Kongwa and Mpwapwa districts, Dodoma region?

1.5.2 Specific Questions

- i. What was the frequency and access with which mass drug (antibiotic) was administered to eliminate the Trachoma infection from Kongwa and Mpwapwa DC?
- ii. How were facial cleanliness campaign and Environmental improvement activities effective in eliminating Follicular Trachoma in Kongwa and Mpwapwa DC?
- iii. How the community participated in the efforts to eliminate Trachoma in Kongwa and Mpwapwa DC?

1.6 Research Objectives

1.6.1 Broad Objective

The broad objective of the study was to assess the effectiveness of community interventions in eliminating trachomatous inflammation – follicular in Kongwa and Mpwapwa districts, Dodoma region

1.6.2 Specific Objective

- i. To assess the distribution and coverage of the Mass Drug Administration in Kongwa and Mpwapwa DC as a strategy to eliminate Trachoma infections.
- ii. To measure the effect of Facial cleanliness and Environmental sanitation as strategies towards trachoma elimination in Kongwa and Mpwapwa districts.
- iii. To explore how was the community participated in the efforts to eliminate Trachoma in Kongwa and Mpwapwa DC.

CHAPTER TWO

2.0 LITERATURE REVIEW

Mass Drug Administration (MDA)

To eliminate blinding trachoma by the year 2020 for communities with more than 10% prevalence of follicular trachoma (TF) among children 1- 9 years old, WHO recommends mass drug administration (MDA) with azithromycin with a coverage of more than 80%.(10,11). Mass antibiotic treatments target the ocular strains of chlamydia that cause trachoma and are a crucial component of the Trachoma elimination strategy. They are used in trachoma control for the dual purpose of treating active disease and removing the reservoir of chlamydial infection (12). A mass distribution of azithromycin to an entire community has been shown to dramatically reduce the prevalence of infection. Unfortunately, it has been noted that sometimes infection returns in areas with hyper-endemic trachoma. Theoretically, repeated treatments can progressively reduce the prevalence of, and even eliminate, infection. However, some models suggest that in severely affected areas, treatment would have to be given frequently and to a large portion of the population to completely eliminate trachoma transmissions (13). In particular, Mathematical models suggest that if coverage is not more than 80%, hyper-endemic communities will require more than 7 years of annual MDA to reach trachoma prevalence of less than 5% (10). Elsewhere, studies have shown that reinfection occurs despite high treatment coverage. This is due to the fact that distribution of drugs is done at the household hence the decision of whether to participate in MDA is usually taken at household level, but there is no evidence that households that did not participate had more disease or infection than those that did (14). Therefore, if it is normal for the re-infection to occur, then where is the mass drug administration strategy going wrong? Suggested strategies include: all children; all inhabitants of any household which has an individual with follicular Trachoma; and all inhabitants of a village with endemic trachoma should receive the antibiotic. This is due to fact that, if antibiotics are given only to individuals with clinical evidence of Follicular Trachoma and their families, re-infection is likely to occur more rapidly (15–17) In addition to that, Mabey D et al suggest that Mass Drug Administration can be a more effective and cost-effective approach for communities with

moderate or high frequency of active trachoma. Even though annual treatments are recommended by WHO currently, but treatment should probably be given more often in districts with high rates of trachoma transmission and perhaps less often in districts where trachoma is on the disappear to ensure complete elimination of the disease. (15).

Facial cleanliness and Environmental Improvement

There is a strong correlation between trachoma and facial cleanliness as children with dirty faces can both transmit the disease if infected and catch it if not (18). Good facial hygiene with a small amount of water will reduce infection transmission, the risk of easy infection to others, and the risk of attracting flies hence decrease the transmission through flies and possibly stop the transmission of disease altogether, especially among children. (12,19).

The results from one community intervention (in a high frequency area) significantly showed that Mass Drug Administration (antibiotics) combined with the health education program regarding facial cleanliness prolonged the reduction in the prevalence of severe trachoma. It further acknowledge that education program increased the proportion of sustained clean faces in children, and clean faces were protective against TF(15,20,21) . Other studies have also shown that active inflammatory trachoma in children was associated with the characteristics of the more traditional families and several measures of poor personal hygiene. It would appear that in an area with relatively good hygiene, episodes of reinfection occur only infrequently, while in areas of endemic trachoma where hygiene is poor, repeated episodes of reinfection occur commonly (22). This has been confirmed in the trial that controlled confounders, , that children who had a sustained clean face were less at risk of trachoma than those who had dirty faces (23). Therefore researchers suggest that an intervention strategy aimed at these hygiene measures would provide an effective method of controlling trachoma in any community(24,25).

Trachoma has been always associated with lack of water; indeed, hyperendemic areas are often dusty, dry regions with insufficient water. However, it is important to understand the epidemiology of the disease as it relates to water as no association was found between the presence of a village water supply and the prevalence of trachoma but personal behavior on usage of water is. Even though, the risk of trachoma in the household increased with the distance to a water source likewise there was no association with the estimated daily

amount of water brought into the house. Therefore, West et al suggest that the key to alter the prevalence of trachoma in the community is not only to increase access to water but also invest in behavior change campaigns to transform the perception of how water should be utilized for personal hygiene in the home (12,20,26,27).

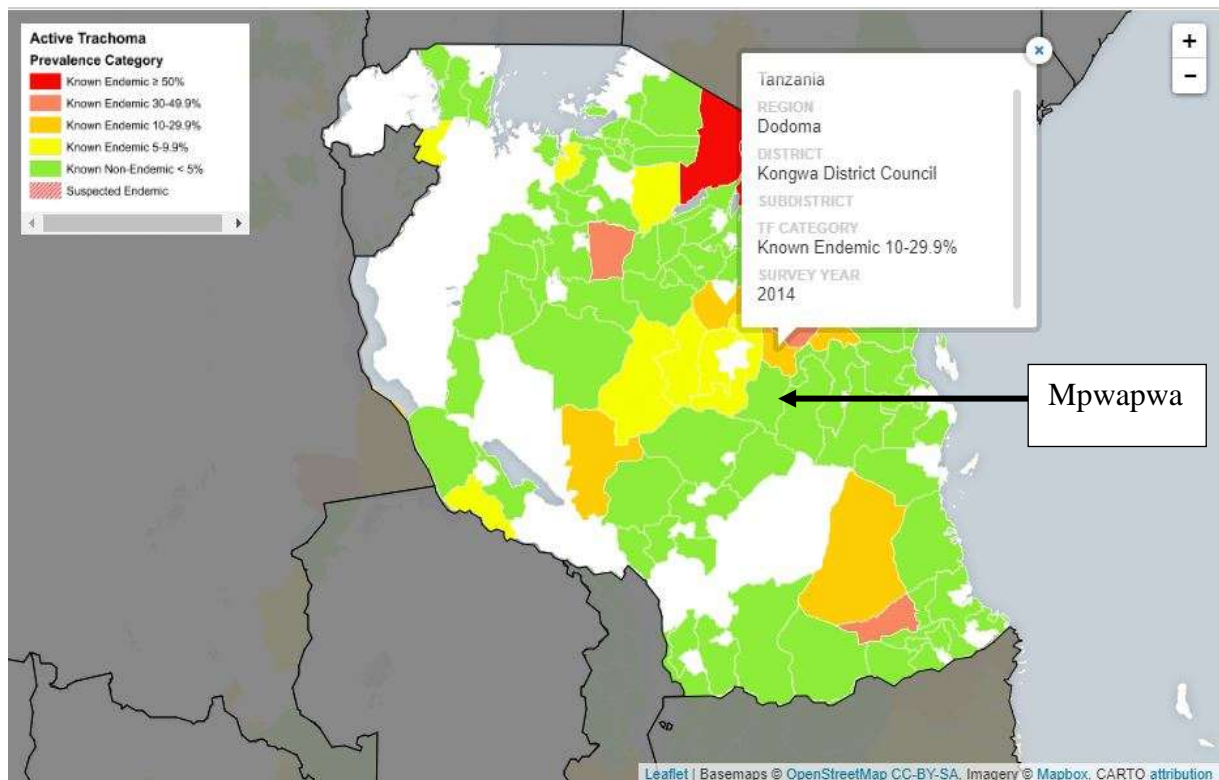
The environment cleanliness component of trachoma-control program generally incorporates elements of increasing water availability, improving access to latrines, reducing the density of flies in the environment, and avoiding crowding, especially in sleeping areas, as well as health education to facilitate the uptake of more hygienic behavior. This component of the SAFE strategy also aims to reduce transmission of trachoma by eliminating or reducing its risk factors, some of which are universal while others are specific to a community. Similar to facial cleanliness, improving access to water and personal hygiene are key elements. Other measures, such as provision of latrines to reduce the fly population, use of insecticide to eradicate flies, and improving socioeconomic of the community have also been found effective in reducing transmission(12,15,16,18,20,21,25,27).

Therefore, it is notably that environmental improvement is an essential part of trachoma elimination. Poor living conditions contribute to high rates of infectious trachoma in communities. As it has been proven that trachoma is more prevalent in areas with malnutrition, poor hygiene and low living standards. Previous experiences have shown that trachoma cannot be successfully controlled without improvement in the environmental indices of living conditions, housing, diet, and sanitation. Also there is an association between the proximity of cattle to the household and the prevalence of active trachoma. Similarly, the presence of household waste is related to the prevalence of trachoma potentially through its effect on the household fly population or else, once again, through confounding by socioeconomic status. Crowding can be related to the prevalence of trachoma perhaps because it aids transmission by increasing the chance of contact with an infected person. Overall rates of active disease are therefore closely related to larger environmental and economic concerns. Reducing fly populations, enhancing the management of animal and human waste, improving access to water and promote its

appropriate use and getting community “buy in” are all critical in addressing the problem of trachoma (12,15,18–20,28).

Other Community Factors

Furthermore, Harding-esch et al found out that in some places reinfection from neighboring districts can lead to re-current of trachoma transmission (29). A previous study in The Gambia identified a large number of re-emergent trachoma infections in two communities associated with mass migration to a religious festival in Senegal (14). However, Risk-factor analysis revealed that travelling outside the village did not increase the risk of incident infection by 12 months after treatment, but that if another household member had a high infection load 2 months after treatment, then incident infection in the same household became more likely. Individuals with high infection loads within households therefore seem to be of primary concern to the success of community-based treatment (29). Also this might be true for Mpwapwa district as Kongwa DC still had very high prevalence between 10-29.9% TF when Mpwapwa was declared free from follicular Trachoma infections with less than 5% TF endemic (*see the map below*).



A map showing Kongwa and Mpwapwa DCs trachoma prevalence in 2014.

Sources: *Global Trachoma Atlas*. <http://www.trachomaatlas.org/global-trachoma-atlas>

Therefore, literature shows that effective control of follicular trachoma requires prolonged effort and can be best achieved if the affected communities are included in planning, to ensure that they develop a sense of ownership of the mass antibiotic distribution, facial cleanliness and environmental improvement (A, F, E) strategy. All mentioned components of this strategy are absolutely essential in any successful trachoma control program. Antibiotics minus hygiene and sanitation can merely remove symptoms and not the causes of the disease. Improvement in domestic and personal hygiene holds great potential for sustainable elimination of trachoma, while treatment of active cases with antibiotics can cause the reduction of pathogen reservoir (18). Work also needs to be done to eliminate the risk factors and decrease the transmission of the disease in affected communities, because elimination of trachoma requires improvement in education and hygiene practices then, improved accessibility to water, personal hygiene and economic development of endemic communities, collaboration among departments and ministries is vital (19,20,30). Simple messages about the importance of good hygiene, the role of flies and how to identify trachoma could also be incorporated in the science, home economics and civics curricula of both primary and secondary schools (23). The full and active involvement of all stakeholders will be required to achieve the WHO-supported goal of the global elimination of trachoma as a public-health problem by the year 2020 (31).

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study Area

The study was conducted in two districts of Dodoma region – Kongwa District and Mpwapwa district. These districts are characterized as being predominantly arid with spontaneous mountain chains in some parts. There is significant poverty and it is estimated that residents in these districts especially women use about 80% of their time to get essential services such as water; firewood, health services, education, milling machine, markets, shopping and other services at a distance of 2 to 10 kilometers. Since these districts are dry with water scarcity, hygiene and personal hygiene in particular are major issues in the prevention of trachoma. In addition, water hygienic practices, latrine coverage, waste disposal, and health seeking behavior are the predictors of high prevalence of TF in the areas.

3.2 Study design

This was an outcome evaluation employing cross sectional study design using a mixed method approach. Data about the population and MDA distribution was obtained at the district levels through interview and document (community registers) review while the information about environment and human facial cleanliness behavior were gathered at the household level through observation and semi-structured interviews. In addition to that, WHO trachoma grading system and additional information from regional and country experts served as a basis to determine the prevalence of trachoma in each district.

3.3 Study population

For a qualitative study, the study population consisted of key informants from Neglected Tropical Disease Control Program (NTCDP) staff, district health officers, selected Community Drug Distributors (CDD), and head of households in Kongwa and Mpwapwa DC.

Quantitative study involved household members of the households from the highly trachoma endemic villages in Kongwa and Mpwapwa Districts.

3.4 Sampling technique and sample size

Sampling techniques for quantitative study

The purposive sampling was first employed to pick the endemic villages from the District Trachoma Community Registers then random sampling was used to select individuals (households).

Sampling technique for a qualitative study

Qualitative information was gathered from other key informants such as Neglected Tropical Disease Control Program (NTCDP) staff, health facilities, district and village authorities were purposively sampled depending on their roles in the Elimination of Trachoma in Kongwa and Mpwapwa districts; this include Trachoma focal person at the respective district. These respondents gave the background of Trachoma infections, employed interventions and their opinions on success and challenges faced. The researcher through curiosity and interest continued to engage more informants until the information became redundant.

Sample size

Using 5% margin of error, and 95% confidence interval in the population of Kongwa and Mpwapwa districts; sample size was:

$$n = \frac{z^2 p(1-p)}{e^2}$$

Whereby:

n= sample size

z= 1.96

p= standard variation= 0.5

e= margin of error = 0.05

$$n = \frac{(1.96)^2(0.5)(1-0.5)}{(0.05)^2}$$

$$n = 384.16 \approx 384$$

Add 10% non-response rate: n = 422

Therefore, 422 households from highly endemic hamlets (211 per district) participated in the survey. Basing on the Guideline for Rapid Assessment for Blinding Trachoma (28) preference were given to the community where:

- There is evidence of trachoma from previous reports or from key informants
- No easy or permanent access to water
- Availability of primary health care

3.4.1 Inclusion criteria

The key informants in this study included LGAs health staff who are specifically working in the trachoma interventions in Mpwapwa and Kongwa districts, respective village authorities and members of the households (18+ years) from the highly trachoma endemic villages.

3.4.2 Exclusion criteria

Any member of the household who has been staying in the respective village for a less than 4 years, because it is important to have a respondent who have been in the respective district when Trachoma was eliminated and during recurrence.

3.5 Variables

3.5.1 Dependent/outcome variables

The dependent variable for this study was Follicular Trachoma elimination. The Follicular Trachoma elimination was measured by using secondary data from the Ministry of Health by assessing the MDA trend and TF rate from 2017 to 2019.

3.5.2 Independent/exposure variable

Independent variables included Mass drug administration (MDA) of azithromycin (Zithromax) coverage, Facial Cleanliness and Environmental improvement and Community involvement in the intervention activities. MDA coverage was measured by assessing drugs offered, swallowing status and reasons for swallowing or not. Facial Cleanliness and Environmental improvement was measured through observing children's facial cleanliness, distance to the water source, presence of solid wastes or animal pans and presence of functional latrine/toilet.

Community involvement in the intervention activities was measured narratively by asking on employed interventions and Follicular trachoma recurrence.

3.6 Recruitment and training of research assistants

Research assistants with experience in trachoma data collection were recruited after consultation with the trachoma focal person at the district level. The researcher interviewed the selected candidates and picked one-research assistant per district whereby s/he was required to collect data from 422 households. The RAs were trained for one day to make sure that they have relevant interviewing skills, understand study objectives and know what information is supposed to be collected.

3.7 Pretest of the tools

The principle investigator and RAs pre-tested the data collection tools among 20 households in one ward in Kongwa District to identify any ambiguous questions. Data double entry, outliers, and errors were crosschecked to ensure data cleanliness. Supervisor's opinions were put into account in developing tools for data collection to ensure validity.

3.8 Data collection methods

3.8.1 Data collection instruments

Data extraction summary form was developed based on the WHO guidelines for rapid assessment for trachoma to extract quantitative data of the selected households from the community trachoma registers kept at the health facility and district level. This helped the researcher to identify the weakest link (household members' not taking medicines) that contributes to not ending trachoma in Mpwapa. Also secondary data from the MoHCDGEC were used to look for the trend of TF to determine its elimination.

Qualitatively data addressing the third objective were gathered using success stories and in-depth interview with key informants from respondents. The guides were adopted from the WHO guidelines then translated into Swahili to allow better understanding among respondents and research assistants during data collection. All conversations were written in the questionnaires and checklists provided.

3.8.2 Data collection procedures

Data were collected for two weeks (13th – 26th January 2020). Administrative permission was sought from the respective Local Government Authorities- Dodoma Region Authority, Districts' management and selected health facilities.

a. District level/ health facility

Community Trachoma Registers from November 2014 to 2017 *were* reviewed to identify the coverage and access to the antibiotics up the household level. Year 2017 is also the time when TF recurred in Mpwapwa district secondary data from the MoHCDGEC were used to assess the elimination of follicular trachoma as a public health problem. Data obtained on Mass azithromycin administration were of 2014, 2017, and 2018 for Mpwapwa district and 2014 to 2016 for Kongwa district. Data on prevalence of TF for both Kongwa and Mpwapwa were of 2017 and 2019.

On the other hand, in depth interview using semi structured interview guide was applied and probed where necessary to gather information from the selected key informants. The interview focused on their opinions and exposures on what they thought are the reasons for recurrence/ elimination of follicular Trachoma in their respective communities.

b. Household

Data on their experience with taking azithromycin (Zithromax) on follicular Trachoma spreading were collected using the semi structured interview guide. This helped the researcher to match with the information that has been kept at the facility and district levels with regards to azithromycin (Zithromax) distribution. (See annex 2)

Issues relating to facial cleanliness and environmental sanitation were gathered through both observation and interview. (See annex 3)

3.8.3 Quality of data collection tools

The check of the relevance and quality of data collection tools was conducted in collaboration with the Neglected Tropical Disease Control Program (NTCDP) project officers who are implementing trachoma elimination project in Kongwa and Mpwapwa districts. The feedback was used to improve the interview guide and data extraction form.

3.9 Data management

For data quality maintenance and consistency data generated was rechecked and cleaned. Confidentiality was ensured and no one apart from the people involved in the research were allowed to access the research data. Principal researcher and research assistants were responsible to ensure that information was well kept. All electronic devices which were used in the study were password protected to ensure unauthorized personnel have no access to study data.

3.10 Data analysis

Quantitative data analysis

Quantitatively collected data were entered into the computer using Statistical Package for Social Scientist (SPSS) software version 25. Qualitatively collected data were transcribed, and then coded before being entered into the statistical software for analysis.

Objective number one was analyzed through descriptive statistics using frequencies and proportions. Paired sample t-test was used to determine if the difference in proportion was statistically significant. For objective number two frequencies and proportions were ran, independent sample t-test was done to assess the statistical significance difference between proportions and chi-square test was done to determine the association between variables. The analysis was done by using Statistical Package for Social Scientist (SPSS) software version 25.

Qualitative data analysis

Qualitative data were transcribed and translated into English. Words, observations, pictures, and symbols were coded into themes relevant to the study. The researcher looked for relative importance of responses received, identified relationships between themes, and attempted to find meaning from the data through diagrams, or models to explain the findings. The Narrative analysis approach was employed.

3.11 Ethical consideration

Ethical clearance was sought from Muhimbili University of Health and Allied Sciences (MUHAS) through Institutional Review Board (IRB) (Ref.No. DA.287/298/01A/). Permission to conduct study in Districts was sought from Regional Administrative and respective Local Government Authorities in Dodoma region. Every respondent and key informant was informed about the objective of the study and their involvement. Written informed consent to participate was obtained from each respondent. Respondents were free to withdraw from the study at any time without giving any reasons, throughout the study period. At the end of the study, findings will be shared with the respective local government authorities and Neglected Tropical Disease Control Program (NTCDP) in Tanzania.

CHAPTER FOUR

4.0 RESULTS

4.1 Introduction

This study aimed at assessing the implementation of community interventions in eliminating Follicular Trachoma in Kongwa and Mpwapwa districts in Dodoma Region. This section presents the findings.

4.2 Household characteristics

The study involved 422 households, 211 from Kongwa district and 211 from Mpwapwa district. Large proportion of household members for both Kongwa and Mpwapwa were males accounting for 52.1% and 52.9% of all household members respectively. Household members age ranged from 1 to 51 years and above, with majority (27%) aged 11-20 years in Kongwa while in Mpwapwa majority 26.8% were aged 1-10 years. In Kongwa 98.3% of the households had household leaders present while in Mpwapwa 86.1% of the households had household leaders present. Majority of the respondents, about 90% for both Kongwa and Mpwapwa had received information about trachoma prevention. In Kongwa district 65.5% of the respondents received information through community drug distributors while in Mpwapwa majority (40.5%) receive information through village meetings (Table 1).

Table 1: Household Characteristics

KONGWA			MPWAPWA		
Households	Frequency (n)	Percentage (%)	Households	Frequency (n)	Percentage (%)
	211	100		211	100
Gender	Frequency (n)	Percentage (%)	Gender	Frequency (n)	Percentage (%)
Female	416	47.9	Female	409	47.1
Male	453	52.1	Male	460	52.9
Total	869	100.0	Total	869	100.0
Age	Frequency (n)	Percentage (%)	Age	Frequency (n)	Percentage (%)
1-10	158	18.2	1-10	233	26.8
11-20	235	27.0	11-20	190	21.9
21-30	144	16.6	21-30	147	16.9
31-40	134	15.4	31-40	107	12.3
41-50	99	11.4	41-50	95	10.9
51 ≤	99	11.4	51 ≤	97	11.2
Total	869	100.0	Total	869	100.0
Leader	Frequency (n)	Percentage (%)	Leader	Frequency (n)	Percentage (%)
Yes	207	98.3	Yes	182	86.1
No	4	1.7	No	29	13.9
Total	211	100.0	Total	211	100.0
Information	Frequency (n)	Percentage (%)	Information	Frequency (n)	Percentage (%)
Yes	220	94.8	Yes	274	96.5
No	12	5.2	No	10	3.5
Total	232	100.0	Total	284	100.0
Source	Frequency (n)	Percentage (%)	Source	Frequency (n)	Percentage (%)
Radio	4	1.8	Radio	23	8.4
Village meeting	48	21.8	Village meeting	111	40.5
Community drug distributors	144	65.5	Community drug distributors	78	28.5
Friends and relatives	6	2.7	Friends or relatives	42	15.3
All	18	8.2	All	20	7.3
Total	220	100.0	Total	274	100.0

*211 is a total number of households per district, *896 is a total number of household members per district (this was fortunately equal for each district) *232 and 284 are the only respondents, who responded if they ever received information on TF, *220 and 274 are the only respondents, who responded on the source of information

4.3 Follicular Trachoma elimination

The prevalence of TF was alarming when considering Evaluation Units (EU) where in 2019 North Kongwa had 7.5% prevalence while South Kongwa had lower prevalence of 2.3%. Both North and South Mpwapwa reported a low prevalence of TF (0.7% and 1.7% respectively) in 2019 below the WHO's threshold of <5%. Mpwapwa appears to have had lower prevalence than Kongwa since the efforts to eliminate TF from Kongwa were directed to Mpwapwa from 2017.

The 2017-2019 overall results show a downtrend in prevalence of TF in Mpwapwa district from 6.8% to 1.2% while in Kongwa District the results have shown uptrend prevalence from 3.8% in 2017 to 4.9% in 2019.

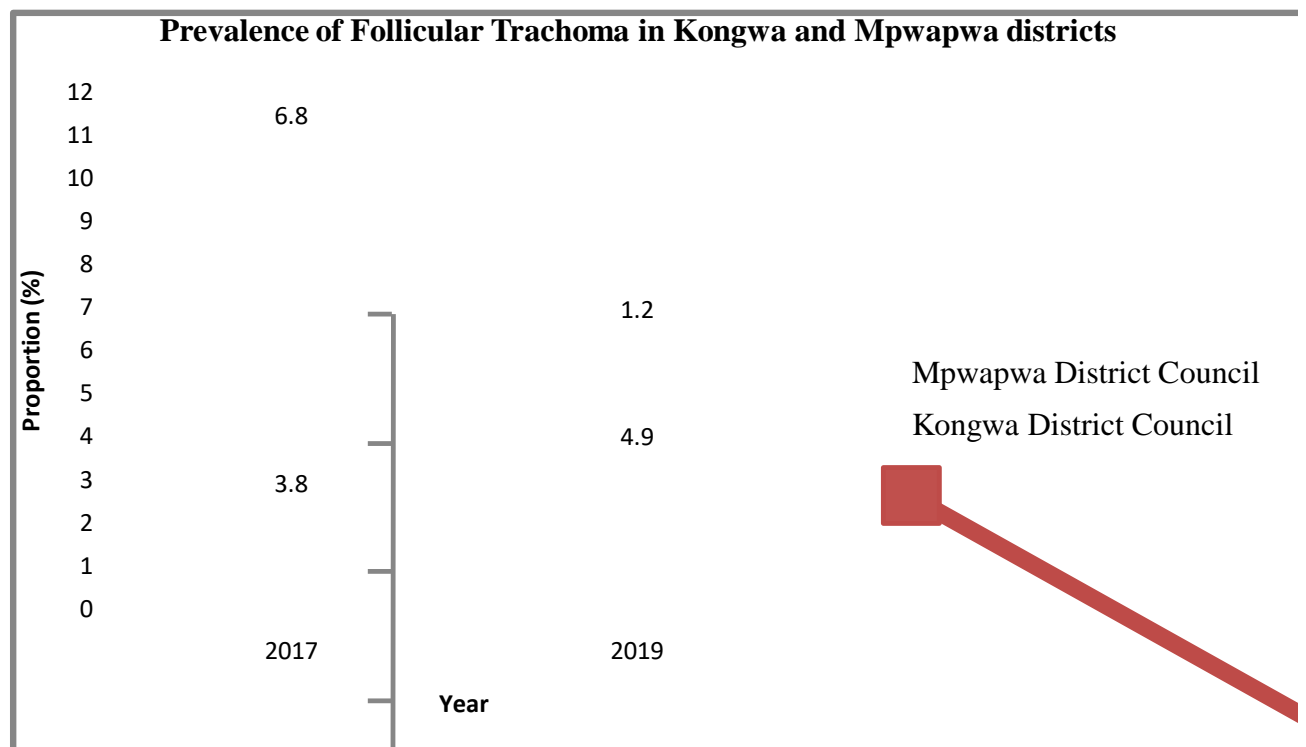


Figure 2: Prevalence of Follicular Trachoma in Kongwa and Mpwapwa districts

4.4 Distribution and coverage of the mass drug administration in Kongwa and Mpwapwa DC

4.4.1 Proportion of Household members offered the drugs

Results revealed that 91% of household members in Kongwa were offered drugs while in Mpwapwa only 64% of the household members were offered drugs. When further inquired about the reasons for not offering drugs, majority of respondents in both districts, Kongwa and Mpwapwa quoted underage as the main reason, which accounted for 35.9% and 31.1% respectively (Table 2).

Table 2: Proportion of Household members offered the drugs

KONGWA			MPWAPWA			
Offered	Frequency (n)	Percentage (%)	Offered	Frequency (n)	Percentage (%)	
Yes	791	91.0	Yes	556	64.0	
No	78	9.0	No	313	36.0	
Total	869	100.0	Total	869	100.0	
Reason	Frequency (n)	Percentage (%)	Reason		Frequency (n)	Percentage (%)
			Underage		99	31.1
			Pregnant		8	2.5
			Breastfeeding		2	0.6
Underage	28	35.9	Sick		14	4.4
Pregnant	2	2.6	Absent		56	17.6
Breastfeeding	3	3.8	Didn't hear about MDA		93	29.2
Absent	19	24.4	Drug ran out		16	5.0
Nobody came	10	12.8	Nobody came		29	9.1
Other	16	20.5	Others		1	.3
Total	78	100.0	Total		318	100.0

Further analysis was done by using independent sample t-test to look if the difference in proportion on drugs being offered was statistically significant between Kongwa and Mpwapwa. Results revealed a statistical significance difference between the two areas ($t_{868}=-14.048$, $p=0.000$) (Table 3)

Table 3: Independent Samples Test: Proportion of Household members offered drugs

						t	d.f	Sig. (2-tailed)
	Mean	SD	SE Mean	95% CI				
				Lower	Upper			
Offered the drugs-Kongwa - Offered drug-Mpwapwa	-0.272	.570	.019	-.310	-.234	-14.048	868	.000

4.4.2 Proportion of Household members swallowing drugs

It is reported out of 791 respondents who were offered drugs in Kongwa 75 (8.6%) did not swallow them while in Mpwapwa out of 556 who were offered drugs, 27 (4.9%) of the respondents did not swallow. The main reason for not swallowing the drug for both Kongwa and Mpwapwa district was not been given enough information, which was reported by 74.7% and 42.4% of the respondents respectively. In Kongwa out of 716 who swallowed drugs 236 (33%) said the reason behind swallowing was to treat the disease while in Mpwapwa out of 529 who swallowed drugs 236 (44.7%) swallowed because of the fear of disease (Table 4).

Table 4: Proportion of Household members swallowing drugs

KONGWA			MPWAPWA		
Swallowed the drug	Frequency (n)	Percentage (%)	Swallowed the drug	Frequency (n)	Percentage (%)
Yes	716	91.4	Yes	529	95.1
No	75	8.6	No	27	4.9
Total	791	100.0	Total	556	100.0
Reason for not swallowing	Frequency (n)	Percentage (%)	Reason for not swallowing	Frequency (n)	Percentage (%)
Fear of side effect	2	2.7	Fear of side effect	3	12.1
Bad taste	6	8.0	Bad taste	8	30.3
Not sick	1	1.3	Not sick	4	15.2
No enough information given	56	74.7	No enough information given	12	42.4
Others	10	13.3			
Total	75	100.0	Total	27	100.0
Reason for swallowing	Frequency (n)	Percentage (%)	Reason for swallowing	Frequency (n)	Percentage (%)
Fear of diseases	199	27.8	Fear of diseases	236	44.7
To treat disease	236	33.0	To treat disease	145	27.4
Because it was given for free	121	16.9	Because it was given for free	34	6.4
Useful information from community drug distributors	160	22.4	Useful information from community drug distributors	111	20.9
			Others	3	0.6
Total	716	100.0	Total	529	100.0

Triangulating the study findings with the secondary data, the results suggest that MDA coverage rose in Kongwa from 27% in 2014 to 95% in 2016. It has been reported that last Zithromax MDA in Kongwa was done in 2017 (Figure 3). Also the available data of 2014, 2017 and 2018 of Mpwapwa shows MDA coverage of 51%, 45%, and 85% respectively (Figure 4).

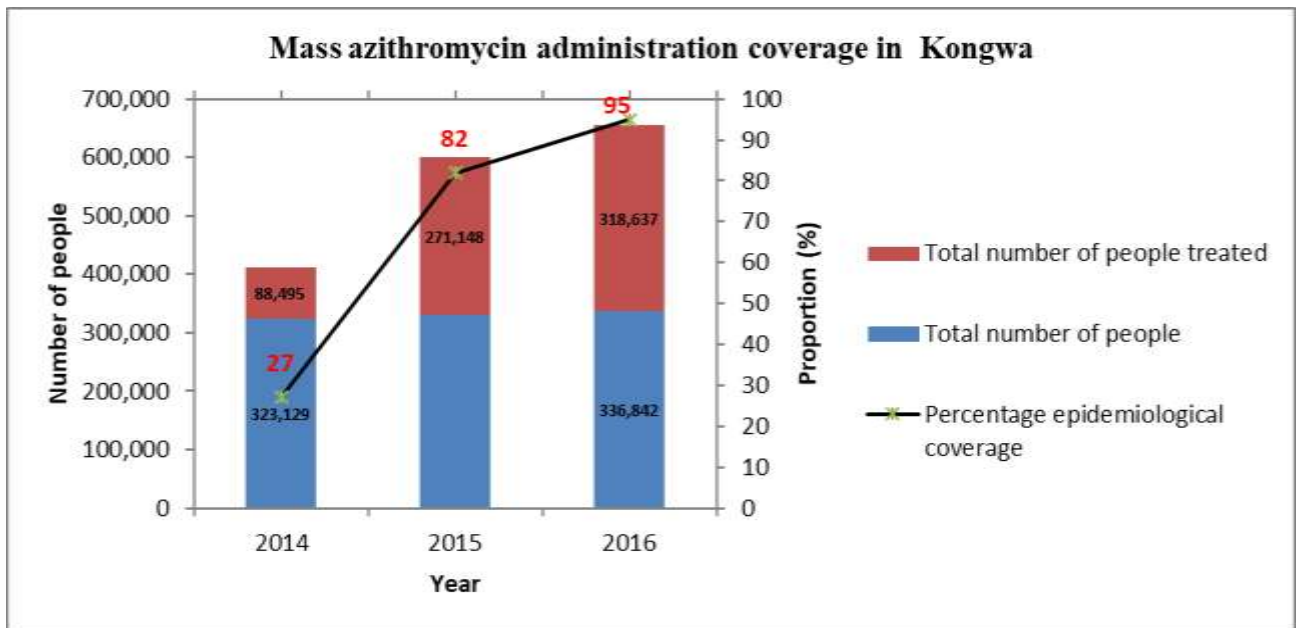


Figure 3: Mass azithromycin administration coverage in Kongwa

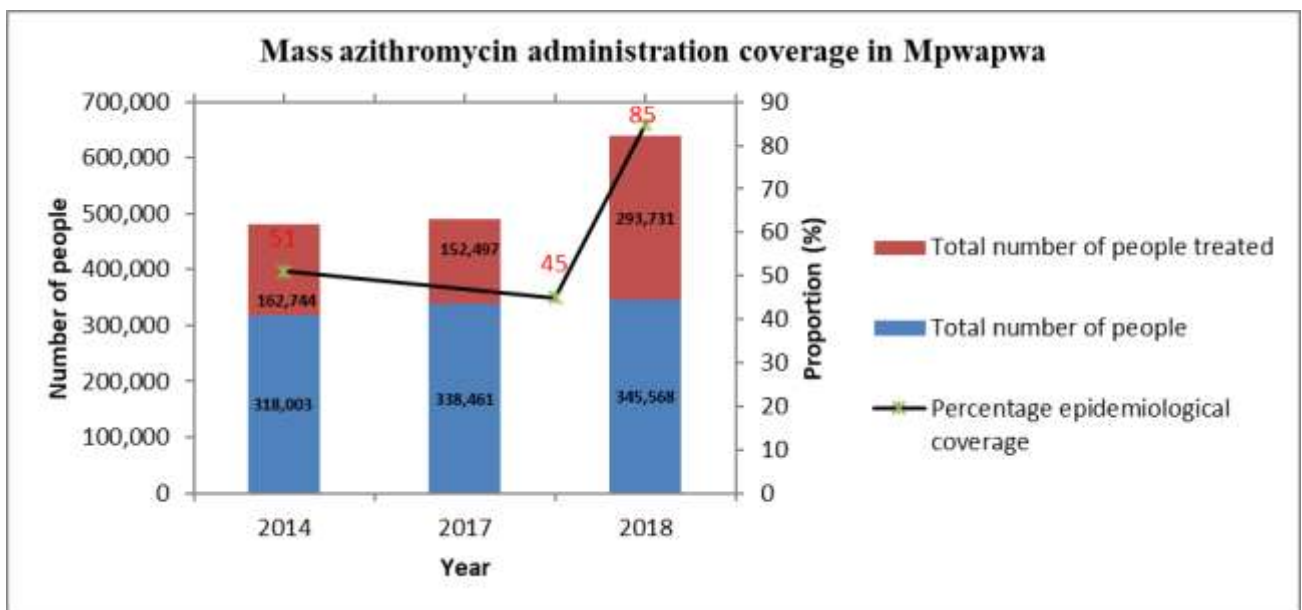


Figure 4: Mass azithromycin administration coverage in Mpwapwa

4.5 Facial cleanliness and environmental sanitation

4.5.1 Facial cleanliness

Results revealed that out of 229 children who were observed in households in Kongwa only 2 (0.9%) had unclean face while in Mpwapwa out of 284 observed children 95 (33.5%) had unclean face.

Further analysis was done using independent sample t-test and the results showed a statistical significance difference in proportional difference for children's' unclean faces between Kongwa and Mpwapwa ($t_{81}=6.657$, $p<0.000$) (Table 5).

Table 5: Independent sample: Proportional difference in facial cleanliness

						t	d.f	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% CI of the Difference				
				Lower	Upper			
Child(ren) with unclean face in Kongwa- Child(ren) with unclean face in Mpwapwa	0.354	0.481	0.053	0.248	0.459	6.657	81	0.000

4.5.2 Distance to the water source

It was revealed that out of all 229 respondents in Kongwa who responded, 70 (30.6%) said the distance to water source was more than half an hour walk, while in Mpwapwa out of 284 respondents 164 (57.7%) the distance to water source was more than half an hour walk.

Further analysis was done by using Chi-square (χ^2) to look if there was an association between children unclean faces and the distance to water source in Mpwapwa district. Results revealed an association between children unclean faces and distance to the water source ($\chi^2=12.963$, d.f= 1, p= 0.000) (Table 6).

Table 6: Chi-square test - Distance to the water source and Facial cleanness

		Distance to the water source more than half an hour walk		Total	χ^2 , (d.f) p
		Yes	No		
Unclean child(ren) face	Yes	69	26	95	12.963 (1) 0.000
	No	95	94	189	
Total		164	120	284	

4.5.3 Presence of solid wastes or animal pans

Out of 229 who responded to the question, if there was a presence of solid wastes or animal pans in Kongwa 218 (95.2%) respondents said no while in Mpwapwa out of 284 respondents 100 (35.2%) said yes there was a presence of solid wastes or animal pans. This information was confirmed through observation of the household surroundings.

4.5.4 Functional latrine/toilet.

In Kongwa out of 229 respondents 227 (99.1%) reported that houses were having functional latrine/toilets while in Mpwapwa out of 284 respondents 189 (66.5%) reported that houses were having functional latrine/toilets.

Further analysis was done by using independent sample t-test to look if the proportional difference in having functional toilets/latrines was statistically significant. Results revealed a statistical significance difference between having functional toilets/latrines in Kongwa and Mpwapwa ($t_{81}=-6.679$, $p<0.000$) (Table 7).

Table 7: Independent Samples Test: House having functional latrine/toilet

						t	df	Sig. (2-tailed)
	Mean	SD	Std. Error Mean	95% CI of the Difference				
				Lower	Upper			
House having functional latrine/toilet-Kongwa – House having functional latrine/toilet-Mpwapwa	-.378	.513	0.057	-0.491	-0.265	-6.679	81	0.000

4.6 Role of community involvement in the efforts against Follicular trachoma

4.6.1 Key Informant characteristics

Key informant interviews involved officials at the district, village and health centers from both Mpwapwa and Kongwa. In Mpwapwa key informants were from Kazania, Kaegea, Ilolo, K road and Mpwapwa town. All of them have been working in this area on interventions against Trachoma for four years and above. For the case of Kongwa, there were 6 key informants from Pandambili, Kata kongwa and Sejeli. All of them had been working in the intervention area for four years and above except the Health worker from Kata Kongwa.

Table 8: Key Informant characteristics

MPWAPWA			KONGWA		
Occupation	Village	Duration	Occupation	Village	Duration
District nursing officer	Kazania	Four years and above	Health worker	Kata kongwa	Less than 4 years
District reproductive and child health officer	Kaegea	Four years and above	Village executive officer	Pandambili	Four years and above
District malaria director	Ilolo	Four years and above	CHMT member	Kata kongwa	Four years and above
District surveillance focal person	K road	Four years and above	Community health worker	Kata Kongwa	Four years and above
HMIS Focal person	Mpwapwa Town	Four years and above	District nurse officer	Kata Kongwa	Four years and above
			Village Health officer	Sejeli	Four years and above

4.6.2 Participating in TF elimination interventions

Different interventions are being employed to eliminate follicular trachoma; which includes mass drug treatment, facial hygiene and environmental campaigns. People have been involving in these interventions by swallowing the drugs, ensuring facial cleanliness, and making sure that the environments are clean. One of the key informants reported that:

“Community members have shown to be so cooperative in the effort to fight follicular trachoma. Majority of them have been swallowing the drugs, and trying to make their environments clean. Despite facing the problem of water availability, to some extent facial hygiene has been maintained” District surveillance focal person).

Key informants from Kazania, Kaegea, Ilolo and Mpwapwa town reported mass drug administration with azithromycin as the only intervention employed.

“We have not received any intervention apart from mass drug administration with azithromycin. I propose for other interventions especially on cleanliness, which when combined with MDA will produce good results” (District nursing officer).

It is also reported by Key informant from Kongwa (Kongwa and Sejeli) that there were two interventions employed (Mass drug administration and environmental cleanliness) to fight the disease, which may suggest why Kongwa had low prevalence as compared to Mpwapwa.

“..To eliminate the disease two interventions were being implemented in our area, they were Mass drug administration and environmental cleanliness” (CHMT member)

4.6.3 Participating in educational campaigns

Numbers of educational of campaigns have been conducted in the communities to ensure that people are aware of the disease and how it can be prevented. They are being taught of the importance of water availability, hygienic practices, latrine coverage, and waste disposal.

Key informant from K road reported that;

“...There has been education campaigns; People in the community have been educated about trachoma modes of infection, how is it transmitted and ways of prevention” (District surveillance focal person).

4.6.4 Reporting Follicular trachoma cases

Community members have been reporting cases that reappear in their communities to ensure that the problem doesn't become epidemic. Key informants reported the recurrence of the disease in Gode gode province between 2017 and end of 2018 was reported from the community. This was associated with not swallowing drugs which was linked to the belief that blindness is a result of superstition. One the key informants reported that;

“..Yes I remember the disease recurred between 2017 and the end of 2018 in Gode gode province. Some of the community members have been reporting people with signs and symptoms ”.

4.6.5 Key informants' recommendations

There have been concerns on the area of research. Key informants from Mpwapwa pointed the need of more research and interventions on trachoma. Also due to presence of solid wastes, animal pans and unclean toilets, community is advised to keep the environment and construct improved latrines.

“More researches, interventions and education should be provided in every year so that to combat trachoma in Mpwapwa district” (District malaria director)

“The community has to make sure that environments are clean. Also emphasis should be put on construction of improved latrines” (HMIS Focal person)

Cleanliness, environmental hygiene and treatment of new cases were the main themes in Kongwa. These areas should be put into consideration to prevent recurrence of the follicular trachoma.

“In order to prevent the recurrence of disease Government and stake holders should insist on cleanliness & environmental hygiene” (Village executive officer)

Another key informant recommended that:

“Since the disease (follicular trachoma) is highly associated with environmental cleanliness, I think the best way is to keep the environments always clean. Also new cases should be treated to avoid recurrence of the disease” (Village Health officer)

Negative believes on what causes blindness was reported by key informants. Some of the community members believe that blindness is due to superstition and there is nothing like follicular trachoma. This was associated with poor adherence to MDA recommendations.

“Not all household received and swallowed drugs because some of them had false believes. People believe that being blind is due to superstition. More education campaigns have to be conducted to clear this negative perception” (District reproductive and child health officer)

There was no reported follicular trachoma recurrence by the key informants in Kongwa.

CHAPTER FIVE

5.0 DISCUSSION

5.1 Introduction

This chapter covers discussion of the findings of the study generated by both quantitative and qualitative research instruments. Discussion focuses on distribution and coverage of the mass drug administration, facial cleanliness and environmental sanitation and the role of community involvement in the efforts against follicular trachoma.

5.2 Elimination of Follicular Trachoma

In 2017 Kongwa's prevalence was lower than Mpwapwa, Efforts from Kongwa were directed to Mpwapwa as a result at the end of 2019 Mpwapwa has reduced the prevalence. The results from both Mpwapwa and Kongwa were <5% which is the threshold set by WHO for Follicular Trachoma elimination (32). This results is corroborated by results from others settings. The study done in Gambia reported TF elimination (0 to 3.8%) among children aged 1-9 years after introducing a single oral dose of azithromycin (33). Also the study done in Ghana revealed the elimination of TF after implementing SAFE strategy.

5.3 Distribution and coverage of the mass drug administration

The study revealed that majority of households in Mpwapwa districts was not offered drugs about thirty percent, while in Kongwa district it was only nine percent. Among the main reasons cited by respondents who didn't receive drugs, were being underage, lack of information on mass drug administration and being absent hence they couldn't attend the MDA campaign. Also the study findings reported reasons for not swallowing azithromycin among those who were offered. Among the major reasons were bad test and not being well informed about the drug and fear of side effects. This findings is similar to the findings in a study done by Astale *et al.*, on population-based coverage survey results following the mass drug administration of azithromycin for the treatment of trachoma in Ethiopia reported that among individuals who reported not being offered the drug, the most common reason given for not being offered was not attending the MDA campaign, 76.5% (34).

Another study done by Bekuma *et al.*, on coverage assessment survey following trachoma mass drug administration (MDA) in six districts of Oromia, Western Ethiopia corroborate our study findings that; despite the high distribution and coverage of MDA the most common mentioned reasons for not having taken azithromycin included not knowing about the campaign and being absent during the MDA campaign (35).

Bekuma *et al.*, (35) also reported fear of side effect as among the reasons for not swallowing the drug among those who were offered. Fear of side effect was also reported by (36) in the study assessing the acceptability of Azithromycin Mass Treatment for Trachoma Elimination.

5.4 Facial cleanliness and environmental sanitation

The study findings indicated the association between unclean faces and distance from the water source; the results were statistically significant, however the study done by Prüss and Mariotti suggested that the direct relationship with distance to water source and water quantity used in the house, or with frequency of face-washing was not always verified. Nevertheless, the review results strongly suggest that water availability has a positive effect, decreasing trachoma prevalence (37).

The study done by Stocks *et al.*, tried to quantify the impact of facial cleanliness and environmental improvements in helping to reduce transmission and the odds of acquiring infection (37). The study suggested that the impact of improved sanitation and hygiene in helping to reduce trachoma transmission is currently underestimated and that it can help to reduce the odds of acquiring infection.

Mpwapwa which was reported to have trachoma recurrence appeared to have more solid wastes or animal pans as compared to Kongwa. The study done in Lemo district, southern Ethiopia reported that; households that did not have solid waste disposal pit were more likely to be affected by active trachoma than those households that had solid waste disposal pit (38). Also the study done by Muluken *et al.*, reported the same results (39).

The study findings reported Kongwa to have high coverage of functional latrines/toilets (99.1%) as compared to Mpwapwa (66.5%), and the proportional difference in coverage appeared to have statistical significance. Woldekidan *et al.*, reported that one among the factors associated with active trachoma was not using latrines (38). As it was revealed early that Mpwapwa failed to eliminate trachoma, these factors explain why recurrence occurred.

5.5 Role of community involvement in the efforts against Follicular trachoma

Community involvement is very crucial for eliminating the disease. People need to be well informed about the disease, its transmission, severity and ways to prevent it. The study findings pointed out that the program brought education campaigns where by people in the community have been educated about trachoma modes of infection, how is it transmitted and ways of prevention.

The study done by Wright *et al.*, suggests that although international and national health bodies are generally responsible for the implementation of the SAFE strategy, it is community involvement and education about the disease at a local level that will result in elimination of trachoma as a blinding disease (40). Also the study on Knowledge, perceptions and experiences of trachoma among Maasai in Tanzania suggested that Trachoma control interventions require community understanding of trachoma and behavior change (41). This proves that community knowledge and understanding of the diseases and approaches to eliminate trachoma is key to the success.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

Mpwapwa district has managed to reduce the Trachoma prevalence, from its high rates in 2017 to prevalence lower than WHO threshold of below 5%. The success is centered on the decision to significantly increase the intervention coverage in Mpwapwa, as a consequence the coverage was almost at par with Kongwa district in majority of the interventions. Over ninety percent of respondents from both Mpwapwa and Kongwa districts received information about trachoma prevention. The MDA coverage remains higher in Kongwa district, however the drug-swallowing rate was high in both areas. Facial cleanness among children remains a challenge in Mpwapwa district compared to Kongwa, thirty three percent of respondent in Mpwapwa district had unclean face compared to less than one percent in Kongwa district. Similarly, the presence of functional latrine/toilets is higher in Kongwa district with a coverage of about ninety percent compared to sixty six percent in Mpwapwa district.

Overall, the community interventions are effective to eliminate follicular trachoma. The results point out that mass drug treatment, facial hygiene and environmental campaigns are important components of an integrated strategy to control trachoma. However, the campaign should continue in Mpwapwa district to ensure they reach the coverage rate of Kongwa district.

6.2 Recommendations

From the study findings and analysis the following recommendations are suggested to be adopted by Mpwapwa district in order to eliminate TF:

1. Implement the comprehensive community program by combining all three strategies (antibiotic, facial hygiene and environmental cleanliness) to ensure effectiveness in eliminating Trachoma in Mpwapwa.

2. Stakeholders in the control of trachoma in this area should review their Facial and Environmental sanitation intervention content and delivery approaches to improve water availability, access to latrines, and reducing the density of flies in the environment.
3. The government and other stakeholders should improve the coverage of clean and safe water in Mpwapwa and ensure the water sources are not very far from households.
4. Further exploration on the socio economic factors, will be important to inform the intervention. For example, are there any socioeconomic differences in the two districts that could be associated with the uptake of SAFE interventions?

6.3 Limitations and mitigations

Presence of functional latrines/toilets was self-reported by the respondents and the information was not authenticated. Respondents were informed that individual responses to the questions will be kept confidential and will not be shared with anyone, and there is no penalty if the latrines/toilets are not functional. In addition, the given reason for not swallowing drugs was not authenticated as the interviewee and not the patient gave the reason. Recall bias; desirability bias; and only getting people who were at home during the time of data collection were limitation of the stud. In addition, data triangulation was done to complement the study findings. Household level responses might have also not represented the other family members. The head of the household was informed on the benefits of the study not only to her/his family but for the whole community. However, these findings should be used by the relevant authorities to priorities strategies for preventing the recurrence of Follicular Trachoma in endemic areas.

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ANNEXES

Annex 1: Village Identification

Date: _____ (DD/MM/YYYY)

Region: _____ District: _____ Village: _____

Average village population: _____

Social and health services available in the village:

Services	Average time to access the services		
	Less than 30 Minutes	More than 30 Minutes but less than 2 hours	More than 2 hours
Health center			
Market			
Primary school			
Community based azithromycin distribution and Health information services			
Other comments			

Source: Guideline for Rapid Assessment for blinding trachoma (28)

Kiambatanisho 1: Utambuuzi wa Kijiji

Tarehe: _____ (TT/MM/MMMM)

Mkoa: _____ Wilaya: _____ Kijiji: _____

Wastani wa idadi ya wakazi katika kijiji: _____

Huduma zinazopatikana:

Huduma zilizopo katika kijiji	Wastani wa muda unaotumika kufikia huduma husika		
	Chini ya dakika 30	Dakika 30 au zaidi ila chini ya masaa mawili	Masaa 2 au zaidi
Kituo cha afya			
Soko			
Shule ya msingi			
Huduma ya kugawa dawa na taarifa za kujikinga na trachoma katika jamii			
Maoni			

Chanzo: Guideline for Rapid Assessment for blinding trachoma (28)

Annex 2: Consent form: Household questionnaire on azithromycin coverage.

“Hello, my name is <name> - a student at Muhimbili University of Health and Allied Sciences (MUHAS). We are surveying houses in your village about the most recent community drug distribution. We would like to know if the members of your house took the drugs. If you wish to participate in the survey, tell us and we will note your answer. If you agree, the survey will only take a few minutes. Taking part in the house survey will not benefit you directly, but the results will help the Ministry of Health improve the interventions to eliminate Trachoma in your village. It is your choice to take part, or not to take part, in this survey. You may refuse without penalty. Would you like to take part in our survey?”

Yes/ No

[if Yes, continue with the questions below; If No, skip to END and record the refusal]

1. Were you in the community between **2014** and **2018**?

No = 0 Yes =1 Unsure = 2

2. How long have you lived in this community?

___ years ___ months

[If not living here at time of MDA, skip to END]

3. Have you ever received any information about Trachoma prevention in this village?

a. Yes No

b. If yes: Where did you hear about Trachoma? *(Check all answers)*

i. Radio ()

ii. Village meetings ()

iii. Community drug distributors ()

iv. Friends or relatives ()

NB:

The interviewer should bring examples of each azithromycin to show the respondents at the time of next questionnaire to help with recall.

If a survey respondent (Head of household) is absent and not expected to return, an attempt should be made to reach the adult via cellphone. If this is not possible an adult in the

household may serve as a proxy respondent and answer on behalf of the absent individual. In this event, the name, age, and sex of the *absent* individual should be recorded in the questionnaire and the response to the question “Participant Present?” should be “No”. In all other cases, when the respondent is present at the time of interview, the response to this same question should be “Yes

First Name: _____ Age: _____ Sex: M / F

Participant present? Yes () No ()

Continue with next questionnaire about azithromycin coverage

Kiambatanisho 2: Ukubali wa kushiriki katika Dodoso la nyumba kwa nyumba kuhusu upatikanaji wa ‘azithromycin’

“Habari, naitwa _____, ninasoma katika Chuo cha Muhimbili University of Health and Allied Sciences (MUHAS). Tunakusanya taarifa na maoni ya wanakijiji kuhusu upatikanaji na matumizi ya dawa za kuzuia trachoma katika jamii. Tungependa kujua kama kuna mtu katika nyumba yako alishawahi kunywa hizi dawa. Kama uko tayari kuwakilisha maoni yako, tafadhali tuambie ili tuanze kuandika maoni yako, zoezi hili litatumia dakika chache tu. Naomba nikujulishe pia kwamba ushiriki wako katika zoezi hili utasaidia Wizara ya Afya Kuboresha mapambano dhidi ya trachoma (vikope) katika kijiji chako. Chaguo ni lako, je uko tayari kushiriki katika zoezi hili?”

Ndio/ Hapana

[Kama ndio, endelea na maswali yanayofuata, kama Hapana, usiendelee na maswali bali andika “REFUSAL” kwa maandishi makubwa chini ya ukurasa huu.]

4. Je ulikuwepo katika kijiji hiki kati ya mwaka 2014 na 2018?

Hapana = 0

Ndio = 1

Sina uhakika = 2

5. Je umeishi kwa muda gani katika kijiji hiki?

___ miaka ___ miezi

[Kama alikuwepo kipindi cha mwaka 2014 na 2018 endelea na swali linalofuata, kama hakuwepo ishia hapo]

6. Je ulishawahi kupata elimu jinsi ya kujikinga na ugonjwa wa trachoma (vikope) ndani ya kijiji hiki?

a. Ndio

Hapana

b. Kam ndio je; ulipata elimu hii kwa njia gani? *(weka tiki kwa majibu yote aliyotaja)*

i. Radio ()

ii. Mikutano ya kijiji ()

iii. Wagawaji dawa katika kijiji (Community drug distributors) ()

iv. Rafiki au ndugu ()

NB:

Hakikisha umebeba mfano au baadhi ya dawa za ‘azithromycin’ ili kuwaoyesha washiriki unapoendelea na dododso lilinalofuata.

Kama kiongozi wa nyumba anayetakiwa kujibu hayupo, jaribu kumtafuta na kufanya mahojiano naye kwa njia ya simu. Ikishindikana kumpata, mtu mzima yoyote aliyepo katika nyumba hiyo anaweza kujibu maswali badala ya kiongozi wa nyumba. Ikiwa aliyejibu maswali ni mbadala wa kiongozi wa nyumba, andika jaza taarifa zake kama inavyoelekezwa hapa chini. Pia chagua hapana kwenye swali linalouliza “ Je mhusika alikuwepo?”.

Jina la kwanza: _____ Umri: _____ Jinsi: Me /
Ke

Je mhusika alikuwepo? Ndio () Hapana ()

Endelea na dodoso la nyumba kwa nyumba kuhusu upatikanaji wa azithromycin.

Household Survey to Measure Coverage of azithromycin among family members

Interviewer Code: |__|__|__| District: |_____| Village: |_____|

Subunit (Hamlet/Other _____): |_____| Household No: |__|__|__|

Date of interview (dd/mm/yyyy): |__|__|/|__|__|/|__|__|__|__| Household Head: _____

Survey population: _____

#	First Name (List all household members)	Sex (M/F)	Age Years	HH member present (Y/N)	Offered the drug? (Y/N/DK)	Reason not offered ^a	Swallow the drug? (T/N/DK)	Reason did not swallow ^b	Reason did swallow ^c
1									
2									
3									
4									
5									
6									

^a Reason treatment was not offered 1= Underage 6= Didn't hear about MDA 2= Pregnant 7= Drug ran out 3= Breastfeeding 8= Nobody came 4= Sick 9= Other 5= Absent	^b Reason treatment was not swallowed 1= Fear of side effects 2= Bad taste 3= Not sick 4= Not enough information given 5= Other	^c Reason treatment was swallowed 1= Fear of diseases(s) 2= To treat disease(s) 3= Because it was given/ free 4= Useful information from community drug distributors 5= Other
---	--	--

Y= Yes, N= No, DK= Don't Know

Source: Coverage Evaluation Surveys for Preventive Chemotherapy: Field guide for implementation; WHO, 2016 (42)

Dodoso la nyumba kwa nyumba kujua upatikanaji wa ‘azithromycin’ katika familia

Namba ya muuliza maswali: |_|_|_|_| Wilaya: |_____| Kijiji: |_____|

Kitongoji (_____): |_____| Namba ya Nyumba: |_|_|_|_|

Tarehe ya mahojiano (tt/mm/yyyy): |_|_|_|/|_|_|_|/|_|_|_|_|_| Jina la kiongozi wa nyumba: _____

Survey population: _____

#	Jina la kwanza (orodhesha wanakaya wote)	Jinsi (Me/Ke)	Umri	Kiongozi wa nyumba yupo? (N/H)	Alipewa dawa? (N/H/S)	Sababu ya kutopewa dawa ^a	Alikunyw a dawa? (N/H/S)	Sababu ya kutokunywa dawa ^b	Sababu ya kunywa dawa ^c
1									
2									
3									
4									
5									
6									

^aSababu za kutopewa dawa
 1= Umri mdogo 6= Hajawahi kusikia kuhusu ugawaji wa dawa
 2= Ujauzito 7= Dawa ziliisha
 3= Kunyonyesha 8= Hakuja
 4= Mgonjwa 9= Nyinginezo
 5= Hakuwepo

^bSababu za kutokunywa dawa
 1= Uwoga wa madhara ya dawa
 2= ladha mbaya/ chungu
 3= sio mgonjwa
 4= Hakupata taarifa sahihi za kutosha
 5= Nyinginezo

^cSababu ya kunywa dawa
 1= Kuogopa magonjwa
 2= Kutibu magonjwa
 3= Kwa sababu ilikuwa inatolewa bure
 4= Taarifa sahihi toka kwa wagawaji dawa katika jamii
 5= Nyinginezo

N= Ndio, H= Hapana, S= Sijui

Annex 3: Facial Hygiene and Environmental factors observation form

Household Number (use same number as in the household survey)	Child(ren) with Unclean face		Water source more than half an hour walk		Presence of solid waste or animal pens		Absence of functional latrine		Remarks
	Yes	No	Yes	No	Yes	No	Yes	No	

Source: Guideline for Rapid Assessment for blinding trachoma (28)

Kiambatanisho 3: Mwongozo wa kuangalia mazingira ya nyumba na usafi wa uso kwa watoto.

Nyumba Na. <i>(Namba lazima ifanane na iliyoko katika dodoso la uoatikanaji wa dawa)</i>	Je umeona (wa)mtoto mwenye uso mchafu?		Je chanzo cha maji safi kinapatikana kwa mwendo unaozidi nusu saa?		Je kuna uchafu au kinyesi cha wanyama katika mazingira ya nyumba?		Je nyumba wanatumia choo kisafi?		Maoni mengineyo
	Ndio	Hapana	Ndio	Hapana	Ndio	Hapana	Ndio	Hapana	

Chanzo: Guideline for Rapid Assessment for blinding trachoma

Annex 4: Guide for interviewing officials at the district, village and health centers

“Hello my name is (name) – a student at Muhimbili University of Health and Allied Sciences (MUHAS), I am doing a study about interventions against follicular Trachoma in this District/ Village. If you wish to participate in this survey, kindly say “yes” so that I can start taking notes. I humbly request for your permission to record our conversation so that I will not take much time writing all the words. (Yes / No)

Also note that your participation in this survey will help the Ministry of Health improve the interventions to eliminate follicular trachoma in your village.

[if Yes, continue with the questions below; If No, give thanks to the respondent, skip to END and find another respondent]

1. District:
2. Village:
3. Occupation:
4. For how long have you been working in this area on interventions against Trachoma?
 - a. Less than 4 years
 - b. Four years and above

If it is less than 4 years ask him/her to explain what interventions were used to eliminate trachoma in 2014.

If more than 4 years, continue with the next question.

5. What interventions were employed to eliminate follicular trachoma in 2014?
6. Do you have any information about recurrence of follicular Trachoma in your area after 2014?
 - a. Where?
 - b. When?
7. Why do you think that follicular Trachoma recurred in that area?
8. What are your recommendations and comments to the community and other stakeholders working on interventions to eliminate follicular trachoma?

Thank you.

Kiambatanisho 4: Mwongozo wa kukusanya maoni ya watendaji wa wilaya, kijiji na wahudumu wa afya

“Habari, naitwa _____, ninasoma katika chuo cha Muhimbili University of Health and Allied Sciences (MUHAS). Ninakusanya taarifa na maoni kuhusu shughuli zilizofanyika kutokomeza ‘follicular trachoma’ katika wilaya/ kijiji hiki. Ningependa kujua ushiriki wako katika shughuli hizo. Kama uko tayari kuwakilisha maoni yako, tafadhali niambie ili nianze kuandika, pia nitarekodi sauti ya mazungumzo yetu. Zoezi hili litatumia dakika chache tu. Naomba nikujulishe pia kwamba ushiriki wako katika zoezi hili utasaidia Wizara ya Afya Kuboresha mapambano dhidi ya trachoma (vikope) katika wilaya/ kijiji chako. Je uko tayari kushiriki katika zoezi hili?”

Ndiyo () Hapana. ().

Kama ndiyo, endelea na maswali yanayofuata, kama hapana, mshukuru muhusika na endelea na mtu anayefuata.

1. Wilaya:
2. Kijiji :
3. Kazi yako:
4. Je umefanya kazi ya kuzuia maambukizi ya ‘follicular trachoma’ katika eneo hili kwa muda gani?
 - c. Chini ya miaka minne
 - d. Miaka minne na zaidi

Kama ni chini ya miaka minne muulize kama aeleze kilichotokea hadi kutokomeza trachoma mwaka 2014.

Kama ni zaidi ya miaka minne endelea na swali linalofuata.

5. Je nini kilifanyika hadi eneo lako likafanikiwa kutokomeza ‘follicular trachoma’ mwaka 2014?
6. Je, mna taarifa za ‘follicular trachoma’ kuonekana tena katika eneo hili baada ya mwaka 2014?
 - a. Wapi?
 - b. Lini

7. Je ni kwa nini unafikiri 'follicular trachoma' imerudi tena katika eneo hili
8. Je una maoni gani kwa wanajamii na wadau mbalimbali wanaushughulika na juhudi za kutokomeza 'follicular trachoma'?

Asante sana.

Annex 5: Approval of ethical clearance

**MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES
OFFICE OF THE DIRECTOR OF POSTGRADUATE STUDIES**

P.O. Box 65001
DAR ES SALAAM
TANZANIA
Web: www.muhas.ac.tz



Tel G/Line: +255-22-2150302/6 Ext. 1015
Direct Line: +255-22-2151378
Telefax: +255-22-2150465
E-mail: dpgs@muhas.ac.tz

Ref. No. DA.287/298/01A/

23rd August, 2019

Ms. Naomi Lugoe
MSc. Project Management Monitoring and Evaluation in Health
MUHAS.

**RE: APPROVAL OF ETHICAL CLEARANCE FOR A STUDY TITLED:
"EFFECTIVENESS OF COMMUNITY INTERVENTIONS TO ELIMINATE
TRACHOMATOUS INFLAMMATION-FOLLICULAR (TF) IN DODOMA
REGION"**

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 **20th August, 2019 to 19th August, 2020**. In case you do not complete data analysis and dissertation report writing by **19th August, 2020**, you will have to apply for renewal of ethical clearance prior to the expiry date.

Dr. Emmanuel Balandya
ACTING: DIRECTOR OF POSTGRADUATE STUDIES

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

Annex 6: Introduction Letters

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES
OFFICE OF THE DIRECTOR OF POSTGRADUATE STUDIES

P.O. Box 65001
 DAR ES SALAAM
 TANZANIA
 Web: www.muhas.ac.tz



Tel G/Line: +255-22-2150302/6 Ext. 1015
 Direct Line: +255-22-2151378
 Telefax: +255-22-2150465
 E-mail: dpgs@muhas.ac.tz

Ref. No. HD/MUH/T.568/2017

06th April, 2020

The Permanent Secretary,
 Ministry of Health Community Development Gender Elderly and Children,
 P.O. Box 573, 40478,
 DODOMA.

Re: INTRODUCTION LETTER

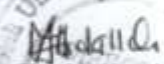
The bearer of this letter Ms. Naomi Lugoe is a student at Muhimbili University of Health and Allied Sciences (MUHAS) pursuing MSc. Project Management Monitoring and Evaluation in Health

As part of her studies she intends to do a study titled: "*Effectiveness of community interventions to eliminate trachomatous inflammation-follicular (TF) in Kongwa and Mpwapwa District*".

The research has been approved by the Chairman of University Senate.

Kindly provide her the necessary assistance to facilitate the conduct of her research.

We thank you for your cooperation.


 Ms. Sharifa Kamby

For: **DIRECTOR, POSTGRADUATE STUDIES**

cc: Dean, School of Public Health and Social Sciences
 cc: Ms. Naomi Lugoe

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES
OFFICE OF THE DIRECTOR OF POSTGRADUATE STUDIES

P.O. Box 65001
 DAR ES SALAAM
 TANZANIA
 Web: www.muhas.ac.tz



Tel G/Line: +255-22-2150302/6 Ext. 1015
 Direct Line: +255-22-2151378
 Telefax: +255-22-2150465
 E-mail: dpgs@muhas.ac.tz

Ref. No. HD/MUH/T.568/2017

4th October, 2019

General Secretary,
 Presidents Office,
 Regional Administration and Local Government (PO-RALG),
 Mkapa Building,
 Hospital Road,
 P.O. Box 1923,
 DODOMA

Re: INTRODUCTION LETTER

The bearer of this letter Ms. Naomi Lugoe is a student at Muhimbili University of Health and Allied Sciences (MUHAS) pursuing MSc. Project Management Monitoring and Evaluation in Health

As part of her studies she intends to do a study titled: "*Effectiveness of community interventions to eliminate trachomatous inflammation-follicular (TF) in Kongwa and Mpwapwa District*".

The research has been approved by the Chairman of University Senate.

Kindly provide her the necessary assistance to facilitate the conduct of her research.

We thank you for your cooperation.


 Ms. Sharifa Kamby

For: DIRECTOR, POSTGRADUATE STUDIES

cc: Dean, School of Public Health and Social Sciences
 cc: Ms. Naomi Lugoe

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES
OFFICE OF THE DIRECTOR OF POSTGRADUATE STUDIES

P.O. Box 65001
 DAR ES SALAAM
 TANZANIA
 Web: www.muhas.ac.tz



Tel G/Line: +255-22-2150302/6 Ext. 1015
 Direct Line: +255-22-2151378
 Telefax: +255-22-2150465
 E-mail: dpgs@muhas.ac.tz

Ref. No. HD/MUH/T.568/2017

25th October, 2019

Regional Administrative Secretary
 Dodoma Regional
 P.O. Box
DODOMA.

Re: INTRODUCTION LETTER

The bearer of this letter Ms. Naomi Lugoe is a student at Muhimbili University of Health and Allied Sciences (MUHAS) pursuing MSc. Project Management Monitoring and Evaluation in Health

As part of her studies she intends to do a study titled: "*Effectiveness of community interventions to eliminate trachomatous inflammation-follicular (TF) in Kongwa and Mpwapwa District*".

The research has been approved by the Chairman of University Senate.

Kindly provide her the necessary assistance to facilitate the conduct of her research.

We thank you for your cooperation.


Ms. Sharifa Kamby
 For: **DIRECTOR, POSTGRADUATE STUDIES**

cc: Dean, School of Public Health and Social Sciences
 cc: Ms. Naomi Lugoe

Annex 7: Permission Letter

JAMHURI YA MUUNGANO WA TANZANIA
OFISI YA RAIS
TAWALA ZA MIKOA NA SERIKALI ZA MITAA

Mkoa wa Dodoma
Anuani REGCOM
Simu Namba: 2324343/2324384
E-Mail No. ras@dodoma.go.tz
Nukushi: 255 026 23200462320121
Tafadhali kwa majibu:



Ofisi ya Mkuu wa Mkoa,
S.L.P 914,
Dodoma.

Kumb.Na. GB.90/279/01/29

06 Novemba, 2019

Mkurugenzi Mtendaji
Halmashauri ya Wilaya,
S.L.P. 57,
KONGWA.

Mkurugenzi wa Mtendaji
Halmashauri ya Wilaya
S.L.P 01,
MPWAPWA.

YAH:UTAMBULISHO WA BI. NAOMI LUGOE

Tafadhali husika na kichwa cha habari hapo juu.

Mtajwa hapo juu ni Mwanafunzi wa Shahada ya " **Project Management Monitoring and Evaluation in Health**" katika Chuo kikuu cha Muhimbili. Aidha, Mtajwa anatarajia kufanya utafiti kuhusu ufanisi wa Mikakati ya Kutokomeza Trakoma katika Halmashauri ya Kongwa na Mpwapwa.

Kwa barua hii, unaombwa kumpa ushirikiano ili aweze kufanikisha utafiti huo.

Nashukuru kwa Ushirikiano.


Dkt. Best R. Magoma
Kny, **KATIBU TAWALA MKOA
DODOMA**

Nakala: Katibu Tawala Mkoa,
DODOMA. *(Aione kwenye Jalada)*