

Factors associated with non-uptake of measles rubella vaccine second dose among children aged 18-36 months in Kinondoni municipal council

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**FACTORS ASSOCIATED WITH NON-UPTAKE OF MEASLES RUBELLA VACCINE
SECOND DOSE AMONG CHILDREN AGED 18-36 MONTHS IN KINONDONI
MUNICIPAL COUNCIL**

By

Lilian Wilson Babybonela

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

**Muhimbili University of Health and Allied Sciences
October, 2018**

CERTIFICATION

The undersigned certify that, he has read and hereby recommend for acceptance by the Muhimbili University of Health and Allied Sciences a dissertation entitled: “*Factors associated with non-uptake of measles rubella vaccine second dose among children aged 18-36 months in Kinondoni Municipal Council*”, in (partial) fulfilment of the requirement for the degree of Master of Public Health (MPH) of the Muhimbili University of Health and Allied Sciences (MUHAS), Dar es Salaam.

Associate Professor. Daudi O. Simba

(Supervisor)

Date

DECLARATION AND COPYRIGHT

I, **Lilian Wilson Babybonela**, 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 similar or any other degree award.

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ABSTRACT

Background: In Tanzania, measles rubella vaccine second dose (MR2) was introduced into routine immunization program in May 2014 and as of 2016, official national coverage for MR2 vaccine was 71% which is low than recommended coverage in WHO- measles rubella elimination strategic plan ($\geq 95\%$). This reveals that attaining high coverage of MR2 vaccine is still a challenge. There is significant proportion of eligible children not fully protected against measles and rubella disease and factors influencing non-uptake of MR2 have not been explored enough to develop specific interventions to improve vaccination coverage.

Main Objective: To determine factors associated with non-uptake of measles rubella vaccine second dose among children aged 18-36 months in Kinondoni municipality.

Method: A household based cross-sectional study employing quantitative method with a sample size of 527 children aged 18-36 months was undertaken in Kinondoni municipality, Dar es Salaam, Tanzania during the period of May to June 2018. Four stages cluster sampling technique was used to access the study participants. Face to face, interview using structured questions was used to collect data on factors influencing non-uptake and immunization card information to determine the vaccination status of the child. Interviewed responses were analyzed using Statistical Package for Social Scientist (SPSS) for windows version 22.0 (2013) Armonk, New York (NY), USA. Differences between proportions were examined using chi-square test. Bivariate and multivariate analyses were conducted to identify independent factors associated with non-uptake of MR2. Crudes Odds Ratios (COR) and Adjusted Odds Ratios (AOR) and 95% Confidence Intervals (CI) were calculated. Variables showing associations in bivariate logistic regression ($p\text{-value} \leq 0.2$) were subjected to multiple logistic regression model using backward elimination, dropping the least significant independent variable until all the remaining predictor variables were significant ($p\text{-value} \leq 0.05$ and 95% CI not including 1).

Results: In this study, 528 children aged 18-36 months were recruited. The proportion of MR2 vaccine non-uptake was 17.0%. Health promotion talk (AOR=2.24, 95% CI= 1.52 – 5.31, P-value =0.02) and awareness on MR2 vaccine (AOR=4.90, 95% CI=1.24 – 19.3, p=0.002) showed statistical significant association with non-uptake of MR2 vaccine.

Conclusion: Seventeen percent of the eligible children were not vaccinated with MR2 vaccine. Inadequate health promotion talks and caretaker's awareness on MR2 vaccine contributed significantly to the non-uptake of MR2 vaccine. This study recommends for Immunization and Vaccine Development Program (IVD) to ensure that promotional talks on vaccine are conducted at both health facility and community levels focusing on the importance of vaccination and the need to abide to vaccination schedule. In addition, the Program need to strengthen identification of vaccine defaulters when they visit health facility for treatment or preventive services.

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ABBREVIATIONS

BCG	Bacillus Calmette–Guérin vaccine
CI	Confidence Interval
CDC	Centre for Disease Control
CRS	Congenital Rubella Syndrome
DHS	Demographic Health Survey
DPT-HepB-Hib3	Diphtheria, Pertusis, Tetanus, Hepatitis B and Haemophilus influenzae type b vaccine (Pentavalent vaccine) third dose
IVD	Immunization and Vaccine Development Program
MCV1	Measles-containing vaccine first dose
MCV2	Measles-containing vaccine second dose
MOHCDGEC	Ministry of Health, Community Development, Gender, Elderly and Children
MR1	Measles rubella vaccine first dose
MR2	Measles rubella vaccine second dose
MMR	Measles Mumps Rubella
OPV3	Oral Polio Vaccine third dose
PCV3	Pneumococcal Conjugate Vaccine third dose
RI	Routine Immunization
TDHS	Tanzania Demographic and Health Survey
TShs	Tanzania Shillings
US	United States
WHO	World Health Organization

DEFINITION OF KEY TERMS

Caretaker: A caretaker is defined as either a mother or anybody who is considered to be attending the needs of a child.

Coverage The proportion of children of a specific age who received a particular vaccine antigen.

Design Effect A measure of variability due to selection of survey subjects by any method other than simple random sampling and expressed as the ratio of the variance with other types of sampling to the variance with simple random sampling.

Immunization It is the process whereby a person is made immune or resistant to an infectious disease, typically by the administration of a vaccine.

Measles vaccine is a monovalent measles vaccine that is administered as a single dose.

MCV (Measles-containing vaccine) is a combination of measles, mumps, rubella and varicella vaccine that is administered into two doses depending on the country immunization schedule. **MCV1** and **MCV2** is the Measles-containing vaccine first dose and second dose respectively.

MR (Measles rubella vaccine) is one of the MCV but protects against measles and rubella only. It is administered into two doses at 9months and 18months old in Tanzania.

MR2 (Measles rubella vaccine second dose) protects against measles and rubella administered as the second dose at 18months old.

MR2 vaccinated child is the child who has received the second dosage of measles rubella vaccine.

Uptake It is utilization of vaccination services for a particular vaccine antigen.

Vaccine It is a biological preparation that improves immunity to a particular disease

CHAPTER ONE

1. INTRODUCTION

1.1 BACKGROUND

Measles is highly contagious human diseases and can cause serious illness, lifelong complications and death. Prior to the availability of measles vaccine, measles infected over 90% of children by the age of 10 years. (1) These infections were estimated to cause more than two million deaths and between 15,000 and 60,000 cases of blindness annually worldwide. (2) Rubella is among the preventable diseases that although mild, have negative effect on child growth and development. (2). Rubella is transmitted via respiratory droplets hence has a potential for outbreaks and when infection occurs in women it can lead to fetal death or congenital rubella syndrome, a disease that can manifest in the form of deafness, blindness, congenital heart disease and mental retardation.(3) Prior to introduction of the rubella vaccine, it was estimated that 110,000 cases of Congenital Rubella Syndrome (CRS) occur in developing countries each year. (3) For rubella vaccination to have a positive effect (eradication of CRS and minimize possibility of infection among older age groups), high rubella vaccination coverage must be achieved. (3)

Measles and rubella-containing vaccines are considered as highly effective, safe and inexpensive that protect individuals from infection, and their widespread use can completely stop the spread of the viruses in populations that achieve and maintain high levels of immunity. Countries began using measles vaccines in the 1960s, and immediately identified their use as highly cost-effective. The use of rubella vaccine began in 1969, and a combined formulation (MR or MMR) in the 1970s.(2)

Globally, coverage of the first dose of measles vaccine reached 82% in 2007; between 2000 and 2007, the estimated number of deaths from measles dropped from 750,000 to 197,000. (4) Study conducted in Bangladesh has revealed that measles immunization was associated with a 36% lower child mortality in the period April 1982 to December 1984. (5) In Tanzania, prior to the introduction of measles vaccine in 1975, more than 60,000 clinically diagnosed cases of measles were reported each year. After strengthening routine vaccination services throughout the 1980s, reported cases declined 75% to approximately 15,000 in 1990. (6)

As per the US CDC report on Strategies for Elimination of Measles, Rubella, and Congenital Rubella Syndrome; before the use of rubella vaccine that began in 1969, incidence of rubella was high among preschool and elementary school children. Thus, vaccination campaigns initially had targeted children in kindergarten and the early grades of elementary school, with the aim of interrupting circulation of the virus and eliminating the risk for exposure among susceptible pregnant women. During 1969-1976, reported rubella cases decreased from 57,600 to 12,400. The number of CRS cases reported nationwide decreased by 69% from 69 in 1970 to 22 in 1976. (7)

In the year 2009, WHO recommended that every child under the age of five years in all countries that had achieved MCV1 coverage of more than 80% for three successive years were to receive a second dose of Measles-Containing Vaccine (MCV2) in the routine immunization schedule (4). The provision of MCV2 in the routine immunization schedule offers numerous advantages including; maintaining high immunization coverage and protect children who remained unprotected after the first dose.(8) The immunological rationale is to immunize the primary vaccine failures among children who failed to respond to MCV1, while the programmatic rationale is to vaccinate those children who were missed by routine services. Most children who have failed to respond to the first dose of MCV respond well to a second dose. (9)

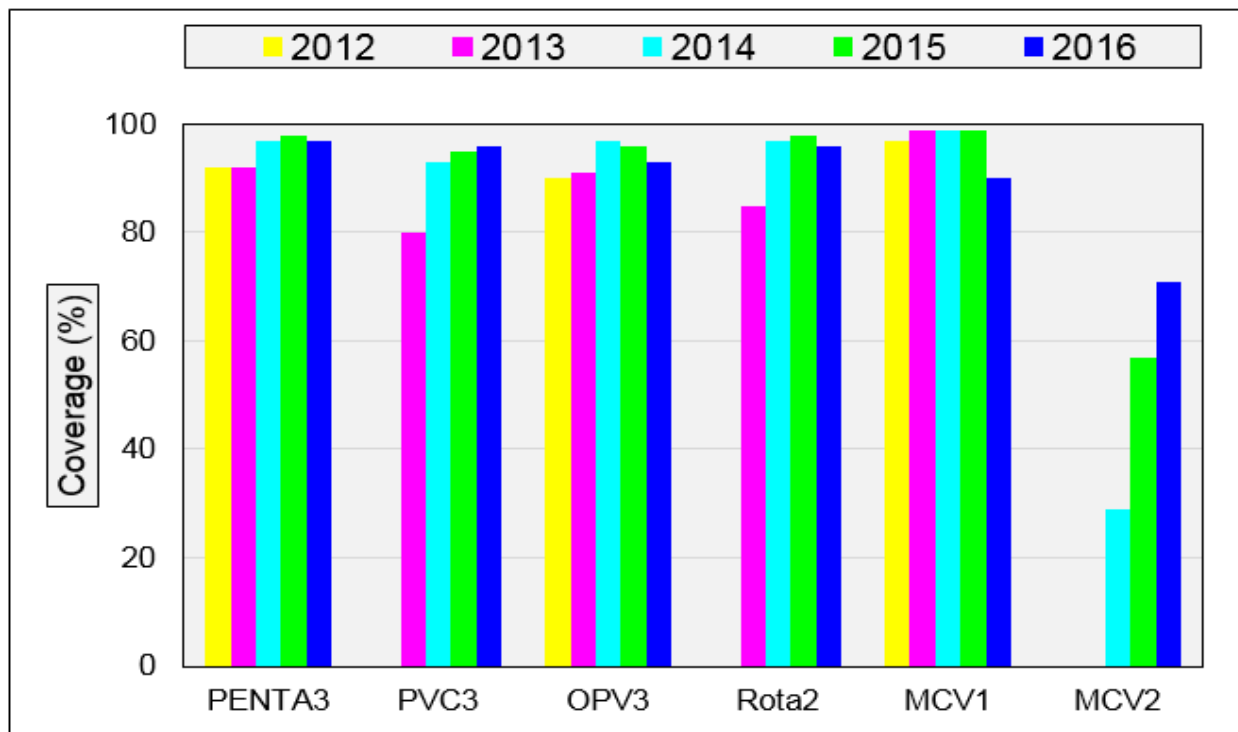
In line with WHO recommendation of offering children second opportunity for Measles rubella immunization, (4) Tanzania introduced MR2 in routine immunization in May 2014 given at 18 months of age. The World Health Organization, through its measles-rubella elimination strategic plan, have a milestone of achieving at least 95% coverage with both the first and second routine doses of measles- rubella-containing vaccine in each district and nationally by end 2020. (2)

Although there was an improvement in MR2 coverage in Tanzania from 29% in 2014, 57% in 2015 to 71% in 2016, the coverage still lags behind the recommended coverage in WHO-measles rubella elimination strategic plan (Fig. 1). Studies have been conducted in different parts of the world to derive the major factors associated with non-uptake of vaccination including health system factors, socioeconomic status of the clients, cultural beliefs and perception regarding child vaccination. Using data from 2004-2005 DHS in Tanzania, Edwards AE, showed that distance from the health facility, illiteracy and poverty were barriers to achieve high vaccination coverage.

Intervention put in place to address low coverage of MR2 in Tanzania includes the Reach Every Child (REC) which is a health facility and community focused approach which ensures that all children in a specified community are immunized against vaccine-preventable diseases. The REC approach focus on identifying unvaccinated and under vaccinated children and their residential location and vaccinating them immediately following the country's immunization guide. Since 2014, the approach has been successfully implemented as it identified a number of under vaccinated children and led to an improved MR2 coverage from 57% in 2015 to 71% in 2016 but, it could not identify what are the reasons for the non-uptake of MR2.

Therefore, a study was carried out to establish the factors associated with non-uptake of MR2 among children aged 18-36 months in Kinondoni Municipality. Study population were children aged 18-36 months because 18 months is a known age for MR2 vaccination and the vaccine can be given to children of up to 36 months.

Figure 1: Vaccination coverage in Tanzania Mainland, 2012 – 2016



Source: - IVD/MOHCDGEC 2012 – 2016 Annual coverage reports.

1.2 PROBLEM STATEMENT

Despite the huge success of immunization program in Tanzania of achieving high vaccination coverage rates for almost all vaccines being offered (official 2016 national coverage for BCG 99%, DPT-HepB-Hib3 97%, PCV3 96%, OPV3 93%, MR1 90%) still measles rubella second dose (MR2) vaccination coverage is low than recommended ($\geq 95\%$). Official 2016 national coverage for MR2 vaccine was 71% (10).

Study conducted in Kakamega County, Kenya revealed that the distance to the nearest vaccinating facility, caretaker's awareness on MR second dose, uptake of at least two doses of vitamin A and uptake pentavalent 3 were strongly associated with non-uptake of MR2. (11)

Proposed strategies reported to improve non-uptake of MR2 includes, creating awareness on the importance of receiving MR2 at 18 months and strengthening immunization outreach services in far-to-reach areas. (11)

Many studies have been conducted on the general immunization coverage however little is known about the factors that influence non-uptake of MR2 and strategies to improve its uptake have not been exhausted. In Tanzania, lack of information could have been attributed to the fact that MR2 vaccine was introduced into routine immunization program in early 2014. Therefore, this study aimed to determine the factors associated with non-uptake of MR2 in Kinondoni Municipality in Dar es Salaam region among children aged 18-36 months.

1.3 STUDY RATIONALE

Despite the sustained high coverage with the first dose of measles rubella vaccine (MR1), seroconversion of measles alone vaccine is only 85% with the first dose. Moreover, there are still outbreaks of measles reported in Tanzania. A second dose provide high seroconversion of up to 95% and maintain herd immunity in the population. Additional second dose of rubella vaccine also maintain immunity and prevent outbreaks. Hence, it is important to complete the two (2) doses of the vaccine (MR1 and MR2) to have high immunity against measles and rubella.

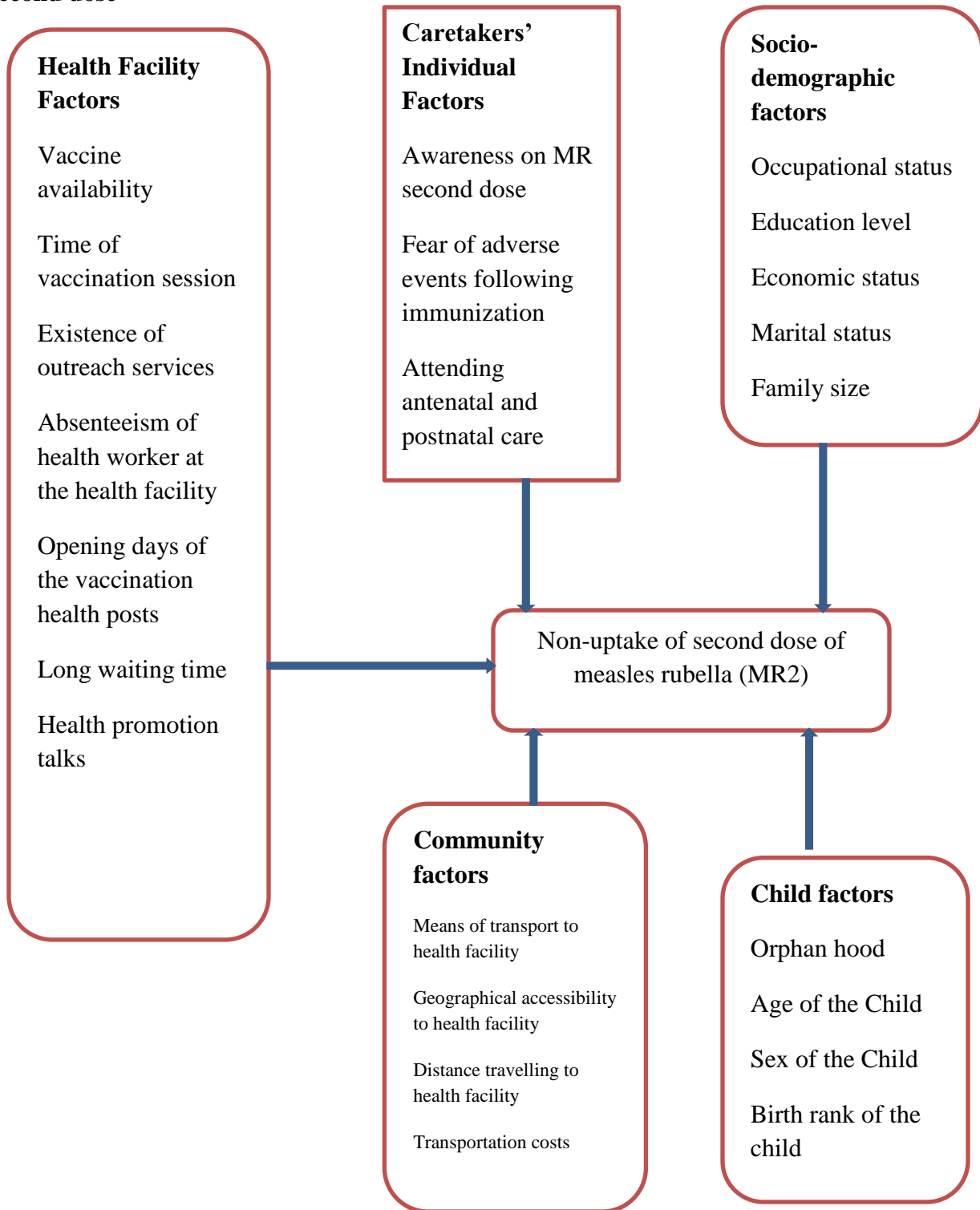
In order to develop and implement specific interventions that aim to improve coverage of MR2, it was vital to conduct the study that would yield information on the factors influencing its non-uptake.

The results obtained from this study to be used by program managers and officers working on immunization services at national, regional and district level to develop specific interventions to improve immunization coverage of MR2 vaccine.

Conceptual Framework

Figure below shows the schematic presentation of the conceptual framework of this study. The conceptual framework was drawn from known determinants for other vaccine uptake. This study assumed that caretakers' individual factors (such as fear of adverse events following immunization, awareness on MR second dose, attending antenatal and postnatal clinic), health facility factors (such as absenteeism of health worker at the health facility, vaccine availability, existence of outreach services, opening days, time of vaccination session), caretaker' socio-demographic factors, child factors (such as age, sex, child birth rank, orphan hood) and community factors (such as travelling distance to health facility, means of transport and geographical accessibility to health facility) as independent variables, are important determinants to non-uptake of MR2 and all these variables were used in the study.

Figure 2: Conceptual framework of factors affecting non-uptake of Measles rubella vaccine second dose



Source: Makokha FM. (Doctoral dissertation, COHES, JKUAT, 2016)

1.4 RESEARCH QUESTION

1. What is the proportion of MR2 non-uptake among children aged 18-36 months in Kinondoni Municipality.
2. What factors are associated with non-uptake of measles rubella vaccine second dose (MR2) among children aged 18-36 months living in Kinondoni Municipality.

1.5 RESEARCH OBJECTIVES

1.5.1 Broad Objective

- To determine the proportion of MR2 non-uptake and factors associated with non-uptake of measles rubella vaccine second dose among children aged 18-36 months living in Kinondoni Municipality.

1.5.2 Specific objectives

1. To determine the proportion of MR2 non-uptake among children aged 18-36 months in Kinondoni Municipality
2. To determine health facility factors associated with non-uptake of MR2 among children aged 18-36 months in Kinondoni Municipality.
3. To determine caretakers' individual factors associated with non-uptake of MR2 among children aged 18-36 months in Kinondoni Municipality
4. To determine socio-demographic factors associated with non-uptake of MR2 among children aged 18-36 months in Kinondoni Municipality
5. To determine community factors associated with non-uptake of MR2 among children aged 18-36 months in Kinondoni Municipality
6. To determine child factors associated with non-uptake of MR2 among children aged 18-36 months in Kinondoni Municipality

CHAPTER TWO

2. LITERATURE REVIEW

2.1 Global Coverage of Measles Containing Vaccine (MCV)

World Health Assembly endorsed the Global Vaccine Action Plan 2011–2020 (GVAP) in 2012 and all countries are to reach $\geq 90\%$ national coverage and 80% in every district for all vaccines in the country's routine immunization schedule by 2020. (12) Global coverage estimates for the first dose of measles-containing vaccine (MCV1) have ranged from 84% to 86% since 2010. (13) Globally, 123 (63%) countries achieved the GVAP 2020 target of $\geq 90\%$ national MCV1 coverage. (2) During 2010–2016, estimated global coverage with the second MCV dose (MCV2) increased from 21% to 46% by the end of the second year of life and from 39% to 64% when older age groups (3–14 years) were included. (13). Globally, MCV1 coverage was 85% and MCV2 coverage was 64% in 2016 (estimated dropout = 21%). (13)

2.2 Regional Coverage of Measles Containing Vaccine

MCV1 coverage in 2016 ranged from 72% in the African Region to 96% in the Western Pacific Region and from 20% to 99% by country. During 2015–2016, MCV1 coverage has remained stable or increased in all regions. (13)

MCV2 coverage by WHO region varied from 24% (African Region) to 93% (Western Pacific Region), including countries that have not yet introduced MCV2. In four of six WHO regions (African, Region of the Americas, Eastern Mediterranean, and South-East Asia), MCV2 coverage increased in 2016 compared with 2015, because of both an increase in coverage in multiple countries, as well as an increase in the number of countries introducing MCV2. (13)

2.3 National Coverage of Measles Containing Vaccine

In Tanzania, national MCV1 official coverage dropped from 99% in 2015 to 90% in 2016. There has been an improvement in MCV2 official coverage from 29% in 2014, 57% in 2015 to 71% in 2016. (10) In 2016, 10% of districts had attained MCV2 coverage of less than 50% and 64% of districts reported MCV2 coverage of between 51% - 80%. (IVD/MOHCDGEC 2016 Annual coverage reports)

2.4 Factors Influencing Non-uptake of Vaccination

There are various studies have been conducted in different parts of the world to derive the major factors associated with non-uptake of vaccination including health system factors, socioeconomic status of the clients, cultural beliefs and perception regarding child vaccination. (14) Furthermore, studies have revealed that among reasons for low vaccination coverage include lack of information (25.9%) and distance travelled for the services.(15) Using data from 2004-2005 DHS in Tanzania, Edwards AE, showed that distance from the health facility, illiteracy and poverty were barriers to achieve high vaccination coverage. (16)

Study conducted in rural Nigeria have revealed children in the highest economic quartile have a better immunization coverage rate and a greater probability (2.1 times) of being vaccinated. (17). Jani JV *et al.* (2008) have identified poverty, literacy and education as factors influencing vaccination uptake. (18). Ibnouf AH *et al.* (2007) showed the vaccination rate increased with an increase in the age of the children and the education level of the mother. (19) Study done in Sao Paulo, Brazil reported the inadequate housing (an indicator of social deprivation) to be associated with incomplete vaccination. (20)

According to Amin R *et al.* (2013), main reasons for low vaccination rates included caregivers' knowledge, attitudes, and perceptions; access to services and information, particularly in the city periphery; health workers' attitudes and practices, caregivers' fears of side effects, conflicting priorities, large family size, lack of support from husbands and paternal grandmothers, and seasonal migration. (21). According to Barreto TV *et al.* (1992), children born to immigrant mothers or into large families had lower vaccine uptake. (22) Factors, which were significantly associated with low uptake of vaccination services in Temeke District, were younger age of the child and low education level of the caretaker. (23)

Among the proposed strategies reported to improve child vaccination coverage includes, skilled health providers, public education about the need for vaccination and identifying underserved areas and visit them with outreach session.(14) Improving prenatal care and delivery services and proper (timely) vaccines administration was also among the strategies proposed to increase immunization coverage. (24)

CHAPTER THREE

3. METHODOLOGY

3.1 STUDY AREA

The study was conducted at household level in Kinondoni, which is a municipality within the city of Dar es Salaam. Dar es Salaam region was selected purposively as it is one of the eight regions that did not attain the immunization target performance of equal or greater than 95%, (2014-2015 IVD Annual performance report) and Kinondoni municipality specifically as a study area because of its lowest 2014-2016 MR2 immunization coverage as compared to other four Dar es Salaam councils. MR2 immunization coverage for Kinondoni was 16%, 44% and 51% in 2014, 2015 and 2016 respectively.

According to the 2012 population Census, the municipality had a population of 929,681 where male was 451,653 and female was 478,028 with a growth rate of 5.0% per annum. The under-five population estimates is 192,816 (as per Population Projection Report 2013-2035 by National Bureau of Statistics of February 2018). The municipal is estimated to have 283,552 households with an average of four persons per household. (25) Kinondoni municipal council is administratively divided into 5 divisions, 20 wards and 106 Sub-wards (26) and currently has a total of 126 health facilities of which 27 are government owned, while the remaining 99 are owned by Private. (25) Immunization services in Kinondoni are provided five days in a week under the Reproductive and Child Health section (RCH). At health facility level, public health nurse is responsible for vaccination, social mobilization, outreach activities and record keeping and vaccination services are provided free of charge at both government and private health facilities.

3.2 STUDY DESIGN

This was a cross sectional study conducted in Kinondoni Municipal Council in May 2018. The study involved face to face interviewing by using structured questions, caretakers of children aged 18-36 months.

3.2.1 Dependent Variable

The dependent variable studied was non-uptake of MR2. This variable was quantitatively measured by the number or proportion of children unvaccinated with MR2 vaccine as observed in child's immunization card.

3.2.2 Independent Variables

The independent variables studied included; caretakers' individual factors (such as fear of adverse events following immunization, awareness on the need for MR second dose, attending antenatal and postnatal care), health system factors (such as absenteeism of health worker at the health facility, vaccine availability, existence of outreach services, opening days, time of vaccination session, long waiting time), caretaker' socio-demographic factors (such as occupational status, education level, economic status, marital status and family size), child factors (such as age, sex, child birth rank, orphan hood) and community factors (such as travelling distance to health facility, means of transport and geographical accessibility to health facility). All independent variables were measured by nominal level and research assistants paraphrased questions as structured in the questionnaire to ensure reliability of the responses during data collection except for variables like child's age, caretaker's age, caretaker monthly income and travelling distance to health facility that were measured by interval level.

3.3 STUDY POPULATION

Study population comprised of children aged 18-36 months and residing in Kinondoni municipal council, Dar es Salaam region. Caretaker or a mother of the child-aged 18-36 months provided proxy information. Residence was defined as having an address in the municipal council and having lived in the council for at least the past two years.

3.3.1 Inclusion Criteria

1. A child aged 18-36 months.
2. A resident of Kinondoni municipal council in the past two years.

3.3.2 Exclusion Criteria

1. Those who fit in inclusion criteria but whose mother or caretaker had mental impairment or refused to give consent to participate in the study.

3.4 SAMPLE SIZE

In this study the sample size was calculated using the following proportion formula

$$n = \frac{Z^2 P(1-P)}{C^2}$$

Where by n = Sample Size, Z = Z-value which is 1.96 for a 95 percent confidence level, P = Proportion of children unvaccinated with measles rubella vaccine second dose, According to the Tanzania immunization coverage report of 2016, the overall measles rubella vaccine second dose nationwide coverage in 2016 was 71% and therefore proportion of unvaccinated is 29%. C = Margin of error, expressed as decimal used in this study was 0.05;

Therefore, sample size, n

$$= \frac{(1.96)^2 \times 0.29 \times (1-0.29)}{(0.05)^2} = 316 \text{ participants}$$

Since the sampling involved multi stage clusters of wards and streets, a design effect of 1.5 (as per TDHS 2015/16) was applied. Thus the sample size, n = 474, with non-response rate of 10% (474/0.9); the sample size obtained was 527. Therefore, sample size used in this study was 527.

3.5 SAMPLING TECHNIQUE

Four stages cluster sampling technique was used to access the study participants. From the list of 20 wards, a sample of 10 wards with their respective population of children under 5 years were randomly selected using a rotary method. Proportional probability sampling was employed for each selected ward. The sample size for each selected ward was obtained by dividing total population of children under 5 years in the specific ward by the total population of children under 5 years in all the selected 10 wards and multiplying by the calculated sample size to get the required sample size for each ward selected.

From each selected ward, all streets within the ward were listed and 4 streets were drawn randomly by using rotary method from each ward. 40 streets were selected in the municipal council. The bottle spinning method was employed to select the households and from the household a caretaker or parent was interviewed. In situations where there was more than one child aged 18-36 months in the family, the child with older age was selected.

3.6 DATA COLLECTION METHODS

Data was collected using a structured questionnaire which included fifty-three structured questions developed based on the study conceptual framework and administered to the child's mother or caretaker.

Research assistants recruited from Muhimbili University, School of Medicine were trained for one day before actual data collection exercise. The training session focused on the purpose of the study, method of data collection, ethical issues, and how to fill the questionnaires. To ensure quality field operation, the principal investigator carried out training.

Work assistant appointed by the Ward Executive Officer or chairperson of the local government assisted to locate the house with the child of targeted age. In case when the caretaker was not around we moved to the next located house. Face-to-face interview was then employed at household level to collect information from caretakers of children aged 18-36 months. Prior to the interview, informed consent was sought from the study participants. After consent, the researcher identified a convenient place around the household and once agreed upon by the consenting caretaker, interview was conducted. Structured Questionnaires was used to collect caretakers' individual factors, socio-demographic factors, reported immunization service provision factors, community factors and child factors associated with non-uptake of measles rubella vaccine second dose. The same questionnaire was also used to collect card information on immunization to determine the vaccination status of the child. Interviews lasted between 30 and 50 minutes depending on the respondents' ability to respond to posed questions.

3.7 PRE TESTING OF THE DATA

Before actual data collection exercise, pre-testing of the questionnaire was conducted to have a common understanding of the tool and questions that were not clear to the respondent were rectified accordingly.

3.7.1 Validity

The questionnaires were pre-tested in Kijitonyama street that was not among the sampled streets for the study. The questionnaires were given to two immunization experts working in Immunization and Vaccine Development Programme, Tanzania who assessed its content validity.

3.7.2 Reliability

Test-retest method was used to determine reliability. The questionnaires were pretested twice to the same respondents three weeks apart. Comparison in responses was done using t-test at 95% confidence interval. Correlation coefficient obtained was 0.8 that is above 0.7 which is an acceptable cut off point.

3.8 DATA MANAGEMENT AND ANALYSIS

Filled questionnaires were subjected to brief review by the principal investigator on a daily basis to look for gaps in the questionnaire.

For spot check, data was first entered and cleaned using Ms Excel 2016 and thereafter transferred to Statistical Package for Social Scientist (SPSS) for windows version 22.0 (2013) Armonk, New York (NY), USA for detailed analysis. Mean, proportions and range was used to express descriptive data and differences between proportions were examined using chi-square test.

Bivariate and multivariate analyses were conducted to identify independent factors associated with non-uptake of MR2. Crudes Odds Ratios (COR) and Adjusted Odds Ratios (AOR) and 95% Confidence Intervals (CI) were calculated. Variables showing associations in bivariate logistic regression ($p\text{-value} \leq 0.2$) were subjected to multiple logistic regression model using backward elimination, dropping the least significant independent variable until all the remaining predictor variables were significant ($p\text{-value} \leq 0.05$ and 95% CI not including 1). Data were displayed using contingency tables.

ETHICAL CONSIDERATION

Ethical clearance was obtained from Expedited Review Sub-Committee of Senate Research and Publication of the MUHAS (official letter dated on 17 April 2018 with Reference No. DA.287/298/01.A/). Permission to collect data was granted by Dar es Salaam Regional Administrative Secretary (official letter dated on 25 April 2018 with Reference No. FA.282/293/01S/7) (Appendix 5), Kinondoni Municipal Director (official letter dated on 2 May 2018 with Reference No. KMC/F.6/5) (Appendix 6) and the respective ward leaders (Appendix 7 and 8). Privacy was ensured by looking for a separate convenient space around the household away from other members of the household, anonymity was ensured by coding questionnaires with numbers (no names). The study did not exhibit the potential for harm or injury physically.

Informed consent was sought from the participant and those who agreed and signed were enrolled in the study. Participant had the right to withdraw from the study at any time without getting any harm. All data collected were kept confidential and were not disclosed except for the study purpose. Children who were found unvaccinated with MR2, their caretakers were educated on the importance of MR2 vaccination and advised to report to the nearby health facility for the same.

CHAPTER FOUR

4. RESULTS

Socio-demographic characteristics of the participants

During the duration of data collection in Kinondoni municipality, 501 children were enrolled, 26 children were skipped because the caretakers were not around at the time of interview. These were replaced to attain the sample size of 528. Out of them, majority of children (61.6%) were aged between 18 to 24 months with mean age of 24.7 months. (Table 1) Large proportion (98.5%) of caretakers were female while less than a half (44.1%) of children were female. About one third (30.1%) of caretakers completed primary education, more than three quarters (85.2%) were married, more than half (58.0%) were housewives and majority of caretakers' households had 5 or less members and 3 or less children (96.0% and 97.2% respectively).

Table 1 : Socio-demographic characteristics of the children and caretakers

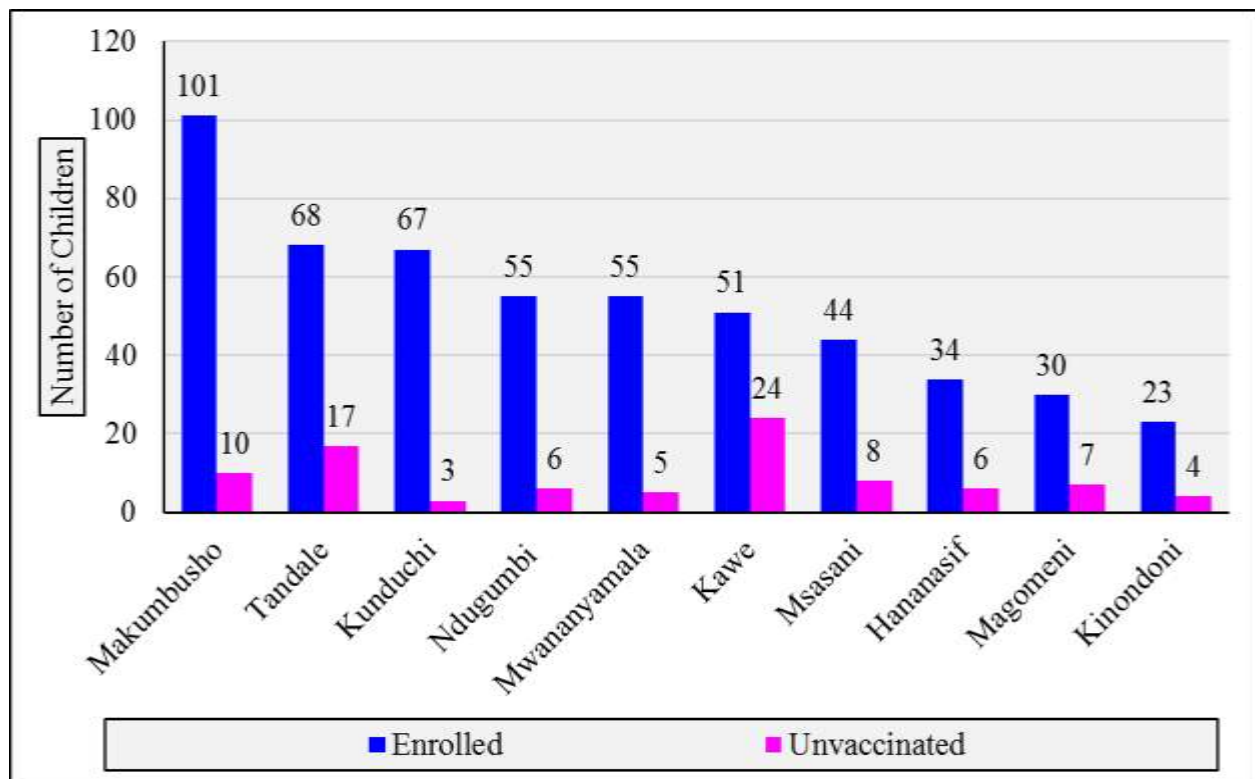
Variable	Frequency	Percentage (%)
Child's age groups (months)		
18 – 24	325	61.6
25 – 30	89	16.9
31 – 36	114	21.6
Sex of children available on RCH card		
Female	233	44.1
Male	295	55.9
Place of child birth		
Health facility	528	100.0
Home	0.0	0.0
Caretaker age groups (yrs.)		
Less than 20	10	1.9
21-25	167	31.6
26-30	249	47.2
31-35	81	15.3
36+years	21	4.0
Sex of the caretaker		
Female	520	98.5
Male	8	1.5
Level of education		
No formal education	22	4.2

Variable	Frequency	Percentage (%)
Primary, but not completed	28	5.3
Primary, completed	159	30.1
Secondary, but not completed	90	17.0
Secondary, completed	183	34.7
Tertiary	46	8.7
Marital status		
Divorced	24	4.5
Married	450	85.2
Single	45	8.5
Widowed	9	1.7
Occupation		
Housewife	306	58.0
Informal employment	116	22.0
Student	2	0.4
Unemployed	41	7.8
Formal employment	63	11.9
Monthly income in TShs		
Not earning	305	57.8
< 50,000/-	56	10.6
50,000 – 200,000/-	96	18.2
200,000 – 450,000/-	30	5.7
> 450,000/-	41	7.8
Number of household members		
5 or less people	507	96.0
More than 5 people	21	4.0
Number of children		
3 or less	513	97.2
4 or more	15	2.8
Participant relationship to the child		
Mother	511	96.8
Father	6	1.1
Other relative	11	2.1

Proportion of Measles rubella vaccine second dose (MR2) non-uptake

Out of 528 children included in the study, 90 children (17.0%) were not vaccinated with measles-rubella vaccine second dose (MR2). Kawe ward had highest number (24) of children unvaccinated with MR2 vaccine while Kunduchi had the least number (3) of children who were not vaccinated with MR2. (Figure 3).

Figure 3: Number of children unvaccinated with MR2 by ward



Factors for non-uptake of MR2 vaccine among children aged 18 -36 months in Kinondoni Municipality.

Bivariate and multivariate logistic regressions were used to find association between determinant factors and likelihood of non-uptake of MR2 vaccine. Factors were grouped as socio-demographic factors, health facility factors, caretakers' individual factors, child related factors and community factors whose results have been expressed as crude and adjusted odds ratios respectively.

Socio-demographic factors for non-uptake of MR2 vaccine

Table 2 below shows that, caretakers who were housewives/unemployed, their children were 2 times more likely to miss MR2 vaccine as compared to caretakers who were formally/informally employed (COR=1.73, 95% CI =1.03 – 2.90) . Caretakers who had primary education only, their children were more likely to miss MR2 vaccine as compared to caretakers who had attained secondary education and above (COR=1.42, 95% CI =0.9 – 2.24). A child whose caretaker was married, was more likely to be unvaccinated with MR2 vaccine as compared to a child whose caretaker was unmarried (COR=0.58, 95% CI =0.33 – 1.04).

Table 2: Bivariate analysis of socio-demographic factors associated with non-uptake of MR2 vaccine

Variable	Vaccinated with MR2 (%)	Unvaccinated with MR2 (%)	COR (95%CI)	P-Value
Occupational status of caretaker				
Housewives/ Unemployed	281 (80.5)	68 (19.5)	1.73(1.03 – 2.90)	0.04
Formally/ informally employed	157 (87.7)	22 (12.3)	1	
Education level of caretaker				
Primary education	167 (79.9)	42 (20.1)	1.42 (0.9 – 2.24)	0.13
Secondary education and above	271 (84.9)	48 (15.1)	1	
Economic status of caretaker				
Not earning at all	249 (81.6)	56 (18.4)	2.03 (0.85 – 9.56)	0.43
Earn less than 200,000/- TShs	151 (82.9)	31 (17.1)	1.93 (0.76 – 8.96)	
Earn more than 200,000/- TShs	49 (69.1)	22 (30.9)	1	
Marital status				
Married	379 (84.2)	71 (15.8)	0.58 (0.33 – 1.04)	0.06
Unmarried	59 (75.6)	19 (24.4)	1	

Variable	Vaccinated with MR2 (%)	Unvaccinated with MR2 (%)	COR (95%CI)	P- Value
Family size				
Less than 5 people	419 (82.6)	88 (17.4)	2.00 (0.46 – 8.72)	0.35
More than 5 people	19 (90.4)	2 (9.6)	1	
Number of children				
Less than 3 children	425 (82.8)	88 (17.2)	1.35 (0.35 – 6.07)	0.70
More than 3 children	13 (86.7)	2 (13.3)	1	

Health facility factors associated with non-uptake of MR2 vaccine

Table 3 below shows, a child whose caretaker did not find a healthcare worker at the vaccination health post during scheduled vaccination days was 3 times more likely to be unvaccinated with MR2 vaccine as compared to a child whose caretaker found the healthcare worker during scheduled vaccination days (COR=2.99, 95% CI =1.15 – 7.83). Children whose caretakers did not receive health promotion talk were 3 times more likely to miss MR2 vaccine as compared to those whose caretakers received health promotion talks (COR=3.42, 95% CI = 1.92 – 6.07). Children whose caretakers reported vaccination posts missed MR vaccine during vaccination days were 12 times more likely to miss MR2 vaccine as compared to children whose vaccination posts had MR vaccines present during vaccination days (COR=12.16, 95% CI = 4.48 - 32.95).

Table 3: Bivariate analysis of health facility factors associated with non-uptake of MR2 vaccine

Variable	Vaccinated with MR2 (%)	Unvaccinated with MR2 (%)	COR (95%CI)	P-Value
Absenteeism of health worker				
Yes	12 (63.2)	7 (36.8)	2.99 (1.15 – 7.83)	0.02
No	426 (83.7)	83 (16.3)	1	
Opening days				
Three or more days	29 (82.9)	6 (17.1)	1.77 (0.80 – 3.92)	0.37
One day	26 (74.3)	9(25.7)	1.06 (0.42 – 2.63)	
Two days	382 (83.6)	75(16.7)	1	
Availability of vaccine				
No	6 (33.3)	12 (66.7)	12.16 (4.48 – 32.95)	<0.001
Yes	432 (84.7)	78 (15.3)	1	
Time spent in vaccination session				
Two hours or less	267 (82.9)	55 (17.1)	1.01 (0.63 – 1.60)	0.98
More than two hours.	171 (83.0)	35 (17.0)	1	
Health promotion talk				
Not given	40 (63.5)	23 (36.5)	3.42(1.92 – 6.07)	<0.001
Given	389 (85.3)	67 (14.7)	1	

Caretakers' individual factors for non-uptake of MR2 vaccine

Table 4 below shows, caretakers who were not aware on MR2 vaccine, their children were 4 times more likely to be unvaccinated with MR2 vaccine as compared to children whose caretakers were aware on MR2 vaccine (COR=4.36, 95% CI = 2.40 – 7.90). Caretakers who did not fear of adverse events following immunization, their children were 4 times more likely to be unvaccinated with MR2 vaccine as compared to caretakers who had fear on adverse events following immunization (COR=4.06, 95% CI = 0.96 – 17.16) . In addition, caretakers who have not been attending postnatal clinic, their children were 8 times more likely to be unvaccinated

with MR2 vaccine as compared to caretakers who have been attending postnatal clinic (COR=7.52, 95% CI = 1.24 – 45.66). Caretakers who did not have knowledge on the schedule time of MR vaccine, their children were 2 times more likely to be unvaccinated with MR2 vaccine as compared to caretakers who knew the schedule time for MR vaccination (COR=2.44, 95% CI = 1.46 – 4.09).

Table 4: Bivariate analysis of caretakers' individual factors associated with non-uptake of MR2 vaccine

Variable	Vaccinated with MR2 (%)	Unvaccinated with MR2 (%)	COR (95%CI)	P-Value
Awareness on MR2				
No	32 (58.2)	23 (41.8)	4.36 (2.40 – 7.90)	<0.001
Yes	406 (85.8)	67 (14.2)	1	
Fear of adverse events				
No	401 (82.0)	88 (18.0)	4.06 (0.96 – 17.16)	0.04
Yes	37 (94.9)	2 (5.1)	1	
ANC attendance				
No	6 (100.0)	0 (0.0)	Out of range	0.26
Yes	432 (82.8)	90 (17.2)		
Postnatal clinic attendance				
No	2 (40.0)	3 (60.0)	7.52 (1.24 – 45.66)	0.01
Yes	436 (83.4)	87 (16.6)	1	
Knowledge on time of MR vaccines				
I don't know	70 (71.4)	28 (28.6)	2.44 (1.46 – 4.09)	0.001
9 months	2 (0.5)	2 (2.2)	6.10 (0.84 – 44.13)	
9 and 18 months	366 (83.6)	60 (66.7)	1	

Child related factors for non-uptake of MR2 vaccines

Table 5 below shows, a child whose caretaker was a mother, was more likely to be unvaccinated with MR2 vaccine as compared to a child whose caretaker was any other relative (COR=0.36, 95% CI = 0.13 – 1.00). Children with age group of 18-24 were 2 times more likely to be unvaccinated with MR2 vaccine as compared to children with age group of 31-36 (COR=2.06, 95% CI = 1.09 – 3.88).

Table 5: Bivariate analysis of child related factors for non-uptake of MR2 vaccines

Variable	Vaccinated with MR2 (%)	Unvaccinated with MR2 (%)	COR (95%CI)	P-Value
Caretaker's relationship with the child				
Mother	427 (83.6)	84 (16.4)	0.36 (0.13 – 1.00)	0.04
Other relative	11 (64.7)	6 (35.3)	1	
Age of the child (months)				
18 – 24	257 (79.1)	68 (20.9)	2.06 (1.09 – 3.88)	0.01
25 – 30	80 (89.9)	9 (10.1)	0.87 (0.36 – 2.15)	
31 – 36	101 (88.6)	13 (11.4)	1	
Sex of the child				
Female	192 (82.4)	41 (17.6)	1.07 (0.68 – 1.68)	0.77
Male	246 (83.3)	49 (16.7)	1	
Birth rank of the child				
1 – 3	426 (82.9)	88 (17.1)	1.24 (0.27 – 5.64)	
4 or more	12 (85.7)	2 (14.3)	1	0.78

Community related factors for non-uptake of MR2 vaccine

Table 6 below shows a child whose caretaker reached the vaccination health post by hiring car/bus/motorcycle as means of transport was more likely to be unvaccinated with MR2 vaccine as compared to a child whose caretaker reached the vaccination health post by walking or by bicycle (COR=0.69, 95% CI = 0.44 – 1.09).

Table 6: Bivariate analysis of community related factors for non-uptake of MR2 vaccine

Variable	Vaccinated with MR2 (%)	Unvaccinated with MR2 (%)	COR (95%CI)	P-Value
Means of transport				
Car/Bus/ Motorcycle	240 (85.4)	41 (14.6)	0.69 (0.44 – 1.09)	0.11
Walking/Bicycle	198 (80.2)	49 (19.8)	1	
Transportation costs				
Less than 1000/-	286 (82.4)	61(17.6)	1.12 (0.69 – 1.81)	
More than 1000/-	152 (83.9)	29(16.1)	1	0.65
Distance to HF				
Less than 2 km	335 (83.9)	64 (16.1)	0.76 (0.46 – 1.26)	
More than 2 km	103 (79.8)	26 (20.2)	1	0.28

Multivariate analysis of factors associated with non-uptake of MR2 vaccine

After multivariate analysis, children whose caretakers did not receive health promotion talk were 2 times more likely to miss MR2 vaccine as compared to those whose caretakers received health promotion talks (COR=3.42, 95% CI = 1.92 – 6.07; AOR=2.24, 95% CI= 1.52 – 5.31). Caretakers who were not aware on MR2 vaccine, their children were 5 times more likely to miss MR2 vaccine as compared to children whose caretakers were aware on MR2 vaccine (COR=4.36, 95% CI = 2.40 – 7.90; AOR=4.90, 95% CI=1.24 – 19.30).

Table 7: Multivariate logistic regression of factors associated with non-uptake of MR2 vaccine

Variable	Vaccinated with MR2 (%)	Unvaccinated with MR2 (%)	COR (95%CI)	AOR (95%CI)	P-Value
Occupational status of caretaker					
Housewives/ Unemployed	281 (80.5)	68 (19.5)	1.73(1.03 – 2.90)	1.64(0.87 – 3.11)	0.13
Formally/ informally employed	157 (87.7)	22 (12.3)	1	1	
Education level of caretaker					
Primary education or less	167 (79.9)	42 (20.1)	1.42 (0.9 – 2.24)	1.28 (0.75 – 2.18)	0.36
Secondary education and above	271 (84.9)	48 (15.1)	1	1	
Marital status					
Married	379 (84.2)	71 (15.8)	0.58 (0.33 – 1.04)	0.84(0.38 – 1.84)	0.6
Unmarried	59 (75.6)	19 (24.4)	1	1	

Variable	Vaccinated with MR2 (%)	Unvaccinated with MR2 (%)	COR (95%CI)	AOR (95%CI)	P-Value
Caretaker's relationship with the child					
Mother	427 (83.6)	84 (16.4)	0.36 (0.13 – 1.00)	0.31 (0.09 – 1.04)	0.22
Other relative	11 (64.7)	6 (35.3)	1	1	
Age of the child (months)					
18 – 24	257 (79.1)	68 (20.9)	2.06 (1.09 – 3.88)	1.68 (0.83 – 3.41)	0.18
25 – 30	80 (89.9)	9 (10.1)	0.87 (0.36 – 2.15)	0.91 (0.35 – 2.38)	
31 – 36	101 (88.6)	13 (11.4)	1	1	
Means of transport					
Car/Bus/ Motorcycle	240 (85.4)	41 (14.6)	0.69 (0.44 – 1.09)	0.73(0.43 – 1.23)	0.23
Walking/Bicycle	198 (80.2)	49 (19.8)	1		
Awareness on MR2					
No	32 (58.2)	23 (41.8)	4.36 (2.40 – 7.90)	4.90(1.24 – 19.3)	0.002
Yes	406 (85.8)	67 (14.2)	1		
Fear of adverse events					
No	401 (82.0)	88 (18.0)	4.06 (0.96 – 17.16)	3.75(0.82 – 17.06)	0.86
Yes	37 (94.9)	2 (5.1)	1		
Postnatal clinic attendance					
No	2 (40.0)	3 (60.0)	7.52 (1.24 – 45.66)	0.74 (0.09 – 6.18)	0.07
Yes	436 (83.4)	87 (16.6)	1	1	

Variable	Vaccinated with MR2 (%)	Unvaccinated with MR2 (%)	COR (95%CI)	AOR (95%CI)	P-Value
Knowledge on time of MR vaccines					
I don't know	70 (71.4)	28 (28.6)	2.44 (1.46 – 4.09)	0.89 (0.32 – 2.54)	0.10
9 months	2 (50.0)	2 (50.0)	6.10 (0.84 – 44.13)	5.73 (0.76 – 43.28)	
9 and 18 months	366 (85.9)	60 (14.1)	1	1	
Absenteeism of health worker					
Yes	12 (63.2)	7 (36.8)	2.99 (1.15 – 7.83)	2.23(0.71 – 7.04)	0.17
No	426 (83.7)	83 (16.3)	1		
Health promotion talk					
Not given	40 (63.5)	23 (36.5)	3.42(1.92 – 6.07)	2.24 (1.52 – 5.31)	0.02
Given	389 (85.3)	67 (14.7)	1		

CHAPTER FIVE

5. DISCUSSION

Coverage of measles rubella second dose (MR2) vaccine

This study revealed that the proportion of children who received MR2 in Kinondoni municipality was 83% which is comparatively high than Tanzania MR2 national coverage that was estimated to be 71% in 2016 (10) and 74% as reported by TDHS 2015/16. Proportion of children vaccinated with MR2 vaccine found in this study is higher than that (72.2%) revealed by the unpublished study done by Lyimo, (2012) in Temeke municipality (23). Kinondoni and Temeke are all urban municipalities but higher immunization coverage has been reported in our study than that of Temeke municipality likely because the later was conducted 6 years ago and with continuing efforts to improve national immunization coverage Temeke's coverage might have not remained stagnant since 2012. In addition, proportion of children vaccinated with MR2 vaccine found in this study is much higher than that revealed by Magodi, (2017) study done in Mtwara district, which revealed that only 44.2% of all children studied received MR2 vaccine. This study revealed that all children included in our study were born at health facilities, could access vaccination posts and less than 4% of vaccination posts ever-missed vaccines in the days of vaccination. This is inconsistent with the study done in Mtwara district, which is a rural setting, which revealed only 24% of children studied had reliable access to vaccination posts, 97% of children were born at health facilities and 87% of vaccination posts ever missed MR vaccine in vaccination days. This difference in socio-geographical factors between Mtwara district and Kinondoni municipality may explain the variation of immunization coverage observed.

Determinants for non-uptake of MR2 vaccine among children aged 18 -36 months

It was revealed that, health facility factor (health promotion talk) and caretaker's individual factor (awareness on MR2 vaccine) were the key factors found to influence non-uptake of MR2 vaccine. Children whose caretakers did not receive health promotion talk had two times higher odds to miss MR2 vaccine as compared to those whose caretakers received health promotion talks. In this study, around 12% of the caretakers interviewed claimed not to have received health promotion talk when they visited health facility for vaccination service. Studies done in Ethiopia and elsewhere (27)-(30) also found that having health promotional sessions conducted at health

facility and community level was a strong predictor for vaccination uptake. Providing health promotion talk could be associated with creating awareness to caretakers on importance of vaccination thus increasing vaccination uptake. This study revealed that, caretakers who were not aware on MR2 vaccine, their children had five times higher odds to miss MR2 vaccine as compared to children whose caretakers were aware on MR2 vaccine. Study done in Sudan, (18) also found that knowledge on the importance of vaccination played critical role in increasing immunization coverage. This study portrays that awareness of caretakers on MR vaccination including age of vaccination and its importance in preventing measles and rubella outbreaks is driving force for increased immunization coverage. Therefore, there is a call for improving efforts of delivering health promotional talks about MR vaccine, its importance, age of vaccination and where children can get vaccinated in various health gathering including antenatal and postnatal clinics.

Absenteeism of health care provider in the vaccination health posts, antenatal and postnatal clinic visits, distance from home to health facility, occupation status, level of education and economic status of caretakers were not significantly associated with non-uptake of MR2 vaccine. This is not consistent with other studies done elsewhere in which these factors were discovered to influence vaccination uptake (15),(16),(18),(20),(22). This might be because, in our study, majority of health care providers were present at vaccination health post in more than 90% of occasions. TDHS 2004/5 reported that distance from home to vaccination health posts influenced non-uptake of MR2 vaccine likely because the survey was national wise and majority of Tanzanian are rural dwellers where they have to walk to health facility in contrast to our study done in Kinondoni municipality where most of participants are urban dwellers and depend on bus or car transport to reach health facilities. Therefore, the distance to reach health facility did not significantly matter in our study. Moreover, education level has not been found to influence MR2 uptake in our study because health care provision including immunization service in urban areas has been intensified and almost all urban citizens have access to get healthcare especially when it is available for free. This is different from rural area where this factor was found to be influential in MR2 uptake in which educated people tend to live nearby social service centers including health facilities that make them access immunization service easy.

Findings from this study implies that there is a need of strengthening the Advocacy Communication and Social Mobilization unit in the Immunization and Vaccine Development

programme (IVD). Advocacy sessions on immunization administered through televisions, radios, magazines, village leaders and community gatherings and health education provided at health facility would ensure the basic knowledge on vaccine including importance of vaccination and vaccination schedule is widely disseminated.

Strength and Limitations of the Study

Strength

The study is timely as it addresses key public health issue in Tanzania on measles rubella vaccine second dose vaccination coverage.

The fact that this was a community-based study enabled me to obtain data that is a true representative compared to facility-based study where those not attending are not represented.

Study Limitation

The study design was a cross sectional in nature and therefore could only show association and not causation.

There was also a likelihood of recall bias especially for those respondents without immunization cards, who had to rely on memory. However, we believe that because our study was done for caretakers' with children vaccinated less than 3 years preceding the study, caretakers would still have fresh memories about vaccination.

In this study, twenty-six households representing twenty-six children were skipped because the caretakers were not around at the time of interview. The interviewers were instructed to proceed with the next household.

This study was conducted in urban setting hence; findings will need to be interpreted with caution when referring to rural areas.

CHAPTER SIX

6. CONCLUSION AND RECOMMENDATION

6.1 Conclusion

A notable proportion of children (17.0%) were not vaccinated with MR2 vaccine. Health promotion talk and awareness on MR2 vaccine contributed significantly to the non-uptake of MR2 vaccine. Intervention measures to improve vaccination coverage of MR2 should focus on strengthening the Advocacy Communication and Social Mobilization (ACSM) unit of the Immunization and Vaccine Development Programme (IVD) to ensure promotional talks on vaccine are conducted at all levels including community.

6.2 Recommendation

The following recommendation should be considered to improve coverage of MR2 in Kinondoni and attain the recommended coverage as per the WHO-measles rubella elimination strategic plan ($\geq 95\%$):-

1. Health promotional talks on vaccine should be conducted at both health facility and community level. Promotional talks should include educating caretakers about the importance of vaccination, vaccines to be administered to a child and the need to abide to vaccination schedule.
2. Identifying defaulters of vaccine through use of children register books number seven and through screening of vaccination status of children whenever they visit health facility for treatment or preventive service even when the visit is not specifically for vaccination. All identified defaulters should be vaccinated immediately following the country's immunization guide.
3. There is a need to conduct a cohort study of the similar topic in which children of 18 months will be followed up to 36 months.

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APPENDICES

Appendix 1: Informed Consent Form– English Version



**MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES
DIRECTORATE OF RESEARCH & PUBLICATIONS.**

ID-NO _____

Consent to participate in this study

Greetings, My name is from Muhimbili University of Health and Allied Sciences, Dar es Salaam. We are carrying out a study to determine factors associated with measles rubella second dose uptake among children aged 18-36 months in Kinondoni municipal council, Dar es Salaam, Tanzania.

Purpose of the study

This study has the purpose of collecting information on factors associated with non-uptake of vaccination services especially measles rubella second dose among children aged 18-36 months in Kinondoni municipal council, Dar es Salaam, Tanzania. You are being asked to participate in this study because you have particular knowledge and experiences that may be important to the study.

What participation involved

If you agree to participate in this study, you will be required to answer series of questions that have been prepared for the study through interviewing in order to obtain the intended information regarding factors allied with MR2 non-uptake among children aged 18-36 months in Kinondoni municipal council, Dar es Salaam.

Confidentiality

I assure you that all the information collected from you will be kept confidential. Only people working in this research will have access to the information. We will be compiling a report which will contain responses from several caretakers of children aged 18-36 months without any reference to any individual. We will not put your name or other identifying information on the records of the information you provide.

Risks

You will be asked questions about factors that are associated with uptake of vaccination services for your child. Some questions could potentially make you feel uncomfortable. You may refuse to answer any particular question and stop the interview at any time. We do not expect any harm to happen to you because of participation in this study.

Right to withdraw and alternatives

Taking part in this study is completely your choice. If you choose not to participate in the study or if you decide to stop participating in the study you will not get any harm. You can stop participating in this study at any time, even if you have already given your consent. Refusal to participate or withdrawal from the study will not involve penalty or loss of any benefits to which you are otherwise entitled.

Benefits

The information you provide will help to increase our understanding on factors associated with uptake of vaccination services especially measles rubella vaccine second dose among children aged 18-36 months in Kinondoni municipal council, Dar es Salaam and communicate the findings to policy makers in the council and ministry for improvement of vaccination services in the district as well as in the country.

Responsibility of Investigator

In the case where the child will be found to have not completed the immunization schedule, the caretaker will be counseled on the advantages of immunization and be advised to visit the health facility for immunization services.

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.

Who to contact

If you have questions about this study, please don't hesitate to contact:

Lilian W. Babybonela, The **Principal Investigator** Muhimbili University of Health and Allied Sciences (MUHAS), P.O. Box 65001, Dar es Salaam (Tel. no. 0655 216355).

If you ever have questions about your rights as participants, you may call Dr. Joyce Rose Masalu, Acting chairperson of Senate Research and Publications P. O. Box 65001, Dar es Salaam. Tel: 2150302-6, 2152489.

Signature

Do you agree?

Participant agrees..... Participant does not agree.....

I have read the content 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 2: Informed Consent Form – Kiswahili Version



CHUO KIKUU CHA AFYA NA SAYANSI YA TIBA MUHIMBILI

KURUGENZI YA UTAFITI NA UCHAPISHAJI

FOMU YA RIDHAA KUSHIRIKI KATIKA UTAFITI

ID-NO _____

Ridhaa ya kushiriki

Habari. Ninaitwa..... Ninafanya kazi ya kutafiti sababu zinazoathiri utumiaji wa huduma za chanjo hususan chanjo ya pili ya surua rubella kwa watoto wenye umri wa miezi 18-36 kwenye manispaa ya Kinondoni, mkoa wa Dar es Salaam.

Madhumuni ya utafiti

Utafiti huu unakusudia kuchunguza sababu zinazoathiri utumiaji wa huduma za chanjo ya pili ya surua rubella kwa watoto wenye umri wa miezi 18-36 kwenye manispaa ya Kinondoni, mkoa wa Dar es Salaam. Unaombwa kushiriki kwenye utafiti huu kwa sababu unaoujuzi ama unafahamu matukio ambayo ni ya muhimu.

Nini kinahitajika ili kushiriki

Ili kushiriki katika utafiti huu inabidi kukubali na kujiunga kwa kujibu maswali toka kwenye dodoso wa kwa ajili ya utafiti huu.

Usiri

Ninakuhakikishia kuwa taarifa zitakazokusanywa kutoka kwako kupitia dodoso hili zitakua siri na hakuna mtu yeyote ambaye hafanyikazi kwenye utafiti huu atakayeambiwa ulichosema. Itaandaliwa taarifa ya utafiti huu ambao hautamtaja mshiriki yeyote. Jina lako wala utambulisho mwingine wowote hautawekwa kwenye taarifa unazozitoa. Taarifa zako zitaingizwa kwenye

ngamizi kwa kutumia namba za utambulisho.

Hatari

Hakuna hatari yeyote itakayotokea kwako kutokana na ushiriki wako kwenye utafiti huu

Haki ya kujittoa au vinginevyo

Ushiriki katika utafiti huu ni hiari .Kutokushiriki au kujittoa kutoka kwenye utafiti hakutakua na adhabu yeyote na hutapoteza stahili zako endapo utaona ni vema kufanya hivyo.

Faida

Kama utakubali kushiriki kwenye utafiti huu itakua ni fanasa kwa vile utafiti huu una lengo la kuboresha huduma za chanjo kwa kubaini sababu zinazoathiri utumiaji wa huduma za chanjo madharani chanjo ya pili ya surua rubella kwa watoto wenye umri wa miezi 18-36 kwenye manispaa ya Kinondoni, mkoa wa Dar es Salaam.

Wajibu wa mtafiti

Endapo mtoto atakutwa hajakamilisaha chanjo ya pili ya surua rubella, elimu itatolewa juu ya faida za kuchanjwa kwa mzazi/mlezi wa mtoto atashauriwa ampeleke mtoto katika zahanati/kituo cha afya kinachotoa huduma za chanjo ili mtoto akachanjwe.

Endapo utapata madhara au la

Hatutegemei kupata madhara yoyote kutokana na ushiriki wako katika utafiti huu.

Nani wa kuwasiliana naye

Kama kuna swali kuhusiana na utafiti huu itakubidi kuwasiliana na mtafiti mkuu Lilian W. Babybonela wa Chuo Kikuu cha Afya na Sayansi ya Tiba Muhimbili, S.L.P. 65001 DSM. Simu (Tel: 0655 216355). Kama una maswali zaidi unaweza kuwasiliana na Daktari Joyce Rose Masalu, kaimu Mkurugenzi wa Utafiti na Uchapishaji, Chuo Kikuu cha Muhimbili S.L.P. 65001 DSM, simu namba: 2150302-6, 2152489

Je, Umekubali?

Mshiriki amekubali..... Mshiriki hajakubali.....

Mimi.....nimesoma maelezo ya fomu hii, maswali yangu yamejibiwa na nimeridhika. Nakubali kushiriki katika utafiti huu.

Sahihi ya Mshiriki.....

Sahihi ya mtafiti msaidizi.....

Tarehe ya kutia sahihi ya kushiriki.....

Appendix 3: Questionnaire Form – English Version
MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES
SCHOOL OF PUBLIC HEALTH AND SOCIAL SCIENCES

**QUESTIONNAIRE FOR THE FACTORS AFFECTING NON-UPTAKE OF MEASLES
RUBELLA SECOND DOSE VACCINE AMONG CHILDREN AGED 18-36 MONTHS IN
KINONDONI MUNICIPAL COUNCIL, DAR ES SALAAM REGION, 2018**

District: Ward:

Street:

ID No: Date:

Socio-Demographic Information

Parent/caretaker

Child

- | | |
|--|---------------------------|
| 1. Sex: (Male -1 Female- 2) | Sex (Male – 1 Female – 2) |
| 2. Caretaker age:..... | Child's age |
| 3. What is your marital status? <i>Probe to get exact the marital status</i> | |
| a. Single | |
| b. Married | |
| c. Divorced | |
| d. Widowed | |
| e. Co-habiting | |
| 4. What is your education level? | |
| a. No formal education | |
| b. Primary, but not completed | |
| c. Primary, completed | |
| d. Secondary, but not completed | |
| e. Secondary, completed | |
| f. Tertiary | |

5. What is your occupation?
 - a. Unemployed
 - b. Student
 - c. Informal employment
 - d. Formal employment
 - e. Housewife
 - f. Others, specify
6. What is your average monthly income in Tanzania shillings?
 - a. < 50,000
 - b. 50,000 – 200,000/-
 - c. 200,000 – 450,000/-
 - d. > 450,000/-
7. How many are you in the household?
 - a. Two people
 - b. Three people
 - c. Four people
 - d. Five people
 - e. Six and more people
8. How many children do you have? (mention the number of child/children you have)
Number
9. Where was (name of the child) born?
 - a. At home
 - b. At health facility
 - c. Other specify.....
10. What is the birth order of (name of child)? (Mention the birth order number of the child)
Number

11. If birth order in question number 10 is 2 or more, what is the age difference between the child closest in age to (name of the child) and his/her brother/sister?
 - a. Less than one year
 - b. One year
 - c. Two years
 - d. Three years
 - e. Four years
 - f. Five years and above

12. Does the father stay three or more nights in this house per week?
 - a. Yes
 - b. No

13. If no, where is the father?
 - a. Living in another region
 - b. Lives in another area but in the rt region
 - c. Dead
 - d. I don't know

14. What is his/her father's level of education?
 - a. No formal education
 - b. Primary, but not completed
 - c. Primary, completed
 - d. Secondary, but not completed
 - e. Secondary , completed
 - f. Tertiary

15. What is his/her father's occupation status?
 - a. Unemployed
 - b. Student
 - c. Informal employment

- d. Formal employment
 - e. Self employed
 - f. Others, specify
16. What is his/her father's average monthly income in Tanzania shillings?
- a. < 50,000
 - b. 50,000 – 200,000/-
 - c. 200,000 – 450,000/-
 - d. > 450,000/-
17. What is your (participant) relationship to the child?
- a. Mother
 - b. Adopted/foster/stepchild
 - c. Grandchild
 - d. Niece/nephew by blood
 - e. Niece/nephew by marriage
 - f. Brother or sister
- a. Other relative Mention _____
18. If not mother, is the mother staying with the child?
- a. Yes
 - b. No
19. If no, where is the mother?
- a. Living in another region
 - b. Lives in another area but in the same region
 - c. Dead
 - d. I don't know

Knowledge on Vaccines

I am now going to ask you some questions about vaccines

20. Please mention diseases which are protected by immunization during childhood (circle all that apply).
- a. TB
 - b. Polio
 - c. Diphtheria
 - d. Pertussis
 - e. Measles
 - f. Tetanus
 - g. Hepatitis
 - h. Haemophilus
 - i. influenza

26. Are you aware on adverse events following immunization? Tick where appropriate

AEFI	Yes	No
Redness at the injection site		
Swelling at the injection site for about one to three days after the injection		
Fever		
Nausea		
Vomiting		
Headache		
Diarrhoea		
Fatigue		
Abdominal Pain		

27. Have your child ever missed vaccination due to fear of adverse event following immunization? (If Yes, try to probe which vaccine was missed)
- a. Yes b. No

Routine immunization practice

28. Have you ever attended antenatal clinic visit during the child's pregnancy?
- a. Yes b. No
29. Have you ever attended postnatal clinic to receive measles rubella vaccines?
- b. Yes b. No
30. If yes in question 29, did anyone speak to you during that visit about the health importance of measles rubella vaccines when you were there?
- c. Yes b. No (skip to question number 31)
31. If yes question number 30, how long did the teaching session take?
- a. Less than half an hour
- b. Half an hour
- c. One hour
- d. Two hours
- e. More than two hours

32. If yes question number 30, then ask, how did you consider vaccine promotion session provided by the clinic health workers when you sent your child? Please select one from these; (Read for her/him)
- Very satisfactory
 - Satisfactory
 - Somewhat satisfactory
 - Not satisfactory
 - Not satisfactory at all
33. How many days in the week is vaccination health posts opened?
- One day per week
 - Two days per week
 - 3 or more days per week
34. When does the immunization service start at the vaccination health posts for days of immunization?
- Morning at 8.00 to 12.00
 - Afternoon at 13.00 to 15.00
 - Others specify
35. When attending immunization services how long did you take from time you entered in the clinic up to when you exit?
- Less than one hour
 - One hour
 - Two hours
 - More than two hours
36. During the vaccination visit, did you find the health worker at the vaccination health posts for measles rubella vaccination purpose?
- Yes (skip to question 39)
 - No
37. If no to question number 36, how many times did you miss vaccination sessions due to absenteeism of the health worker?
- Once
 - Twice
 - More than two times

38. If no to question number 36, what was the reason for the health worker absenteeism?
- I was not told the reason
 - Annual leave
 - Being at municipal director office
 - Being sick
 - Has gone for training session
 - Other specify.....
39. During the vaccination visit, did you normally get vaccine(s) for your child?
- Yes
 - No
40. If no to question number 39, how many times did your child not vaccinated?
- Once
 - Twice
 - More than two times
41. What was the reason(s) for not being vaccinated
- Unavailability of vaccine
 - Being late
 - My child was sick
 - The child was rejected due to being dirty
42. If it is due to lack of vaccine in question number 41, how many times was the child not vaccinated due to unavailability of vaccine?
- Once
 - Twice
 - More than three times.
43. During the unavailability of vaccine, what were you told?
- To come back one week after
 - To come back after two weeks
 - I was not told anything
 - Announcements will pass through streets
 - Street/hamlet leaders will be informed.

44. Did you send back the child?
 f. Yes b. No
45. If no to question number 44, why didn't you go back?
 a. Lack of fare
 b. Bad weather condition
 c. I forget the date
 d. I had other obligations
 e. Fear of adverse events following immunization

Card Information on the Immunization

46. Name of the health facility/outreach services the participant attended for vaccination services.....
47. Date for last vaccination
48. **Check for vaccination status in the immunization card and tick where appropriate**

Antigen	Received	
	Yes	No
OPV0		
OPV 1		
OPV 2		
OPV 3		
BCG		
PCV 1		
PCV 2		
PCV 3		
Penta 1		
Penta 2		
Penta 3		
Rota 1		
Rota 2		
MR 1		
MR 2		

Community Factors

49. How far is it to the (name) health facility?
- Less than 2 km
 - More than 2 km
50. How do you get to the health facility for vaccination services?
- Car/motorcycle
 - Public transport (bus, taxi)
 - Animal/animal cart
 - Walking
 - Bicycle
 - Others (specify).....
51. How much do you pay for transportation cost for go and return trip to the health facility?
(probe for ability to pay)
- None
 - Less than Tshs 1000/=
 - Tshs 1000/= to 3000/=
 - More than 3000/= Tshs
52. Is there any situation in the year in which the facility becomes unreachable during the year?
- Yes
 - No
53. If Yes in qn.52 what is that situation
- During rainy season the road is impassable
 - There is huge river which you cannot cross during rainy season
 - No bridge to the way to facility
 - On the way to facility there are many robbers.

Thank you very much for taking the time to answer my questions. Once again, any information you have given will be kept completely confidential. Have a good day!

Appendix 4: Dodoso la Utafiti – Swahili Version**CHUO KIKUU CHA AFYA NA SAYANSI YA TIBA MUHIMBILI****SHULE YA SAYANSI YA AFYA YA JAMII****DODOSO LA UTAFITI WA SABABU ZINAZOWEZA SABABISHA MATUMIZI HABA
YA CHANJO YA PILI YA SURUA NA RUBELLA, KINONDONI, 2018**

Wilaya Kata

Mtaa

ID Namba..... Tarehe.....

Taarifa za Mshiriki katika Utafiti

Mzazi/Mlezi

MTOTO

1. Jinsi ME KE

Jinsi ME KE

2. Umri Umri.....

3. Je hali ya ndoa ikoje?

- a. Sijaolewa
- b. Nimeolewa
- c. Tumeachana
- d. Mjane
- e. Kuishi kimada

4. Je una kiwango gani cha elimu?

- a. Sijasoma
- b. Sijamaliza shule ya msingi
- c. Nimemaliza shule ya msingi
- d. Shule ya sekondari ila sikumaliza
- e. Nimemaliza sekondari
- f. Mhitimu wa elimu ya juu.

5. Je unafanya kazi gani?

- a. Sina ajira
- b. Mwanafunzi
- c. Ajira isiyo rasmi
- d. Ajira rasmi
- e. Mama wa nyumbani
- f. Kazi nyingine, taja

6. Je kiwango chako cha kipato cha chini kwa mwezi ni ngapi?

- a. < 50,000
- b. 50,000 – 200,000/-
- c. 200,000 – 450,000/-
- d. > 450,000/-

7. Je mnaishi watu wangapi katika kaya yenu?

- a. Wawili
- b. Watatu
- c. Wanne
- d. Watano
- e. Sita na zaidi

8. Je una mtoto au watoto wangapi? (Taja namba ya idadi ya mtoto/watoto)

Namba

9. Je mwanao (taja jina la mtoto) ulijifungulia wapi?

- a. Nyumbani
- b. Kituo cha afya
- c. Eneo, taja

10. Je ni mtoto wako wa ngapi kumzaa? (Taja namba ya mtoto wa ngapi kuzaliwa)

Namba

11. Kama ni mtoto wa pili au zaidi kuzaliwa, je kuna tofauti ya miaka mingapi kati ya mtoto na kaka au dada yake wanayefuatana nae?

- a. Chini ya mwaka mmoja
- b. Mwaka mmoja
- c. Miaka miwili
- d. Miaka mitatu
- e. Miaka mine
- f. Miaka mitano na zaidi

12. Je baba wa mtoto hukaa nyumbani kwa siku nne au zaidi kwa wiki?

- a. Ndiyo
- b. Hapana

13. Kama jibu ni hapana katika swali namba 12, je baba mzazi wa mtoto huishi wapi?

- a. Anaishi mkoa mwingine
- b. Anaishi sehemu nyingine ila ndani ya mkoa
- c. Amefariki
- d. Sijui

14. Je baba wa mtoto ana kiwango gani cha elimu?

- a. Hajasoma
- b. Hakuitimu elimu ya msingi
- c. Mhitimu elimu ya msingi
- d. Hakuhitimu elimu ya sekondari
- e. Mhitimu elimu ya sekondari
- f. Elimu ya juu

15. Je baba wa mtoto anafanya kazi/shughuli gani?

- a. Hajaajiriwa
- b. Mwanafunzi
- c. Ajira isiyo rasmi
- d. Ajira rasmi
- e. Amejajiri
- f. Zingine, taja

16. Je kiwango cha Baba cha kipato cha chini kwa mwezi ni ngapi?

- e. < 50,000
- f. 50,000 – 200,000/-
- g. 200,000 – 450,000/-
- h. > 450,000/-

17. Je una mahusiano gani na mtoto?

- a. Mama mzazi
- b. Mama wa kambo
- c. Bibi
- d. Mpwa
- e. Mpwa (kwa mahusiano)
- f. Kaka/dada

g. Uhusiano mwingine, taja.....

18. Kama si mama mzazi kwenye swali namba 17, Je mama mzazi anaishi na mtoto?

- a. Ndiyo
- b. Hapana

19. Kama ni hapana kwenye swali namba 18, je mama mzazi anaishi wapi?

- a. Mkoa mwingine
- b. Eneo jingine ila ndani ya mkoa
- c. Amefariki
- d. Sijui

Ufahamu wa Chanjo

Nitakuuliza maswali kuhusu chanjo na magonjwa yanayozuiwa na chanjo.

20. Taja magonjwa ambayo yanazuilika kwa chanjo kwa watoto chini ya miaka miwili?

- a. Kifua kikuu
- b. Polio
- c. Dondakoo
- d. Kifaduro
- e. Surua
- f. Pepopunda
- g. Homa ya ini

h. Nimonia na uti wa mgongo

21. Je unafahamu kuhusu chanjo ya surua na rubella?

- a. Ndio
- b. Hapana

22. Kama jibu ni ndio katika swali namba 21, Je ni dozi ngapi za surua na rubella hupewa mtoto?

- a. Moja
- b. Mbili
- c. Kama kuna nyongeza taja.....

23. Kama jibu ni ndio swali namba 21, Je chanjo ya surua na rubella hutolewa kwa watoto wa umri gani

- a. Miezi 9
- b. Miezi 9 na 18
- c. Sijui
- d. Kama kuna nyongeza taja.....

24. Je unajua umuhimu wa mtoto wako kupata chanjo ya surua rubella dozi ya pili? (zungushia majibu yote aliyojibu)

- a. Kumpa nafasi ya pili mtoto kupata chanjo ya surua rubella.
- b. Kudumisha kiwango cha juu cha chanjo ya surua rubella
- c. Kinga watoto ambao walibakia bila kuzuiwa baada ya dozi ya kwanza ya surua rubella

25. Kama jibu ni ndio katika swali namba 21, wapi ulipata taarifa kuhusu chanjo ya surua rubella

a. Radio

b. Gazeti

c. Television

d. Mhudumu/mfanyakazi wa afya

e. Rafiki

f. Mikutano ya jamii

g. chanzo kingine, taja.....

26. Je unafahamu kuhusu madhara madogo madogo yatokanayo na chanjo (AEFI)? Weka tiki kwenye Ndio kama anafahamu au Hapana kama hafahamu.

Madhara ya Chanjo	Ndio	Hapana
Kupata uwekundu eneo alilochoma sindano		
Kuvimba eneo alilochoma sindano		
Homa		
Kichefuchefu		
Kutapika		
Maumivu ya Kichwa		
Kuharisha		
Uchovu wa Mwili		
Maumivu ya tumbo		

27. Je mtoto wako alishawahi kukosa chanjo kwasababu ya kuogopa madhara madogo madogo yatokanayo na chanjo? (Kama Ndio jaribu kuuliza ni change gani alikosa)

a. Yes

b. No

Huduma za Chanjo ya Kawaida

28. Je ulishawahi kuhudhuria klinic ya ujauzito kipindi cha ujauzito?

a. Yes

b. No

29. Je ulishawahi kumpeleka mtoto wako kliniki kupokea chanjo ya surua rubella?

a. Ndiyo

b. Hapana (nenda swali namba 33)

30. Kama ndiyo katika swali 29, je, kuna mtu yeyote alizungumza na wewe wakati upo kituo cha kutolea huduma za afya kuhusu umuhimu wa chanjo ya surua rubella?

a. Ndiyo

b. Hapana (nenda swali namba 33)

31. Kama ndiyo swali namba 30, je mazungumzo/mafundisho hayo yalichukua muda gani?
- Chini ya nusu saa
 - Nusu saa
 - Saa moja
 - Masaa mawili
 - Zaidi ya masaa mawili
32. Kama ndiyo swali namba 30, nini mtazamo wako kuhusu mada iliyotolewa? Tafadhali chagua mmoja ya majibu kutoka kwenye orodha (Soma)
- Inaridhisha sana
 - Inaridhisha
 - Nimeridhika kidogo
 - Sijaridhishwa
 - Sijaridhishwa kabisa
33. Ni siku ngapi kwa wiki huduma za chanjo hutolewa katika sehemu yenu au kituo cha afya?
- Siku moja kwa wiki
 - Siku mbili kwa wiki
 - Siku tatu au zaidi kwa wiki
34. Je huduma za chanjo katika kituo huanza saa ngapi na kuisha saa ngapi?
- Asubuhi kuanzia saa 8.00 hadi 12.00 mchana
 - Mchana kuanzia saa 7.00 hadi 9.00 mchana
 - Muda mwingine
35. Je huwa unatumia muda kiasi gani kwa ajili ya kupata huduma za chanjo kwa mwanao kuanzia unapoingia hadi kutoka katika kituo cha huduma ya chanjo?
- Chini ya saa moja
 - Saa moja.
 - Masaa mawili
 - Zaidi ya masaa mawili
36. Je wakati ulipoenda kupata chanjo ya surua na rubella ulimkuta mtoa huduma katika kituo cha kutolea huduma ya chanjo?
- Ndiyo (nenda swali 39)
 - Hapana

37. Kama jibu ni hapana katika swali namba 36, je ni mara ngapi ulikosa chanjo kwa sababu ya kutokuwepo mhudumu wa kutoa chanjo katika kituo?

- a. Mara moja
- b. Mara mbili
- c. Zaidi ya mara mbili

38. Kama jibu ni hapana swali namba 36, je ni sababu zipi uliambiwa kuhusu kutokuwepo kwa mhudumu katika kituo cha kutolea huduma za chanjo?

- a. Sikuambiwa sababu yoyote
- b. Alikuwa likizo ya mwaka
- c. Alikuwa ameenda ofisi ya mkurugenzi
- d. Alikuwa anaumwa
- e. Alikuwa ameenda kwa ajili ya mafunzo
- f. Sababu nyingine taja

39. Je wakati unapoenda kwenye kituo cha kutolea huduma za chanjo, ni mara zote huwa unapata chanjo kwa ajili ya mtoto wako?

- a. Ndiyo
- b. Hapana

40. Kama jibu ni hapana katika swali namba 39, je ni mara ngapi mtoto wako hakupata chanjo katika vipindi ulivyohudhuria kwenye kituo cha kutolea huduma za chanjo?

- a. Mara moja
- b. Mara mbili
- c. Zaidi ya mara mbili

41. Je unakumbuka ni sababu zipi ulizoambiwa baada ya mtoto kutopata chanjo uliyokusudia?

- a. Ukosefu wa chanjo husika katika kituo
- b. Nilichelewa kufika katika kituo cha kutolea huduma
- c. Mtoto wangu alikuwa anaumwa
- d. Mtoto wangu alikuwa mchafu, mhudumu akamkataa kumpa huduma

42. Kama jibu ni ukosefu wa chanjo katika swali namba 41, je ni mara ngapi mtoto alikosa kupatiwa chanjo kwa ajili ya ukosefu wa chanjo?

- a. Mara moja
- b. Mara mbili
- c. Zaidi ya mara tatu.

43. Je wakati wa ukosefu wa chanjo, nini uliambiwa kuhusu mwanao kupata chanjo?
- Kurudi juma moja baada ya kutoka kituoni
 - Kurudi baada ya wiki mbili
 - Sikuambiwa kitu chochote
 - d.Matangazo yatapita katika mitaa
 - Mwenyekiti /mjumbe wa mtaa atatoa taarifa
44. Je uliweza kumrudisha mtoto kwa ajili ya kupata chanjo?
- Ndiyo
 - Hapana
45. Kama jibu ni hapana kwenye swali namba 44 kwa nini hukumpeleka mtoto kupatiwa chanjo?
- Sikuwa na nauli
 - Hali mbaya ya hewa
 - Nilisahau tarehe
 - Nilikuwa na kazi nyingine
 - Kuogopa mathara yatokanayo na chanjo

Taarifa ya Chanjo kwenye kadi ya Clinic ya Mtoto

46. Jina la zahanati/kituo cha cha afya / huduma ya mkoba ambapo mshiriki huwa anahudhuria kwa ajili ya huduma za chanjo

47. Tarehe kwa ajili ya chanjo ya mwisho

48. Angalia kama chanjo zote zilizopendekezwa kwa mtoto amepata kwa kutiki Ndio/Hapana kwenye chanjo husika

Antigen	Amepata	
	Ndio	Hapana
OPV0		
OPV1		
OPV2		
OPV3		
BCG		
PCV 1		
PCV 2		
PCV 3		
Penta 1		
Penta 2		
Penta 3		
Rota 1		
Rota 2		
MR 1		
MR 2		

Mambo ya kijamii

49. Ni umbali gani kutoka kwako hadi kwenye kituo cha afya cha karibu?

- a. a. Umbali usiozidi kilometa mbili
- b. b. Zaidi ya kilometa mbili

50. Je huwa unatumia nini kufika kwenye kituo cha afya kwa ajili ya huduma za chanjo?

- a. Gari binafsi/pikipiki
- b. b. Usafiri wa umma/Nakodi teksu
- c. c. Mkokoteni Animal cart / wanyama
- d. d. Natembea kwa miguu
- e. Baiskeli
- f. f. Usafiri mwingine(taja)

51. Ni kiasi gani hulipia kama gharama za usafiri kwenda na kurudi kituo cha afya? (Uliza kwa uwezo wa kulipa)

- a. Huwa situmii hela yoyote huwa natembea tu
- b. Chini ya shilingi 1000 / =
- c. Tshs 1000 / = hadi 3000 / =
- d. Zaidi ya shilling 3,000 / =

52. Je kuna wakati wowote katika mwaka kituo huwa hakifikiki?

- a. Ndiyo
- b. Hapana

53. Kama jibu ni ndiyo kwenye swali namba 53, je ni hali gani husababisha kutofikika kwa kituo?

- a. Wakati wa mvua barabara huaribika na kutopitika
- b. Kuna mto mkubwa ambao huwezi kuvuka wakati wa masika
- c. Hakuna daraja hivyo kufanya usafiri kuwa wa hatari
- d. Njiani kwenda kituo cha kutolea huduma za afya huwa kuna vibaka na watekeji.

Asante sana kwa kuchukua muda wa kujibu maswali yangu. Kwa mara nyingine tena, taarifa yoyote uliyotoa itakuwa siri kabisa. Kuwa na siku njema!

Appendix 5: Research Permit from Regional Administrative Secretary

Imepokelewa na # 30/04/18

The United Republic of Tanzania
PRIME MINISTER'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

DAR ES SALAAM REGION
Phone Number:
Phone Number: 2860081/2863716
in reply please quote:
Reg. No. FA.282/293/01S/7



REGIONAL COMMISSIONER'S OFFICE,
RASHID KAWAWA ROAD,
P.O. Box, 5429,
12880 DAR ES SALAAM

25/4....., 2018

District Administrative Secretary,
KINONDONI
P. O. Box
DAR ES SALAAM

RE: RESEARCH PERMIT

~~Dr/Mr/Ms/Miss~~ *LILIAN WILSON BABYEBONEA*

..... are researchers from
MUHAMBIJI UNIVERSITY (MUHAS) have been permitted to
undertake research on *uptake of Measles Rubella vaccine*
second dose in Kinondoni Municipality

From *May* 2018 to *July* 2018.

I kindly request your good assistance to enable their research.

Pa

For: Regional Administrative Secretary
DAR ES SALAAM

Copy: Municipal Director,
KINONDONI
DAR ES SALAAM.

Principal/Vice Chancellor,
MUHAMBIJI UNIVERSITY (MUHAS)
HEALTH & ALLIED SCIENCES

*Ndusunubi
Kinondoni
Tandalo*

Compl
*kuta kane
kunduichi
Msasani
Makumbuu
Haromasini
Masomoro
Minyamao*

Appendix 6: Research Permit from Kinondoni Municipal Director**KINONDONI MUNICIPAL COUNCIL**

ALL CORRESPONDENCES TO BE ADDRESSED TO THE MUNICIPAL DIRECTOR

Tel: 2170173
Fax: 2172606

In reply please quote:

Ref. KMC/F.6/5

MUNICIPAL DIRECTOR
KINONDONI MUNICIPAL COUNCIL
P. O. BOX 31902
2MOROGORO ROAD
DAR ES SALAAMDate: 2nd May, 2018Lilian Wilson Babybonela,
Muhimbili University Of Health and Allied Sciences,
P. O. Box 65001
DAR ES SALAAM.**RE: RESEARCH WORK ATTACHMENT.**

Refer to the above heading.

I am pleased to inform you that your request has been considered by the Municipal Director, and has offered you a place to conduct Research from **7th May, to 30th July, 2018.**Once you receive this letter, please report to **Ward Executive - Kawe, Kunduchi, Msasani, Makumbusho, Ndugumbi, Hananasifu, Magomeni, Tandale, Kinondoni and Mwananyamala** for the commencement of your Research.

During the period of Research you are required to obey the rules and regulation as they will be defined to you.

V. Shangoli

For: **THE MUNICIPAL DIRECTOR**
KINONDONIFor: MUNICIPAL DIRECTOR
KINONDONI MUNICIPAL COUNCIL
DAR-ES-SALAAM**Copy:**Director of Research and Publications,
Muhimbili University Of Health and Allied Sciences,
P. O. Box 65001
DAR ES SALAAM.

Appendix 7: Research Permit from Hananasif Ward

KINONDONI MUNICIPAL COUNCIL

ALL CORRESPONDENCES TO BE ADDRESSED TO THE MUNICIPAL DIRECTOR

Tel: 2170173
Fax: 2172606

In reply please quote:

Ref. KMC/H. 6/5



MUNICIPAL DIRECTOR
KINONDONI MUNICIPAL COUNCIL
P. O. BOX 31902
2MOROGORO ROAD
DAR ES SALAAM

Date:



MEO/MKIFI
APBWB
USHIRIKIA
10/05/2018
AK

Lilim Wilson Babyebonela,
Muhimbili University Of Health and Allied Science
P. O. Box 65001
DAR ES SALAAM.

RE: RESEARCH WORK ATTACHMENT.

Refer to the above heading.

I am pleased to inform you that your request has been considered by the Municipal Director, and has offered you a place to conduct Research from 7th May, to 30th July, 2018.

Once you receive this letter, please report to **Ward Executive - Kawe, Kunduchi, Msasani, Makumbusho, Ndugumbi, Hananasifu, Magomeni, Tandale, Kinondoni and Mwananyamala** for the commencement of your Research.

During the period of Research you are required to obey the rules and regulation as they will be defined to you.

V. Shangali

For: **THE MUNICIPAL DIRECTOR
KINONDONI**

For: MUNICIPAL DIRECTOR
KINONDONI MUNICIPAL COUNCIL
DAR ES SALAAM

Copy:

Director of Research and Publications,
Muhimbili University Of Health and Allied Sciences,
P. O. Box 65001
DAR ES SALAAM.

Appendix 8: Research Permit from Kinondoni Ward

KINONDONI MUNICIPAL COUNCIL

ALL CORRESPONDENCES TO BE ADDRESSED TO THE MUNICIPAL DIRECTOR

Tel: 2170173
Fax: 2172606



MUNICIPAL DIRECTOR
KINONDONI MUNICIPAL COUNCIL
P. O. BOX 31902
2MOROGORO ROAD
DAR ES SALAAM

In reply please quote:

Ref. KMC/H. 6/5

Date: 2nd May, 2018

Lilian Wilson Babyebonela,
Muhimbili University Of Health and Allied Sciences,
P. O. Box 65001
DAR ES SALAAM.

RE: RESEARCH WORK ATTACHMENT.

Refer to the above heading.

I am pleased to inform you that your request has been considered by the Municipal Director, and has offered you a place to conduct Research from 7th May, to 30th July, 2018.

Once you receive this letter, please report to **Ward Executive – Kawe, Kunduchi, Msasani, Makumbusho, Ndugumbi, Hananasifu, Magomeni, Tandale, Kinondoni and Mwananyamala** for the commencement of your Research.

During the period of Research you are required to obey the rules and regulation as they will be defined to you.


.....
V. Shangoli
For: THE MUNICIPAL DIRECTOR
KINONDONI

Copy:

Director of Research and Publications,
Muhimbili University Of Health and Allied Sciences,
P. O. Box 65001
DAR ES SALAAM.

WE O
Kata ya Kinondoni
Naomba apewe ulimki

