FACTORS INFLUENCING THE IMPLEMENTATION OF INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESSES AMONG NURSES WORKING AT HEALTH CENTER LEVEL IN A SELECTED DISTRICT HOSPITAL IN RWANDA

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BY

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DECLARATION

I, Francine NYIRANGORORE do hereby declare that this research dissertation titled "Factors influencing the implementation of integrated management of childhood illnesses among nurses working at health center level in a selected health district in Rwanda " submitted in partial fulfillment of the requirements for the degree of Master of Sciences in Nursing, Pediatric track at the University of Rwanda/ College of Medicine and Health Sciences, is my original work and has not previously been submitted elsewhere. Also, I do declare that a complete list of references is provided indicating all the sources of information quoted or cited.

SIGNATURE

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Francine NYIRANGORORE Date …….

DEDICATION

This work is dedicated to my lovely Son and daughters; Adri Dario, Adrie Daria, Irankunda Peace Nina for their inspiration and encouragement

ACKNOWLDEGMENT

I would like to express my sincere acknowledgement to the Almighty GOD for gift of life and unconditional love.

The University of Rwanda, college of Medicine and Health Sciences, Dean of Nursing and Midwifery school for continuous support, to my lecturers, supervisors Dr. KATENDE Godfrey and Mr. Dieudonne KAYIRANGA for their assistance, lastly my classmates for collaboration and support.

My family, firstly my husband UWIZEYIMANA Adrien for the encouragement and patience, my daughter UMUKUNDWA Adrie Daria and my son UMUKUNZI Adri Dario for their patience.

ABSTRACT

Background: Nearly six million Children aged under five years died in 2015. Nearly 16 000 every day and 83% of these deaths are due to infectious diseases, neonatal conditions or nutritional conditions. Integrated management of childhood illnesses (IMCI) is designed to improve child health, also reduce under-five mortality, especially in poor countries by integrating the case management of the most common childhood problems.

The aim of the study: This study intended to assess the factors influencing the implementation of IMCI among nurses working at the health center level in a selected health district in Rwanda **Methodology**: A descriptive cross - sectional was used and stratified random sampling method used to select a sample of 91 nurses working in health centers of Masaka district Hospital. A self- administered questionnaire was used to collect the data then analyzed using SPSS version 21 using both descriptive and inferential statistics with CI set at 95% and p-value ≤ 0.05.

Results: Slightly more than a half of nurses 53% poorly implemented IMCI. Reported challenges included staff shortage 80.2%, untrained staff 74%, lack of refresher training 20(54.1%), spring scale 52%. Furthermore. Again slightly more than a half of nurses were interested in applying IMCI 53.8% and applied all stage of IMCI 59.3%. Younger age among nurses (P= 0.001), married status (P=0.001), institutional organization (P= 0.026), scheduling and daily activity planning (P=0.042), time consuming nature (P= .0039), child weighing scale (P=.009) were found statistically associated with IMCI implementation.

Conclusion: There was a poor IMCI implementation among nurses working in health centers of Masaka district hospital's catchment area. Barriers and facilitators to IMCI implementation were identified. In addition, demographic characteristics of nurses, institutional organization, the availability of equipment at Masaka health centers were found to influence IMCI implementation.

Key words: IMCI, Factors, Implementation, health center level, nurses

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LIST OF SYMBOLS, ACCRONYMS/ABBREVIATIONS

B.P: **B**lood **P**ressure

CI: **C**onfidence **I**nterval

C-IMCI: **C**ommunity **I**ntegrated **M**anagement of **C**hildhood **I**llnesses

DHS: **D**istrict **H**ealth **S**urvey

EDPRS: **E**conomic Development **P**overty **R**eduction **S**trategy

ETAT: **E**mergency **T**riage **A**ssessment and **T**reatment

Fr.: **F**requency

ICN: **I**nternational **C**ouncil for **N**urses

ICATT: **I**MCI **C**omputerized **A**daptation and **T**raining **T**ool

IMCI: **I**ntegrated **M**anagement of **C**hildhood **I**llnesses

MOH: **M**inistry of **H**ealth

NGO: Non-Governmental Organization

OR: Odd Ratio

RDHS: Rwanda Demographic Health Survey

RR: Risk Ratio

SPSS: Statistical Package for Social Sciences

UNICEF: United Nations International Child Emergency Fund

WHO: World Health Organization

%: Percentage

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CHAPITER ONE:INTRODUCTION

1.1. INTRODUCTION

The integrated service was defined by WHO as health service delivery to clients on a continuum of services considering various aspects as preventive, curative in regards to their needs across different levels and time. Seen that around millions of parents or families seek care for unhealthy child, bringing them to hospitals, pharmacists, health centers, traditional healers or community health care workers, for most frequent burdens of diseases like pneumonia, malaria, diarrhea most of the time in conjunction to malnutrition, WHO and UNICEF, with aim to reduce global morbidity and mortality associated with major causes, lunched the integrated management of childhood illnesses. IMCI is a holistic and comprehensive approach designed to all children from home ,community level and at health facilities' level (WHO, 1999, pp.1-3).

With a good implementation of IMCI, the child health would be improved and common conditions leading to under five deaths would be tackled on ,then an expectation to lower death associated to common childhood diseases be achieved, finally the target of child mortality reduction of less than 25/1000 by 2030 (Simon, 2018, pp.1-3).

The effectiveness of the IMCI strategy requires that all factors underpinning its implementation such as health care provider training, supportive supervision, organization of work at health facility, availability combined with rational use of drugs, equipment and supplies which is operational in all health settings (WHO, 2017, pp.9-11).

IMCI was adopted by many countries all over the world and changes in child survival were observed. However, its coverage is still low, especially is sub-Saharan Africa(UNICEF, 2015, pp.3)

In Rwanda IMCI coverage is still low as they are many unidentified barriers. The Republic of Rwanda, in collaboration with intrahealth, ingobyi program planned emphasis through IMCI on site mentorship. Also more emphasis in integrating the expanded program of immunization is planned in a strategic plan 2018-2024 (RMOH, 2018, p.41).

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1.2. BACKGROUND

Nearly six of Children under five of age, died in 2015, while approximately16 000 every day, and Eighty three percent of these deaths in children under age five were due to a variety of conditions infectious diseases, neonatal conditions, nutritional conditions. Most of these deaths were from preventable causes, but there was a progress in reducing child mortality, as it has dropped from 12.7million in 1990 to 6.3 million in 2013(UNICEF, 2015,p.12) . Surprisingly, more than one third of death is found only in five countries, Pakistan, India, china, Nigeria and Republic Democratic of Congo in About half of under. (You et al., 2015,p. 9-11) . Later in 2008, WHO developed a computerized IMCI adaptation tool for trainers and trainers to facilitate acquisition of knowledge and application on IMCI (WHO, 2009). With an aim to improve health coverage in Rwanda, the WHO team trained 27 lecturers on ICATT who were working in nursing schools in Rwanda and health workers from 2 district hospitals (WCO, 2015). So far the researcher did not find any other document about ICATT in Rwanda.

A significant difference in child mortality among continents and countries for many decades was observed. In response to this inequitable global dispersion of child's mortality, based on evidence from different health workers who were serving populations with burden of high mortality rates, the world health organization (WHO) and the United Nations for international child emergency fund (UNICEF) elaborated an approach named an Integrated Management of Childhood Illness (IMCI) in 1995 as a strategy designed to improve child health and reduce under-five mortality in poor countries by integrating case management of the most common childhood problems, especially the most important causes of death. (Ashley, 2015,p.15)

Since the starting of the IMCI in the early 1990s, the evidence of interventions 'effectiveness in, delivery approaches and technologies to improve access and coverage of basic child health interventions evolved significantly in many Countries and their epidemiological situation changed over time, especially with the decrease in under-five mortality rates (WHO, 2017,p.24).The Overall child mortality has dramatically decreased and more tripled decrease between 2003 and 2013, thanks to the launch of IMCI (Bay, Miller and Faijer, 2014).

Despite the best results from IMCI in reducing under five mortality, there is still inequity in that indicator. For example, in 2013, the child mortality in low income countries was 12 times higher compared to high income countries, more burden in Sub-Saharan Africa, where

around 12 countries were having under five mortality rate superior to 100 per a thousand .India is one country of Asia, where IMCI was adopted in 2008 and since then a lot has changed, including child survival and mortality rate decrease (Aneja, 2019,p.3).

In Africa, IMCI strategy was introduced in many countries, but still its coverage is low and reduction in underfive mortality is questionable. There was a small progress in decreasing neonatal diseases, other infectious diseases and injuries affecting under five that was more pronounced in sub-Saharan Africa countries than non-sub-Saharan countries. A concrete example is in regard to common causes of child mortality as Pneumonia and malaria (Cha and Cho, 2015,p.17-18). Another example, in Western Kenya adherence to IMCI at 14%, as revealed by a study conducted about its utilization in the named region. They were still struggling with identified barriers behind this poor use of the IMCI strategy (Silali, 2015,p.31-33).

In a survey to assess adherence to IMCI guideline in 4 countries namely Namibia, Uganda Tanzania, Kenya the results revealed that adherence rate for physical examination plus assessment was very low (Krüger, Heinzel-gutenbrunner and Ali, 2017,p.11).

Tanzania was among the first countries in implementing IMCI in 2005. Since then there was an improvement in immunization, malaria prevention and treatment leading to cost saving and up to 13% of reduction in child mortality. (Afnan-holmes *et al.*, 2015, p. 15).

In south Africa mothers attending child health services, criticized professional for missing some important element during IMCI implementation and it was exposing children to the late identification of health problems (Jonker and Stellenberg, 2014,p.5-7).

In Rwanda, the strategy of IMCI was publically adopted by the Ministry of Health around in 2000's as a cornerstone intervention to reduce infant and child mortality. With a desire to strengthen health workers' knowledge. Eight years later the Ministry of Health and its partners started training on the IMCI course, as Child health was recognized as an important focus area in the economic development and poverty reduction strategy (EDPRS) and Vision 2020. By April 2009, National Policy for Child Health and related Strategic Plans for the Survival of the Child and Integrated Management of Childhood Illnesses had been rolled out to be implemented in all public health centers, health post and community as reviewed in the Strategic Plan for the Integrated Child Rights Policy in Rwanda in 2011.

Globally, Latin America and Caribbean, East Asia and Pacific were evaluated as the had achieved MDG 4,eventhough Africa did not achieve in general, but Rwanda is among low income countries that achieved two third reduction in under five mortality(Liu and Black, 2015, p.9-10).

Effort had been made to the extent that the IMCI was improved from 33% in 2012 to 54% in 2015 as reported in 2016 Rwandan national statistical booklet.

Despite, the adoption and utilization of the IMCI strategy in improving child survival and reduction of under-five child mortality, a study conducted in Rwanda has revealed that many cases of children' illnesses are still inappropriately classified and there is a need to investigate the challenges that may be behind that poor classification and treatment of common childhood illness (Harerimana *et al.*, 2014, pp.99-104).

This study intends to assess the factors influencing the implementation of IMCI at health center level in a selected health district in Rwanda.

1.3. PROBLEM STATEMENT

According to the Rwanda Demographic Health Survey, child mortality is 50/1000 (2014-2015), There was a significant reduction in under-five mortality from152 per 1,000 in 2005 to 50 per 1,000 live births in 2015.

According to the annual report of UNICEF(2015), and national statistical booklet (2016),In Rwanda the most contributor to these deaths include malaria, pneumonia, acute respiratory infections, diarrhea that are among the major leading causes of death at 18.1%, 14.6%, 15.5%, 8.7%, respectively with emphasis taken also to , fever, ear infections, HIV and malnutrition. IMCI strategy is a key approach among others, that has been introduced in Rwandan health system aiming to prevent, diagnose, classify and manage common childhood illnesses such as in that age group in Rwanda.

Furthermore, A study conducted on the effect of shortened integrated management of childhood illness training on the classification and treatment of under-fives children seeking care in Rwanda, has revealed that many cases of children's illnesses are still inappropriately classified and treated, therefore there is a need to investigate the challenges that may be interfering with inappropriate classification and treatment of common childhood illnesses(

Harerimana et al., 2014).

Despite the effort made, we still have a long way to go. The IMCI coverage in Rwanda is low. The Rwanda annual statistical year book has shown that IMCI implementation varies from Ngoma at 97% to 16% in Huye, giving the national average of 54% in the year 2016. This is low compared to the WHO target to above 68%, and national target of above 85%. Among 5 districts with lowest IMCI coverage Kicukiro is included at only 35% of cases(NISR, 2016,p.40-41).

It is questionable if at least these 35% of cases are accurately managed by nurses, and the predictors of such problem are still unknown. In addition, no other study done previously to explore possible causes of that low coverage. Considering these data there is need to find out the possible factors interfering with proper use of the IMCI strategy in health centers of Masaka district hospital's catchment area. Therefore, this study intends to assess factors influencing the implementation of IMCI among nurses at the health center level in Masaka health district of Kigali city as this will help in identifying where to make emphasis in raising IMCI coverage and implementation with target to improve health and reduce under-five mortality rate.

1.4. AIM OF THE STUDY

This study aims at identify factors influencing the implementation of IMCI among nurses working at the health center in a selected health district in Rwanda

1.5. STUDY OBJECTIVES

1.5.1. Main objective

To assess the factors influencing the implementation of IMCI among nurses working at the health center level in a selected district hospital in Rwanda.

1.5.2. Specific objectives

To determine the level of IMCI implementation among nurses working at the health center level in a selected district hospital in Rwanda.

To describe factors influencing the implementation of IMCI among nurses working at the health center level in a selected district hospital in Rwanda.

To determine association between factors and the IMCI implementation among nurses working at the health center level in a selected district hospital in Rwanda.

1.6. RESEARCH QUESTIONS

What is the level of IMCI implementation among nurses working at the health center level?

What are factors influencing IMCI implementation among nurses working at the health center level?

Is there any associations between described factors and IMCI implementation among nurses working at health center level?

1.7. SIGNIFICANCE OF THE STUDY

The study's findings will provide clear information about the factors that influence the implementation of the strategy in different area.

1.7.1. To the policy makers

Firstly the data from this study will be useful by health planners such as those at the Ministry of Health and nongovernmental organizations working on integrated management of neonatal and childhood illnesses and will also enable such bodies to design better programs to address the identified problems.

1.7.2. To the health facilities area

Secondly the study findings will be useful for health workers in health facilities as the study will highlight the gaps that need to be dealt with for better management of childhood illness by scaling up an evidence based IMCI strategy in daily clinical.

1.7.3. Education and research area

Lastly, this paper will be used as important literature for future researchers who want to undertake similar studies.

Findings will be incorporated by educators in the formal and continuing education for implementation of IMCI in Rwandan health settings**.**

1.8. DEFINITION OF KEY TERMS

Factors: According to Oxford dictionaries, a factor is a circumstance or a fact, or an influence that contributes to a result. In this study factors is all requirements for effective management of child under five.

IMCI: an integrated approach to child health that focuses on the well-being of the whole child (Ketsela *et al.*, 2016, p.99).

IMCI is an approach used in health center to assess, diagnose and treat under five children

IMCI implementation: All activities aiming to assess diagnose and treat holistically a child presented to the health facility.

Nurse: According to the ICN (2003), a nurse is a person who has completed a program of basic, general nursing education and is recognized by regulatory bodies. In Rwanda there are associate nurse, and registered nurses. Whoever has a license to practice is called a nurse.

Health Center Level: Is the first level of health facilities. Children from the community or transferred from community health workers are first managed by nurses at the health center for diagnosis, treatment or promotional activities (MoH, 1997a).

1.9. SUBDIVISION OF THE STUDY

The research project is divided into six main chapters. Chapter one is the introduction of the study composed of definition of the key terms, background, problem statement of the study, objectives and the significance of the study. Chapter two consists of the literature review, which describes IMCI, and factors influencing the implementation its implementation at the health center level. It is composed of theoretical and empirical literature, critical review and research gap identification, the conceptual framework then conclusion. This is followed by chapter three that is Research methodology which is comprised of the study area, study design, study population, study sample and sample size, data collection procedures, research tools, data analysis procedure, Problems and limitations of the study and ethical consideration. The next is chapter four that is about research results, both descriptive and inferential statistical results described in chart and tables. The chapter five concern discussion

of study findings in comparison to available literature ,to respond to study objectives, followed by the last chapter that shows conclusion and recommendation .All of the six chapters are followed by the reference list and finally the appendixes mainly ethical clearance, authorizing letter ,instrument ,informed consent form, map of study setting.

1.10. CONCLUSION

Chapter one of the study described that under five mortality is a global problem and the implementation of IMCI a strategy developed to reduce children under five mortality is low especially in developing country including Rwanda. For that the researcher wanted to search for the factors influencing the implementation of IMCI among nurses working at the health center level in a selected district hospital in Rwanda.

CHAPTER TWO:LITERATURE REVIEW

2.1. INTRODUCTION

This chapter describes various literature reviewed by a researcher from google scholar HINARI, COCHRANE data base, PUBMED, and different websites base in relation with child health mainly IMCI. All literatures are up-to-date with a period from 2014 to date expect some that focuses on the historical background and source of research instrument that is dated in 2003. Theoretical, empirical literature, critical review and gaps identification, conceptual framework that will guide the study of the study will be shown in this section.

2.2. THEORETICAL LITERATURE REVIEW

IMCI is a designed strategy that focuses on the child's health holistically at all levels. IMCI goals include death reduction; prevent illness and disability, as well as to promote improved growth and development in children less than five years. Its components have preventive and curative aspects that are designed in a way that they are implemented by families and communities but also by health facilities and that strategy has three main components that are: Improving of health-care staff skills, strengthening overall health systems, improving family and community health practices (Ketsela *et al.*, 2016,p.99-100).

Currently IMCI strategy includes interventions on two levels: on the level of home and community and at health facilities' levels. Home and community levels provide illnesses' prevention and growth promotion interventions, that include community and home based-promotion of appropriate infant feeding practices, peer counseling for breastfeeding, use of insecticide treated bed nets and appropriate infection control practices for early recognition, home management of illness, appropriate care seeking, and adherence to treatment recommendations (WHO, 2017, pp.26-27).

According to Ashley (2015,p.16), the health facility's level involves vaccinations, micronutrient supplementation, health workers counseling for breastfeeding and appropriate complementary feeding , case management of acute respiratory infections, diarrhea, measles, malaria, malnutrition, and other serious infections, counseling on feeding problems, iron for treatment of anemia and anthelminthic treatment.

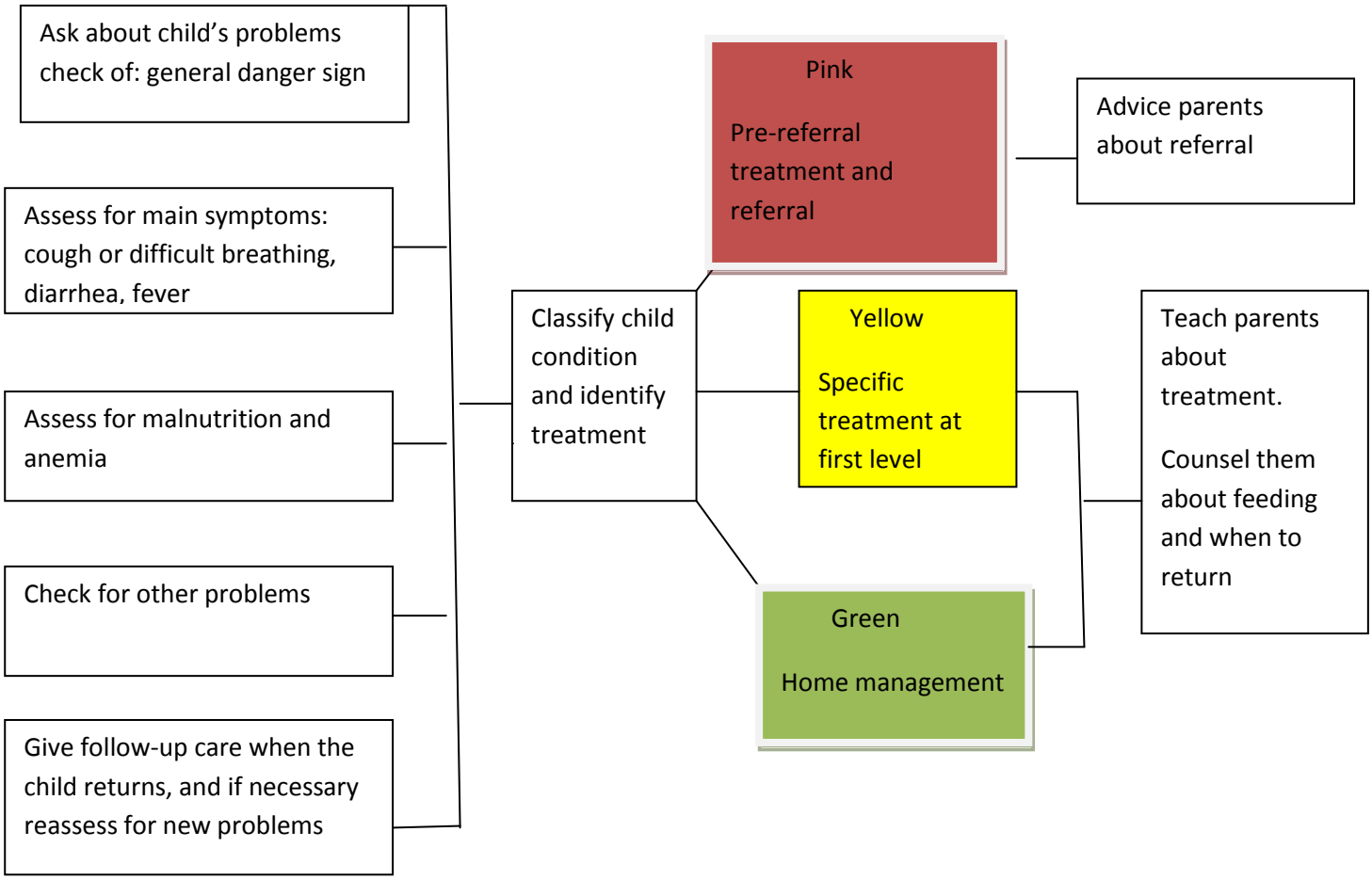

Figure2 1.IMCI Case Management At First Level Health Facility (Ashley, 2015)

2.3. EMPIRICAL LITERATURE REVIEW

Since its inception IMCI met challenges that have been highlighted by various researchers, experts, NGO among others. In the IMCI a strategic review by UNICEF (2018).To scale up IMCI, critical factors were identified as leadership and ownership, strengthening health system where turnover in 84%, staff retention 80% play a big role. So far 48.9% of all countries, and 62.1% of low income countries, identified drug procurement and supply chain management ,drug stock out and poor quality ,lack of system monitoring, as a barrier. In addition, only 72% of countries incorporated IMCI into pre-service training of health professionals(WHO, 2017,pp.22).

This is quite similar to the results from Indonesia, where the main challenges found were for example, lack of skillful human resources, the lack of IMCI sustaining systems, including drugs , tools, infrastructure, supervision, promotional programs within health workers (Jusril *et al.,* 2014, p161-170).

In addition, with intention to evaluate the adherence to IMCI guideline in Uganda, Namibia, Tanzania and Kenya, training to all nurses and regular periodic refresher training were found among barriers for IMCI implementation (Krüger, Heinzel-gutenbrunner and Ali, 2017,p.14).

Furthermore, in a cross-sectional study conducted in 10 districts of West Java province in Indonesia, to provide an overview of IMCI implementation at community health centers revealed that to only 64% of all visiting children the strategy was applied .Numerous barriers to IMCI implementation were acknowledged for example, lack of health workers was identified to be the main challenge at 43% followed by training among health workers that is at a rate of 40%. Another challenge identified in that study is the unavailability of essential drugs as well as equipment that are necessary in the implementation of integrated management of childhood illnesses in the concerned health settings. Many of all health workers were aware about the importance of IMCI in their everyday services and a small number of them did not perceive its advantages. Health care providers are also facing lack of control from their health district headquarters and the poor population alertness regarding the magnitude of IMCI have been reported (Jusril et al., 2014, pp161-170).

In Uganda, health systems factors as supportive supervision were found of much magnitude (Kitutu *et al.,* 2017,pp.1-13)**,** the same in a study to determine predictors of IMCI implementation ,the researcher found that, in Benin a range of factors were associated like

supervision was found a barrier, added younger age professional being a motivating the factor (Steinhardt *et al.*, 2015, pp.1-8). In addition to these factors, another strategic review highlighted lack of budget as a main barrier to run IMCI effectively and with the lack of budget as major challenges at district levels as it affect also clinical training of professionals as there is reliance on donors ,once district have leaders that are skilled enough in managing limited resources, IMCI suffer a lot (Doherty, 2018, p.1-5). Another specific and health system factor is lack of integration of IMCI monitoring and evaluation due to its complexity, yet this has a negative impact on health workers and service delivery (Diaz, 2018,p.1-5).

The effective implementation of IMCI requires health practitioner to participate in the IMCI case management training. This is very crucial in strengthening providers' performance in the appropriate management of childhood diseases. It is also very important as it influences an expansion of quality of care received by under-five children .Moreover this may allow the health worker to catch enough potential concerning health concerns and make a constructive impact on the general health of children under 5 years of age (Harerimana *et al.*, 2014, p.99-104).

Effectiveness of the implementation of IMCI has been evidenced in a study Comparing IMCI and IMCI free approaches in management of kids who experienced high fever above thirty nine degree Celsius. Most of these children (64%) were assessed, classified and diagnosed during the first day, according to IMCI, while most(34%) of the children managed using the traditional approach were diagnosed by the fourth day or fifth day (20%). Finally an showed a clinical improvement was seen in Sixty percent of children who were managed using IMCI strategy approach compared to only 12% who were improved once managed using the traditional approach. There were Forty percent of children who had once outcome when treated according to traditional approach compared to sixteen percent for those treated according to the IMCI (Sallam *et al.*, 2016, p.238-248).

The implementation of IMCI strategy has a significant impact on reduction of less than five years' mortality. A retrospective study done in Egypt comparing the yearly levels of children under-five years of age's mortality before and after the professionals had begun implementing IMCI, the child death has been reduced by a half from 6.6% to 3.3%, after introducing the use of IMCI strategies as recommended by WHO. This reduction in mortality rate was reasonable and appreciable, since wide improvements occurred in feature of care provided to sick children in health services, implementing IMCI (Rakha *et al.*, 2014, p.7).

This was supported also by the Cochran database systemic review conducted on integrated management of childhood illness (IMCI) approach for the under-fives , with intention to evaluate the sound effects of the programs that implement IMCI strategy considering indicators as deaths, children nutritional status, the quality of care provided to children, immunization coverage with IMCI deliverables, and the level of satisfaction of beneficiaries ,the analysis considered many studies evaluating the usefulness of the IMCI strategy. These studies were conducted in three countries, namely Bangladesh, Tanzania, and India. After analysis they come up with results showing that use of IMCI may possibly lead to less death among children from birth to five years of age. The fact is that the use of that strategy has been revealed to have little effect on the percentage of children experiencing stunting of any kind and wasting as well as vaccine coverage, but there is no information on mothers and service users' satisfaction (Gera *et al.*, 2016, pp.18-20)

In the study done in Pakistan on the insight into implementation of facility-based integrated management of childhood illness strategy in one rural district**,** the research revealed that deficiencies in health care scheme supporting IMCI performance was a main concern (Pradhan *et al.*, 2014, p.10-13)

Furthermore ,in determining the awareness and implementation of IMCI among nurses in pediatric settings in Nigeria, the researcher ruled out institutional support, health care providers 'attitude and child parent or guardian compliance as important factors to implementation of IMCI (Adekanye and Odetola, 2014, pp.29-34).

Integrated Management of Childhood Illness (IMCI) training Improves the Skills of Health Workers. This has been evidenced in a Systematic Review and Meta-Analysis by Duyen and colleagues revealed that in general, IMCI-trained providers were good at classifying illnesses and in prescribing medications, providing vaccines to children and counseling families on child's nutrition and administering oral drugs and other therapies . In addition to that, tendencies toward more training profits were observed in studies that had been conducted in settings with lower resources and reported greater supervision (Thi *et al.*, 2014, p.8).

4. CRITICAL REVIEW AND RESEARCH GAP IDENTIFICATION

The IMCI implementation is still low in developing countries thus child's mortality is high. Even though effective, IMCI was criticized by many experienced medical personnel for insufficiency in some aspects. For example a group of pediatrician in Malawi, wrote a commentary report highlighting that IMCI failed to recognize respiratory infections. It was causing confusion in diagnosis, treatment and follow up of cases of those conditions as you can't confirm pneumonia with only counting respiratory rate and evaluate the chest in drawing. These expert showed also a major consequences to clients and families apart from death, antibiotic resistance, and polypharmacy were noted (Brewster, 2015,pp.3-5). Also it was implemented with ETAT that was a big problem as professionals were confused in differentiating them, yet considering ETAT most effective (Robertson, Manson and Fioratou, 2018)

Not only that in some countries they have adopted even other strategies that play an important role in child health improvement. In south Africa IMCI was judged by nurses to be very superficial ,not specific compared to other present programs and strategies (Pandya, Slemming and Saloojee, 2018, p.181).

In Rwanda, the strategy for implementation is also low at national level and it is not understandable how some regions which are implementing well IMCI have a higher mortality rate. The researcher herself, after reviewing the current literatures and take the Rwandan context ,did not understand why some regions are reported to have high coverage in IMCI at the same time have a high mortality rate. For example, eastern province has a high IMCI percentage in general but also the highest under five mortality rate. Kayonza is one district of eastern province that has a good IMCI coverage above the national level at 73% yet the mortality rate was evaluated to be the second highest in Rwanda at 96/1000live birth(NISR, 2016b, pp.29-30).

There is a scarcity of research on IMCI because only two studies were conducted in Rwanda in regard to IMCI but none of them explored factors behind its implementation.

2.5. CONCEPTUAL FRAMEWORK

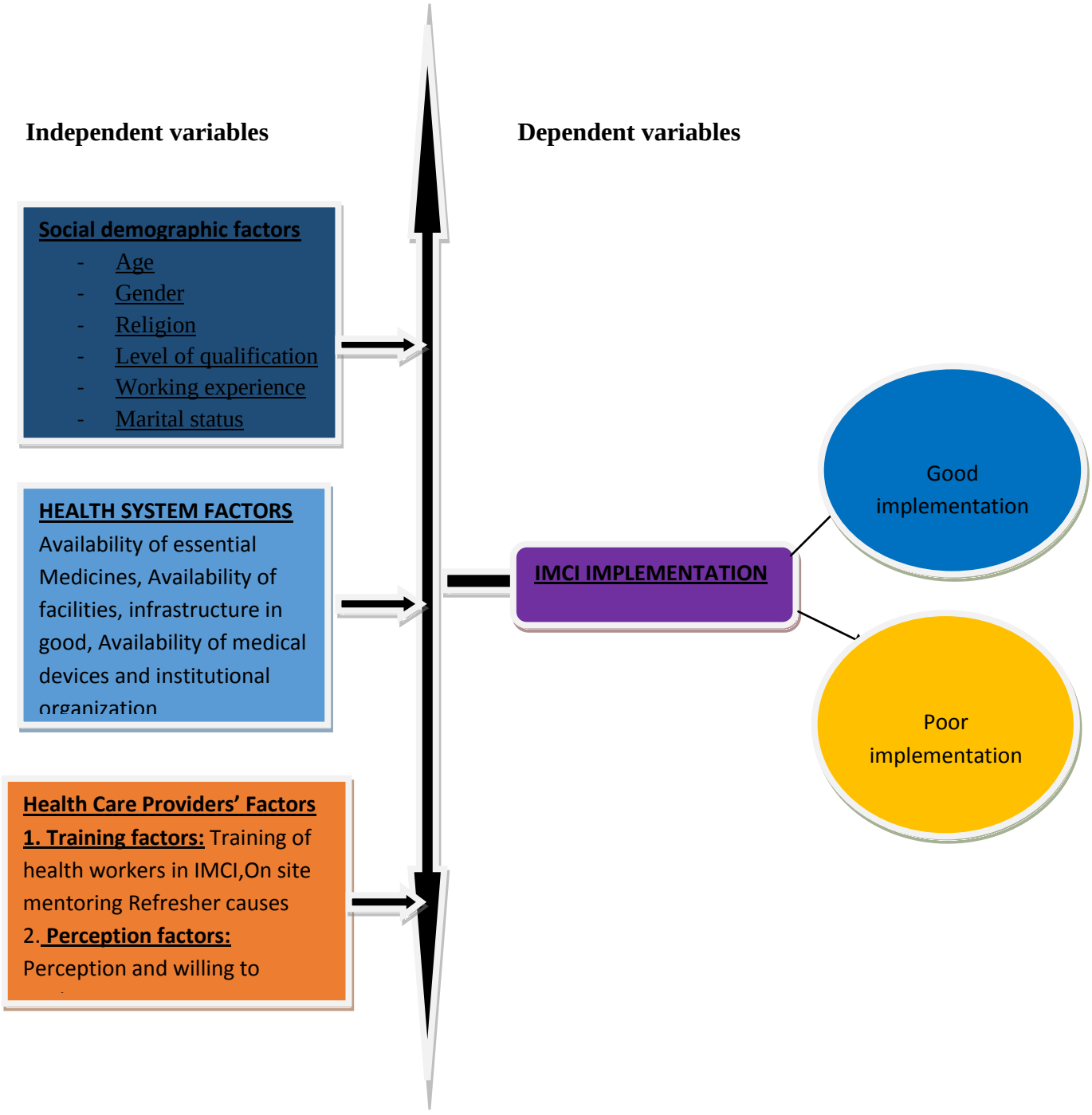

Figure2 2. Factors influencing IMCI Conceptual framework adapted from (Kiplagat et al., 2014)c

2.6. CONCLUSION

Considering the above literatures, the integrated management of childhood illnesses is an existing approach with different level of execution depending on country and region. Its implementation needs to be reinforced in order to be applied in every health setting, especially in developing countries, to enhance child mortality rate reduction. Its target will be achieved once applied effectively and accurately. To come up with those results, it is necessary to know which factors have an influence on its implementation.

CHAPTER III. METHODOLOGY

3.1. Introduction

This chapter covers the introduction to research methods that have been used by the researcher, including research design, approach, setting as well as population and how to obtain the sample by setting inclusion and exclusion criteria. Data collection procedures, instrument used during data collection, data management, findings dissemination, ethical consideration and study limitations.

3.2. Research design

Research design is a blueprint according to which the researcher found that his work must be conducted and focuses on the type of study that will be done, also depending on the kind of results the study is aimed at.

In this study, a descriptive cross sectional design was used as the researcher collected data at one point in time and the relationship between IMCI implementation and the IMCI's influencing factors were identified.

3.3. Research approach

A research approach is strategies and actions that spans the phases from wide-ranging assumptions to meticulous methods of data gathering, analysis and interpretation.

Quantitative research approach was used by the researcher in this study. Quantitative approach involves the generation of data in numerical form which can be further sub-classified in inferential, investigational and simulation approach to reach. Also the quantitative research involves the process of testing relationships or differences and causes-effect interactions among study's variables (Katari, 2004) .

3.4. Research setting

The study setting was Masaka district hospital.

The researcher chosen that District because it was classified among district with low IMCI implementation. In addition to that it was the most feasible to her in comparison to other districts with low IMCI implementation as huye, Nyabihu, Gatsibo and Kamonyi.

The researcher conducted data collection in 10 different health centers of Masaka district hospital catchment area.

3.5. Population

The population of the study was 117 nurses working in 10 health centers in Kicukiro district.

3.6. Sampling

3.6.1. Sample size

The sample for this study was drawn from the 117 nurses working in different health centers of Masaka district hospital catchment area, using Taro Yamane 1967 as given below:

$$n = \frac{N}{1 + N(e^{2})}$$

Where n - is the sample size

N - Is the total population (nurses in Masaka district hospital who apply IMCI)

e: is the marginal error set at 95% = 0.05

Where n will be: $n=117/1+117(0.05)^2$

Therefore 91 nurses formed a sample for this study.

3.6.2. Sampling strategy

In this study, Proportionate Stratified random sampling technique was used to select a sample 91 nurses. Here each health center formed a stratum, where a researcher by simple proportion calculation (n= population in stratum*sample size/whole population) was used to find the sample size of each stratum then after simple random sampling in each stratum was used to select nurses to a sample of stratum.

TABLE 3 1.SAMPLING FRAME

HEALTH CENTER	NUMBEROF NURSES	%	SAMPLE
Gatenga	9	8	7
Gikondo	16	14	12
Busanza	15	13	12
Kairos	6	5	5
Masaka	11	9	9
Kabuga	12	10	9
Kicukiro	18	15	14
Nyarugunga	8	7	6
Gahanga	10	9	8
Bethsaida	12	10	9
TOTAL	117	100%	91

3.6.2.1. Inclusion criteria

All nurses who care for children under five and apply IMCI in consultation services either during day shift, night shift and weekend shift regardless the level of education, also who consented to participate.

3.6.2.2. Exclusion criteria

All nurses who do not meet with children under five to the consultation and those who don't apply IMCI as they don't have an experience in implementing IMCI, consequently they are considered not to know the factors influencing what they don't apply.

6.7. VALIDITY AND RELIABILITY OF THE INSTRUMENT

3.7.1. Validity of instrument

The validity of an instrument is its level of accuracy of the measure, Validity shows if whether the measuring tool correctly measures what it really must measure **(Taherdoost, 2018)**.

The content validity refers to the fact that the items comprising the measure represent a reasonable items of all possible items or behavior that make up the concept being measured. Also it examines the extent to which the measure captures all of the relevant elements. Clinical experts, used to generate and evaluate the items and determines the fit between the questions you are asking and the content area you are measuring.

To ensure validity of the tool, it was handed to 3experts in the nursing field internationally, nationally and locally, including IMCI department at district hospital level, to be reviewed if it measures what it intended to measure, to assess the coverage, relevancy and the clarity of items. Based on their recommendations, some changes were made.

TABLE 3.2 CONTENT VALIDITY

Conceptual framework elements	**Objectives**	**Questions**
IMCI implementation	Determine the level of IMCI implementation	From 3.1 to 3.19
Availability of essential Medicines, Availability of facilities, infrastructure in good, Availability of medical devices and institutional organization	To describe the health system factors influencing the implementation of IMCI at health center level	From 2.01 to 2.17
Training of health workers in IMCI, on site mentoring refresher courses, Perception and willingness to implement IMCI	To describe health care providers' factors influencing the implementation of IMCI at the health center level	From 1.01-1.05 From 2.18 to 2.34

3.7.2. Reliability of instrument

Reliability shows to which point the outcomes obtained by a measurement and procedure can be replicated (Oladimeji , 2015, pp.195-201).To warrant reliability of this study a pilot study was conducted with 10 nurses who were not considered as part of the study and Cronbach's alpha coefficient for internal consistency reliability was computed using SPSS version 21 and found 0.898, showing a very good reliability.

3.8. DATA COLLECTION

3.8.1. Data Collection instruments

To collect data, self-administered questionnaires with closed ended questions was used. The questionnaire was adapted from a tool developed by WHO to evaluate the quality of care delivered to sick children attending outpatient facilities, using the IMCI guidelines as best practice and WHO recommend to contextualize it, test its validity and reliability before using it (WHO, 2003, p.104-124).

3.7.8. Data collection procedure

After getting ethical clearance from the participating institutions. The researcher made an appointment with managers of institutions to introduce herself and the study purposes, process and ethics observations. Then participants to explain and signing of informed consent. Data collection for this study has been conducted through a structured questionnaire. After a pilot study, the researcher has distributed the questionnaires for randomized nurses at each health center who voluntarily accepted to participate in the study.

3.9. DATA ANALYSIS

The gathered information were analyzed using SPSS version 21. Descriptive statistics using frequencies for quantitative variables and mean and standard deviation for continuous variables will be used including inferential statistics using Chi-square for determining relationship between institutional factors and IMCI implementation, then a multinomial analysis has been done to find out the relationship between providers factor and IMCI implementation, in both cases the P value set at 0.05. The findings were presented in tables, percentages and graphs.

3.10. ETHICAL CONSIDERATIONS

The researchers requested ethical clearance with reference CMHS/IRB/051/2019 from CMHS research ethical committee of the University of Rwanda to conduct the study. She has also written a letter requesting permission to conduct the study at Masaka district hospital with reference 229/MSK/DH/2019 as the reference requesting for a complete ethical consideration for data collection in health centers of its catchment area.

Explanations about the research were given to the participants and a consent form written in English, French and Kinyarwanda, then given and signed prior participation in the research. To ensure confidentiality of the gathered information there was no participant's name on the questionnaire and neither was the nurse name, number, nor ID.

3.11. DATA MANAGEMENT

The collected information was stored in secured lap top in the database locked by a password that is known by the researcher only. The hard copies like filled questionnaires were also stored in a locked cupboard with key known to the researcher only. All documents, whether soft or hard copies were stored for five years for audit purposes.

3.12. DATA DISSEMINATION

The findings will be disseminated firstly by submission of a report in a hard copy to Masaka district hospital and concerned health centers. Secondly the researcher aspires to disseminate the findings of this study through publication in peer reviewed journals and conferences if funding allows.

3.13. LIMITATIONS AND CHALLENGES

The researcher encountered problems and the limitations including the scarcity of resources relevant to research. As the research used a cross sectional design, we can only infer association not causation from our findings. Also for data collection process results are from nurses' self-report there may be social influence and desirability.
The study is also limited to one district so that it cannot be generalized to the whole country.

3.14. CONCLUSION

To sum up the researcher chosen methods and methodology that she found appropriate, accurate in regard to the topic and expect trustworthy findings that will play a big role in scaling up the IMCI implementation

CHAPTER IV.RESEARCH FINDINGS

4.1 INTRODUCTION

The researcher collected data from 91nurses working in 10 heath centers of Masaka District with the respondent rate of 100%, and the following are the results found.

4.2. BIOGRAPHICAL DATA

Table4 1.Distribution of participants according to sex, age, religion, Marital status level of qualification, years of experience N=91

Variables	Items	Frequency	Percent
SEX	Male	29	31.9
	Female	62	68.1
Age	20-30	12	13.2
	31-40	50	54.9
	41-50	23	25.3
	51 and above	6	6.6
Religion	Catholic	31	34.1
	Muslim	3	3.3
	Protestant	43	47.3
	Other	14	15.4
Marital status	Married	70	76.9
	Single	17	18.7
	Divorced	1	1.1
	Widowed	2	2.2
	Separated	1	1.1
Level of qualification	Bachelor	8	8.8
	Diploma	66	72.5
	A2	17	18.7
Years of experience	0-5years	12	13.3
	6-10years	53	58.2
	11-15years	20	22
	Above 15years	6	6.6

The above 4.1, shows that according to the biographic data, the majority of respondents 62 (68.1%) were female and the majority of them 31-40, were aged between 50(54.9) , most frequent religion was protestants at 43(47.3%). Also the majority of respondents70 (76.9%) were married whereas 66(72.5%) were diploma nurses, and the majority of respondents had working experience of 6 to 10 years 53(58.2%).

4.3. PRESENTATION OF FINDINGS BY OBJECTIVES

4.3.1 To determine the level of IMCI implementation among nurses working at health center level.

Table 4 2.Table Distribution of respondents according to how often they get difficulties in implementing IMCI activities

Variable		Always	Sometimes	Not difficult
Assessing the child's condition using IMCI	Frequency	45	35	11
	Percentage	49.5	38.5	12.1
Classify the child's illness using IMCI strategy	Frequency	49	30	12
	Percentage	53.8	33.0	13.2
Identify treatment using IMCI	Frequency	50	27	14
	Percentage	54.9	29.7	15.4
Treat the child using IMCI strategy	Frequency	38	39	14
	Percentage	41.8	42.9	15.4
Counsel the care taker using IMCI	Frequency	50	31	10
	Percentage	54.9	34.1	11.0
Follow up care	Frequency	48	34	9
	Percentage	52.7	37.4	9.9

The table 4.2 shows that a number of participants found always difficult assessing the child's condition45(49.5%), treating a child using IMCI strategy 38(41.8%), whereas the majority of study participants 49(53.8%),found always difficult classifying child's illnesses, identify the treatment 50(54.9%),counsel the caretaker 50(54.9%) and provide follow-up care 48(52.7%), using IMCI strategy.

Table 4 3. Distribution of respondents according to their performance of IMCI activities

Variable		Always	Sometimes	Never
Checking for vaccination ,Vit A and deworming	Frequency	78	13	0
	Percentage	85.7	14.3	0
Checking for danger signs	Frequency	89	2	0
	Percentage	97.8	2.2	0
Checking for pallor	Frequency	86	5	0
	Percentage	94.5	5.5	0
Assessing fever	Frequency	87	4	0
	Percentage	95.6	4.4	0
Assessing diarrhea	Frequency	85	6	0
	Percentage	93.4	6.6	0
Assessing malaria	Frequency	76	15	0
	Percentage	83.5	16.5	0
Assess cough and breathing	Frequency	85	6	0
	Percentage	93.4	6.6	0
Weighing the child	Frequency	85	6	0
	Percentage	93.4	6.6	0
Assess malnutrition	Frequency	61	29	1
	Percentage	67.0	31.9	1.1
Check weight against the chart	Frequency	48	28	15
	Percentage	52.7	30.8	16.5
Assessing ear problems	Frequency	38	47	6
	Percentage	41.8	51.6	6.6
Checking HIV status	Frequency	40	50	1
	Percentage	44.0	54.9	1.1
Assess other problems	Frequency	30	50	11
	Percentage	33.0	54.9	12.1

The table 4.3, shows that the majority of respondents 61(67.0%), always weigh the child 85(93.4%),assessed malnutrition when treating an under-five years child, checking weight against chart 48(52.7%).Whereas slightly more than a half 47(51.6%) assessed ear problems, 50(54.9%) sometimes checked HIV status, 50(54.9%). assessed other problems.

Table4 4. Descriptive statistics of IMCI Implementation Scores N=91

	N	Mean	Std. Deviation
Implementation score percent	91	72.93	9.310

The above table, shows that the maximum score of IMCI implementation was 98%, the minimum 57%. The mean score was 72.93% with 9.31%` standard deviation

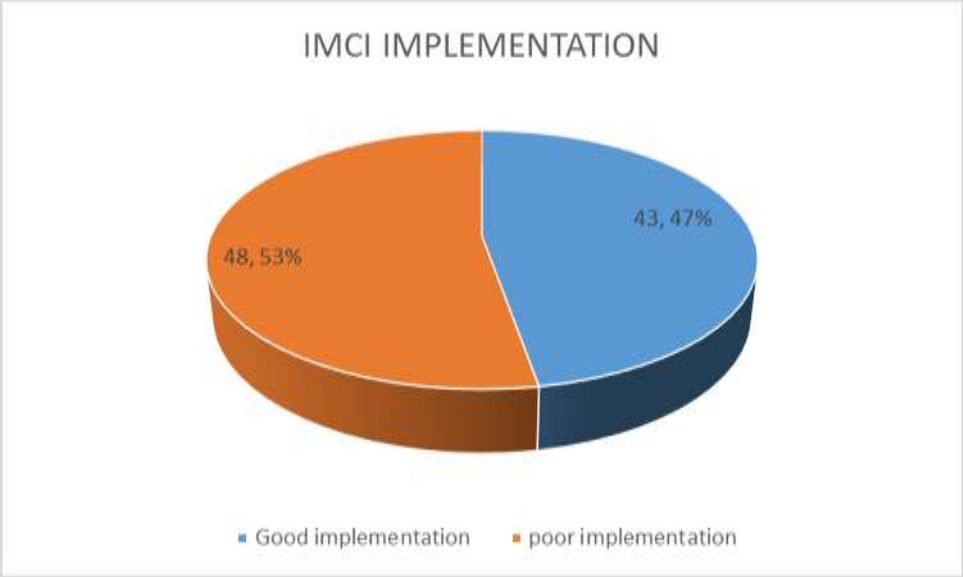

Figure4 1.Level of IMCI implementation cut off point set at mean (72.93%)

The above figure shows that 48(53 %) of respondents were poorly implementing IMCI meaning that their implementation score were under the mean of 72.93 and 43(47.3%) of them had good implementation as they scored above the mean.

4.3.2. Describing factors influencing the implementation of IMCI among nurses working at health center level

Health system factors

Table 4. 5 .Distribution of respondents on the availability of facilities, infrastructure in good condition for IMCI N= 91

Variables		Frequencies	Percent (%)
Availability of particular room for IMCI	yes	89	97.8
	No	2	2.2
Available IMCI room is not enough	yes	40	44.0
	No	51	56.0
There is register reserved for IMCI	yes	90	98.9
	No	1	1.1
Sometimes we experiences stock out of IMCI registers	yes	20	22.0
	No	71	78.0

The table 4.5, shows that among 91 study's participants, the majority 89(97.8%) confirmed that there was a particular room for IMCI in their facility, whereas more than a half 51(56%) perceive it to be not enough. Most of respondents 90(98.9%) had IMCI register and the majority of responds71 (78.0) has not experienced a stock of the registers.

Table 4 .6. Distribution of respondents on Availability of medical devices N=-91

Variables	Response	Frequencies	Percent
There is baby length board available in IMCI room	Yes	84	92.3
	no	7	7.7
There is Infant weighing scale available in IMCI room	Yes	82	90.1
	No	9	9.9
There is Child weighing scale available in IMCI room	Yes	72	79.1
	no	19	20.9

There is spring scale available in IMCI room	Yes	43	47.3
	no	48	52.7
There is Thermometer available in IMCI room	Yes	86	94.5
	No	5	5.5
There is Pediatric Blood pressure meter with cuff available in IMCI room	Yes	12	13.2
	No	79	86.8
There is respiratory timer for acute respiratory infections available in IMCI	Yes	65	71.4
	No	26	28.6

The table 4.6, shows that considering availability of medical devices, the majority of respondents 84(92.3%) declared that there was a baby length board infant weighing scale, 82 (90.1%) confirmed that ,there is a child weighing scale 72(79.1%), there is a thermometer 86(94.5%), there is a timer 65(71.4%), in IMCI room. Also the majority 79(86.8%) declared that there was no pediatric blood pressure meter and a spring scale 48 (52.7%).

Table 4 7 .Distribution of respondent according to availability of essential drugs

N=91

Variable		Frequencies	Percentage
In your facility all essential drugs for under 5 cases management are available?	Yes	71	78
	No	20	22
Do you experience stock out of some essential drugs for under 5?	Yes	27	29.7
	No	64	70.3

The above table 4.7, shows that the majority of respondent 71(78%) confirmed that all essential drugs for IMCI are available and they don't experience stock out 64(70.3%).

Table4 8. Distribution of respondents according to the institutional organizationN=91

Variable		Frequency	Percentage
In our facility to care for under-five is always planned or scheduled	Yes	70	76.9
	No	21	23.1
In our facility adult patient and under five are registered in the same book or register	Yes	24	26.4
	No	67	73.6

The table above 4.8,shows that most of respondents 70(76.9%) declared that caring for under-fives is planned and adults patients are not registered in the same book as children under five years of age variable was evaluated at 67 (73.6%).

Table4 9. Distribution of respondents according to experienced other institutional factors N=91

Variable	**Frequency**	**Percentage**
Shortage challenges	73	80.2
Time consuming	31	34.1
Our health facility is not fully equipped to support the use of be IMCI-strategy procedures	12	13.2
Untrained staff	68	74.7
Lack of supervision	15	16.5
lack of knowledge	35	38.5
Lack of good attitude of nurses	12	13.8
Lack of supervision	15	16.5
Other	3	3.3

The above table 4.9 shows that according to study's participants 73(80.2%) of respondents considered shortage of staff as the most institutional factor affecting IMCI implementation, also the untrained staff at68(74.7%).The time IMCI takes 31(34.1%), and lack of knowledge in regard to IMCI 35(38.5%) were at unnegligeable percentage.

4.3.2.2. Describing health care providers' factors influencing the implementation of IMCI at health center level.

4.3.2.2.1. Training factors

Table 4.10. Distribution of respondents according to whether they understood IMCI strategy N=91

Variable		Yes	NO
IMCI strategy understanding	Frequencies	84	7
	Percentage	82.4	17.6

The table 4.10, shows that the majority of respondent 84 (92.30%)had understood IMCI

Table4 11. Distribution of respondents according to their attendance to IMCI training n=84

Variable		Yes	NO
IMCI training attendance(Other than school)	Frequency	37	47
	Percentage	44.0	51.6

The table 4.11 shows that the majority of respondents 47(51.6%) were not trained on IMCI whereas only 37(44.0%) of respondents had had IMCI training school training excluded

Table 4.12. Distribution of respondents according to where they got information on IMCI N=84

Variable		Frequency	Percentage
Where have you got information	School	41	49.39
	Media	6	6.02
	Training (other than school)	37	44.5

The above table 4.12 shows a big number of respondents 41(49.39%), got information on IMCI from school others from other training37 (44.5%), then 6 (6.02%) got it from media.

Table 4.13 .Distribution of respondents according to the kind IMCI of training, duration and its application of IMCI N=37

Variable		Frequency	Percentage
Training	Preservice	22	59.5
	In service	15	40.5
Time of training	Years	28	75.7
	Months	9	24.4
Duration of IMCI	Below 6days	11	12.1
	6days	10	27.0
	Above 6to 11days	5	13.5
	Above 11	11	29.7
Refresher training	Yes	17	45.9
	No	20	54.1
Application of all stages of IMCI protocol(N=91)	Yes	54	59.3
	NO	37	40.7
Inconsistency for IMCI trained and untrained nurses(N=91)	Yes	14	15.4
	No	77	84.6

Table 4.13 shows that among trained nurses, 22(59.5%) had a Pre-service training and 15(40.5%) had the in-service training. Also 28(75.7%) had their training during the last 12months and above, and 9 (24.4%) were trained for a period under one year ago whereas the duration of training was below 6days, 6days, between 6 and 11days above 11days at the percentage of 11(12.1%), 10(27.0), 5(13.5%), and 11(29.7%) respectively. And the majority had not had a refresher training 20(54.1%).

Among study participants, the majority 54(59.3%) agreed that they apply all stages of IMCI protocol and there is no inconsistency between IMCI trained nurses and nontrained that may push caretakers to prefer to be seen by non-trained nurses 77 (84.6%).

Table4.14. Study's participants distribution according to their perception and willingness N=91

VARIABLE		**Strongly disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly agree**
If all stages of IMCI applied see a small number due to nurse-patient ratio	Frequency	7	21	8	41	14
	Percentage	7.7	23.1	8.8	45.1	15.4
I care for adult and under five in one room, I would not be able to attend to all other patients who are not under 5s due to the patient-nurse ratio	Frequency	7	31	7	37	9
	Percentage	7.7	34.5	7.7	40.7	9.9
It is not practical to refer to the IMCI chart booklet in the clinic during case management of every presentation	Frequency	15	29	3	27	17
	Percentage	16.5	31.9	3.3	29.7	18.7
IMCI protocol is too long	Frequency	9	22	4	43	13
	Percentage	9.9	24.2	4.4	47.3	14.3
IMCI protocol is tedious/boring	Frequency	24	16	9	34	8
	Percentage	26.4	17.6	9.9	37.4	8.8
IMCI is time-consuming	Frequency	12	16	3	48	12
	percentage	13.2	17.6	3.3	52.71	13.2
IMCI is not practical to use at our health facility	Frequency	43	25	2	12	9
	Percentage	47.3	27.5	2.2	13.2	9.9
IMCI is difficult to understand and apply	Frequency	27	23	4	32	5
	Percentage	29.7	25.3	4.4	35.2	5.5
I am not interested in applying IMCI strategy	Frequency	49	22	0	8	12
	Percentage	53.8	24.2	0	8.8	13.2

The above table 4.14 shows that, according to the study participants, a big number 41(45.1%) agreed that when they apply all steps of IMCI, they will see a small number of patients due to nurse-patient ratio, and 37(40.7%) of participants care adults and under-fives in one room and this prevent them to receive all under-fives due to nurse patient ratio, whereas 27(29.7%) agreed that it is not practical to refer to IMCI chart booklet during management of each presentation. 43(47.3%) of respondents perceive IMCI protocol to be too long, also it is boring at 34(37.4%) of them.

Even though the majority of respondents 48(52.71%), perceived IMCI to be time consuming a big number of them strongly disagreed that the IMCI is not practical to use at their facilities but also a big number of them 32 (35.2%) agreed that IMCI is difficult to understand and apply, finally the majority of respondents 49 (53.8%) strongly disagreed that they were not interested in applying IMCI.

4.3.3. To determine the factors associated with IMCI implementation

Table 4.15. Biographic data in association with IMCI implementation (Multinomial analysis with reference category good implementation)

	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
			Lower Bound	Upper Bound
Male	.544	.661	.173	2.525
Female	.	.	.	.
20-30 years	.000	50184797.690	3021759.291	833459477.399
31-40 yearss	.230	.114	.003	3.941
41-50	.558	.476	.040	5.685
51 and above	.	.	.	.
Catholic	.786	.816	.188	3.538
Muslim	.361	3.568	.233	54.699
Protestant	.212	2.468	.596	10.216
BScN	.855	1.218	.147	10.086
diploma	.132	2.794	.733	10.648
0-5years	.	1.305E-008	1.305E-008	1.305E-008
6-10	.780	1.452	.106	19.858
11-15	.	.	.	.
Above 15	.	.	.	.
Married	.000	5.970E-009	1.350E-009	2.639E-008
single	.	1.266E-008	1.266E-008	1.266E-008
DIVORCED	.	6.851E-018	6.851E-018	6.851E-018
Widowed	.	.384	.384	.384
separated	.	.	.	.
The reference category is: good.				

Table 4.15, shows that the above table is a summary of demographic data in association with IMCI implementation. The younger age (20-30), OR: 5.02P=0.001 was 5times more likely to implement IMCI also married nurses (OR: 5.97, P=0.001), were 5.97 times more likely to implement IMCI.

Table 4 16. Association of health system factors and level of implementation cross tabulation (chi-square test)

Institution variables	P. Value	ODDs ratio	C.I
There is particular room for IMCI	0.176	0.958	0.903-1.017
Available IMCI room is not enough	0.642	0.821	0.358-1.883
There is register reserved for IMCI	0.342	0.979	0.940-1.020
Sometimes we experiences stock out of IMCI registers	0.432	0.671	0.248-1.820
There is baby length board available in IMCI room	0.808	0.825	0.174-3.914
There is Infant weighing scale available in IMCI room	0.599	1.447	0.362-5.780
There is Child weighing scale available in IMCI room	0.009	4.152	1.349-12.782
There is spring scale available in IMCI room	0.008	3.162	1.335-7.48
There is Thermometer available in IMCI room	0.557	1.725	0.274-10.847
There is Pediatric Blood pressure meter with cuff available in IMCI room	0.300	1.950	0.543-7.004
There is respiratory timer for acute respiratory infections available in IMCI room	0.288	0.606	0.24-1.533
In your facility, all essential drugs for under 5 cases management are available	0.819	0.890	0.329-2.412
In your facility, there is stock out of some essential drugs for under 5	0.303	0.622	0.252-1.539

In your facility, for a nurse to care for under five is planned or scheduled	0.042	2.828	1.015-7.876
Sometimes adult patient and under five are registered in the same book or register	0.026	0.338	0.127-0.898
Shortage challenges	0.187	2.056	0.697-6.566
Time consuming	0.039	0.390	0.157-0.967
Our health facility is not fully equipped to support the use of be IMCI-strategy procedures	0.409	1.672	0.489-5.722
Untrained staff	0.675	1.226	0.473-3.175
Lack of supervision	0.960	0.972	0.320-2.950
lack of knowledge	0.842	1.090	0.468-2.539
Lack of good attitude of nurses	0.677	0.771	0.225-2.63
lack of organization	0.362	0.357	0.36-3.569

The above table 4.16 shows that there is association between the level of IMCI implementation and its nature of being time consuming (P=039), also registering adults and under-five has a strong association with the level of IMC implementation P=026, planning or scheduling nurses who will received under-fives in IMCI room is associated with its implementation and is 2.8 times more likely to lead to good level of implementation (OR :2.828, 95% CI:1.015-7.876, P=.042), again the availability of spring in IMCI room is associated with the level of implementation, as its presence is 3.162 times more likely to influence IMCI implementation (OR 3.162, CI: 1.335-7.48 P =0.008),even the availability of child weighing scale in IMCI room is associated with the implementation as it is 4.152 more likely to influence a good implementation(OR 4.152 P=0.0090, 95% CI: 1.349-12.782).

Briefly factors are: Availability of materials as spring and child weighing scale, the nature of IMCI that cause it to take a long period, mixing adults and children in the same book, planning a nurse who will work in IMCI room, are health system factors that are associated with IMCI implementation.

Table4 17. Association between provider factors and level of implementation (Pearson chi square)

Provider variables	Pvalue	OR	CI
Have you understood IMCI strategy?	0.094	0.304	0.260-7.397
Have you attended IMCI training?	0.700	1.388	0.071-1.303
When you last attended IMCI training	0.633	1.739	**0.**176-17.222
Have you received IMCI refresher training?	0.116	3.097	0.501-19.139
All IMCI trained nurses at our health facility apply all the stages of the IMCI protocol during case management of children under 5 years in register	0.236	0.384	0.075-1.961
The case management practices of MCI trained nurses and non-IMCI trained nurses are inconsistent; hence caretakers of under 5s prefer to be seen by nurses who are not IMCI trained	0.741	0.829	**0.**752-0.915

The above table 4.17 shows that the above table shows that having attended IMCI training (OR1.388 CI: 0.071-1.303) and having a refresher training (OR 3.097 CI: 0.501-19.139) is 5more time likely to increase the implementation

Table4 18. Association between level of IMCI implementation and perception ,willingness factors N=91

Variable		Pvalue
If I apply all the stages of the IMCI case Management process to all under 5 patients, I will be able to see only a handful of them because of the patient -nurse ratio.	Strongly Disagree	0.954
	Disagree	304
	Neutral	0.137
	Agree	0.283
Because most of the time I care for adult and under five in one room, If I apply all the stages of the IMCI case management process to all under patients, I would not be able to attend to all other patients who are not under 5s due to the patient-nurse ratio.	Strongly Disagree	0.039.
	Disagree	0.891
	Neutral	665
	Agree	0.288
It is not practical to always refer to the IMCI chart booklet in the clinic during case management of every presentation.	Strongly Disagree	4.31
	Disagree	0.026
	Neutral	0.829
	Agree	0.038
IMCI protocol is too long	Strongly Disagree	0.643
	Disagree	0.094
	Neutral	0.950
	Agree	0.535
IMCI protocol is tedious/boring	Strongly Disagree	0.915
	Disagree	0.348
	Neutral	0.888
	Strongly Agree	0.844
IMCI is time-consuming	Disagree	0.831
	Neutral	0.812
	Agree	0.518.
	Strongly Agree	0.776
IMCI is not practical to use at our health facility	Disagree	0.730
	Neutral	0.556
	Agree	0.100
IMCI is difficult to understand and apply	Strongly Disagree	0.021.
	Disagree	0.021
	Neutral	0.040
	Agree	0.093.
I am not interested in applying IMCI strategy	Strongly Disagree	0.141
	Disagree	0.067
	Agree	0.304

The table 4.18,shows **Nominal regression's** results with redundant variable not shown shows that to Agree strongly that as most of the times nurses most of the time care for adults and underfive s/he will not receive all patients due to nurse-patient ratio (P=0.039) has a strong association with implementation, also disagreeing(P= 0.026) or agreeing (P= 0.038) that referring to IMCI chart booklet in clinic during cases management of every presentation , perception of IMCI to be not difficult to understand and apply (strongly disagree p=0.021,diasagree P=0.021) or remaining neutral(p= 0.040) has association with its implementation .

CHAPTER.V:DISCUSSION

This chapter covers discussion of study's results in regard to its aims and the available literatures. Some results were found or quite similar to the findings from the literature, others are opposite or even not documented anywhere. In this chapter the discussion will be drawn from all the side of the results obtained and described in the previous section.

This study mainly aimed at determining the level of IMCI implementation among nurses working at health center as well as describing the various factors influencing the IMCI implementation then determine the association between described factors and the level of IMCI implementation.

The demographic characteristics of participants revealed that, the majority of study's participants were female, aged 31-40 years. This reflects the background of the nursing profession in Rwanda and worldwide to be seen as a female carrier. At that age nurses are employed and probably graduated; most of the respondents were advanced diploma holders and married, with working experience of 6 to 10 years. The working experience may have an impact on implementation as nurses may have forgotten what they learnt or need updating on new and evidence based practice. Finally slightly less than a half were Protestant by religion.

The research findings show that slightly above the half of the nurses had a poor IMCI implementation compared to those who were good at implementing IMCI. IMCI implementation range from 57% to 98%. That poor implementation is due to challenges that nurses may face during IMCI implementation. On the other hand, this implementation is still low compared to other countries like Ethiopian where the implementation is 58.4% (Seid and Sendo, 2018, p.6). Also similar studies in Kenya and China showed that IMCI implementation is low, nearly 14% (Silali, 2015, p.33). In line with the present study's findings, other studies in Benin revealed that IMCI performance following the guideline was not similar among nurses as some are at extremely low levels other were performing it a higher level. The range was found between 15 and 88% (Steinhardt *et al.*, 2015, p.32).

With an intention to describe the factors interfering with IMCI implementation (table 4.7), nurses from Masaka health centers reported that the essential drugs for IMCI patients were available without experiencing stock out. This means that having no stock out of essential drugs enhances IMCI implementation. It was supported by studies done in Tanzania by two

different studies in different time frame, the first reported the problems qualitatively the second being a quantitative study and both concluded that the availability of essential drug was biggest challenge, to the extent that in health centers and dispensaries essential drugs were not available. The most frequent antibiotics for IMCI as amoxicillin that was only available in 44% ,ampicillin also was seen in only 44% of health centers, that the unavailability hindering the poor implementation of IMCI (Kiplagat *et al.*, 2014,p.8; Idindili *et al.*, 2018, p.8). Similarly, the centralized dispensing system that leads to frequent stock out of essential drugs was highlighted in South Africa as a factor that handicap IMCI implementation (Pandya, Slemming and Saloojee, 2018, p.181).

The majority of respondents reported that staff shortage is among challenges that their health centers are facing in IMCI implementation. This is not the first time to be noted in Rwanda. Manzi and collegues had found that staff turnover and shortage were a challenge for IMCI implementation and mentorship (Manzi *et al.*, 2014, pp.4-5).

Also in the qualitative study done in South Africa nurses reported that their facility are meeting the problem of the frequent temporary shortage of IMCI trained nurses thus lowering the implementation(Pandya, Slemming and Saloojee, 2018, p.178) . This is quite similar to the findings from a global survey that concerned 95 countries from WHO regions, with participants being the in country team representing ministries of health ,offices of UNICEF and WHO incoutry , that revealed shortage 84%,staff retention concerns 80% were lowering the implementation of IMCI (Boschi-pinto *et al.*, 2018, p.5).

Training has been reported by the nurses as a factor that hinders IMCI implementation. Sixty height (74.7%) respondents declared that untrained staff was among the barriers to IMCI and among eighty four nurses who reported that they understand IMCI, only 37(44%) had IMCI training. The findings mean that the training is still low. WHO recommend that for IMCI to have an impact on child's health in a certain health facility, the IMCI training coverage should be not less than 60%, however many countries failed to meet that criteria . Many countries as in Africa and Asia were on lower coverage. For example, the coverage was found by researcher at 43% in Indonesia, for Ethiopia the coverage was a bit high(57.3%) but not meeting the set criteria and nurses who were trained were 2times more likely to correctly implement IMCI than those who are not trained (Seid & Sendo, 2018,p.7, Solikhah *et al.*, 2019, pp.495-497).

In a survey done on IMCI implementation to determine challenges and appropriate recommendations in Botswana lack of training was found among concerns and the researcher recommended to addresses it (Mupara and Lubbe, 2016).Similarly, the global survey on IMCI implementation stated that the training course for health workers developed by WHO and UNICEF is one key element of the IMCI strategy (WHO, 2016,p.26).

Refresher training also is a challenge where only 54.1% of nurses had a refresher training, This is high compared to that found In Ethiopia where it was only 10.8% (Seid & Sendo, 2018,p.8) . Even though the coverage of IMCI is lower, there is a good number of nurses 41(49.39%) who got the IMCI information in schools as the republic of Rwanda has started teaching IMCI nurse students at school. The IMCI components were included among their clinical practices in health centers.

Some nurses 15(16.5%) reported a lack of supervision as a challenge to IMCI implementation, lack of supportive supervision was reported in qualitative assessment of the challenges met by nurses in implementing IMCI in Tanzania (Kiplagat et al., 2014, p.7). Also in the survey done by Shemsa and colleagues in Ethiopia, nurses who were interviewed declared that they face a challenge of lacking regular supervision for support and update .Quantitative findings were found to be very significant to an extent that only 9.2% of nurses who had participated in the survey had supportive supervision (Seid and Sendo, 2018) .

The majority of nurses working in the health centers of Masaka district hospital's catchment 54 (59.3%) reported adhering to all stages of the IMCI strategy, this adherence is very poor because all steps of IMCI have the meaning and specific clinical implication in the management of children under five. In a study done in Limpopo province in South Africa, nurses reported that they were working with various challenges that push them to poor adherence to IMCI algorithm, dangers signs identification included (Fick Candice, 2017, pp.207-214).

In regard to nurse's perception and willingness to implementation IMCI, slightly more than a half of the respondents 48(52.77%) agreed that IMCI is time consuming also some of them declared that the time the IMCI strategy takes to be implemented was among the barriers they meet in its implementation. Some nurses perceived IMCI to be too long 43(47%).This is quite similar to findings from mixed study done in Ethiopia, which revealed that 54.6% of nurses perceived IMCI to be time consuming whereas 48.6% perceived it to be too long.

However the majority 53.8% of nurses were interested in applying IMCI (Seid & Sendo, 2018,p.7).

Concerning the factors associated with IMCI implementation, the younger age (20-30) (p= .001 OR 5.027) was found 5times more likely to have a good IMCI implementation. These finding were not documented anywhere in literature. In addition to age, being married is strongly associated with good IMCI implementation (p= 0.001 but no similar or contrast studies found in regard to this point.

Availability of the medical devices were found to be associated with IMCI implementation ,for example, the availability of child weighing scales is 4 times more likely to lead to good IMCI (OR 4.152 p=009, 95% CI:1.349-12.782), 3 times in the availability of the spring (OR 3.162. (p=0.008, 95% CI: 1.335-7.48). The lack of material and supplies was a reported also in Botswana and South Africa (Mupara and Lubbe, 2016), Mulaudzi, 2015,p.90). Scheduling and daily work plan were found significantly associated with IMCI implementation. In a qualitative study done on IMCI in South Africa, to explore health system factors affecting the IMCI implementation, nurses reported that the organization of their facility and the daily schedule were not favorable to trained nurses to attend all cases of patients under five years. They were used to rotate in services more and more (Pandya, Slemming and Saloojee, 2018, p.178).

CHAPTER.VI.CONCLUSION AND RECOMMENDATIONS

6.1. CONCLUSION

The level of IMCI implementation among nurses working at Masaka District Hospital catchment area was found to be low. Good IMCI implementation was found in 43% of nurses

The reported barriers to IMCI implementation include mainly: shortage of staff, untrained staff, lack of knowledge, lack of supervision, refresher training, age of nurses, and lack of medical devices specifically scales, institutional organization and scheduling, the nature of IMCI strategy, nurses' perception and interest in implementing IMCI.

The facilitators for IMCI implementation were younger age of nurses, married status, refresher training and availability of essential drugs without stock out, IMCI school attendance, nurses' interest in applying IMCI.

The nature of IMCI, age of nurses, their perception and interest in applying IMCI were found to be significantly associated with IMCI implementation.

6.2. RECOMMENDATIONS

IMCI is an important strategy in dealing with child health holistically the recommendations to scale it up and mandate the sustainability are addressed to:

1. **MINISTRY OF HEALTH AND PARTNERS**:

To the ministry labor and ministry of health human resources managers to make a plan to recruit an appropriate number of nurses to work in health centers, plan trainings for nurses to meet at least the WHO IMCI training coverage, then organize uninterrupted, sustainable channel of supply medical devices to allow IMCI be complete.

2. **EDUCATION**

Reinforce IMCI theoretical and practical teaching, learning, evaluation to produce competent graduate nurses.

3.MASAKA DISTRICT HOSPITAL AUTHORITY

To the director general of Masaka district hospital to work hand in hand with Ministry of Health to request and supply needed materials. Reinforce regular on-site supportive supervision.

4. HEALTH CENTERS' MANAGERS

To the head of health centers, to inspire and encourage their followers to implement IMCI accurately, take into account to the specificity of IMCI in daily scheduling, report to the district Hospital early any challenges met including lack of drugs, materials

5. RESEARCHERS

A mixed study on a larger population to explore more barriers to IMCI implementation, an observational study to evaluate the adherence to IMCI strategy**,** a more deep national study to evaluate the situation of IMCI.

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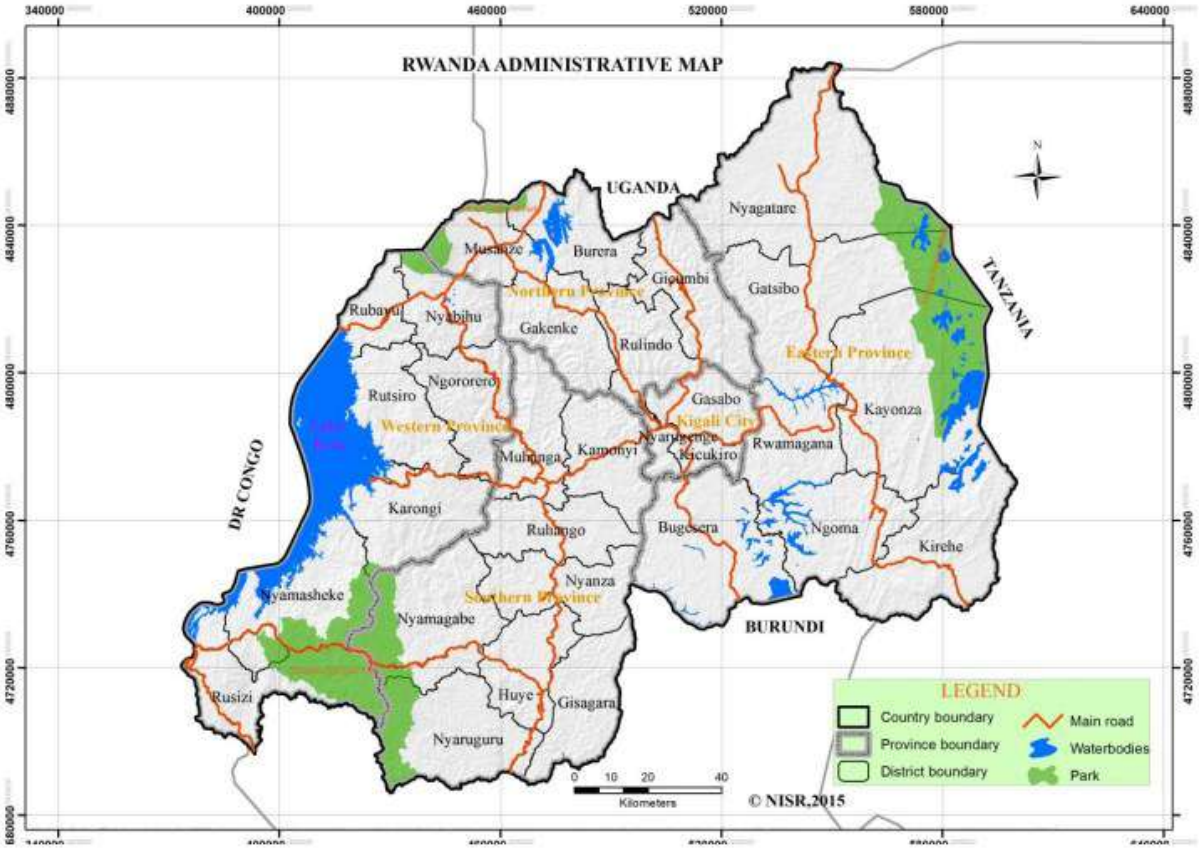
APPENDICES

1. MAP


RWANDA ADMINISTRATIVE MAP
UGANDA
TANZANIA
DR CONGO
BURUNDI
Nyagatare
Musanze
Burera
Gicumbi
Gatsibo
Rubavu
Nyabihu
Gakenke
Rulindo
Eastern Province
Ngororero
Rutsiro
Gasabo
Kayonza
Western Province
Kigali City
Nyarugenge
Rwamagana
Muhanga
Kamonyi
Kicukiro
Karongi
Ruhango
Bugesera
Ngoma
Kirehe
Nyanza
Nyamasheke
Southern Province
Nyamagabe
Rusizi
Huye
Gisagara
Nyaruguru
LEGEND
Country boundary
Province boundary
District boundary
Main road
Waterbodies
Park
0 10 20 40
Kilometers
© NISR,2015
N
340000
400000
460000
520000
580000
640000
4880000
4840000
4800000
4760000
4720000
4680000

2. QUESTIONNAIRE

ENGLISH VERSION

All questionnaires are completed anonymously. We would appreciate if you answer all the questions and answer as honestly as possible.

PART 1: Socio-Demographic related Questionnaires for nurses.

Please circle on the number you select that best answers the question. Kindly make only one selection unless otherwise instructed.

Ser.no	**Socio-Demographic**	**Response**
1.01	Sex	1. Male 2. Female
1.02	Age in years	1.20-30 2.31-40 3.41-50 4.51 and above
1.03	Religion	1. Catholic 2. Muslim 3. Protestant 4. Other(specify)__
1.04	level of qualification	1. MSc 2. BSc 3. Diploma 4. Other (specify) ____

1.05	Working experience	1.0-5 years 2.6-10 years 3.11-15 4.Above 15years
1.06	Marital status	1. Married 2. Single 3. Divorced 4. Widowed 5. Separated

PART TWO: INSTITITIONAL FACTORS

The following are institutional factors in IMCI strategy implementation			
Availability of facilities, infrastructure in good condition for IMC		**Yes**	**No**
2.01	There is no particular room for IMCI		
2.02	Available IMCI room is not enough		
2.03	There is no register reserved for IMCI		
2.04	Sometimes we experience stock out of IMCI registers		
Availability of medical devices			
2.05	There is baby length board available in IMCI room		
2.06	There is Infant weighing scale available		

	in IMCI room		
2.07	There is Child weighing scale available in IMCI room		
2.08	There is spring scale available in IMCI room		
2.09	There is Thermometer available in IMCI room		
2.10	There is Pediatric Blood pressure meter with cuff available in IMCI room		
2.11	There is respiratory timer for acute respiratory infections available in IMCI room		
Availability of essential drugs		Yes	No
2.12	In your facility all essential drugs for under 5 cases management are available?		
2.13	Do you experience stock out of some essential drugs for under 5 in your facility?		
Institutional organization			
2.14	Always a nurses to care for under five is planned or scheduled		
2.15	Sometimes adult patient and under five are registered in the same book or register		
Other institutional factors: on your own view circle all the perceived challenges in implementation of IMCI at your institution:			

2.16	What are the main challenges in implementing the IMCI strategy at your facility?	1. Shortage of staff 2. Time consuming 3. Our health facility is not fully equipped to support the use of the IMCI-strategy procedures 4. Untrained staff 5. Lack of supervision 6. Lack of knowledge 7. Lack of good attitude of nurses 8. Lack of organization 9. Other please specify …….....

PROVIDERS FACTORS

Please circle on the number you select that best answers the question or statement		
Training factors		
2.17	Have you ever understood about IMCI strategy?	**1**.Yes 2.No
2.18	If yes where have you got information about IMCI	1. School 2. Media **3.** Training(other than school)
2.19	Have you attended IMCI training?	1. Yes 2. No
2.20	If yes to # 220, which IMCI training did you receive?	1 Pre service training 2. In service
2.21	When you last attended training (Year and month of training)?	1…….Months ago 2……Years ago
2.22	What was the duration of IMCI training?	1. Bellow 6days 2. 6days 3. Above 6 to 11days 4. Over 11days

2.23	Have you received IMCI refresher training?	1. Yes 2. No
2.24	All IMCI trained nurses at our health facility apply all the stages of the IMCI protocol during case management of children under 5 years in register	1. Yes 2.No
2.25	The case management practices of IMCI trained nurses and non-IMCI trained nurses are inconsistent; hence guardians of under 5s prefer to be seen by nurses who are not IMCI trained.	1.Yes 2.No

Perception and willing factors						
To what extent do you agree with the following statements?						
		Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
2.26	If I apply all the stages of the IMCI case Management process to all under 5 patients, I will be able to see only a handful of them because of the patient -nurse ratio.					
2.27	Because most of the time I care for adult and under five in one room, If I apply all the stages of the IMCI case					

	management process to all under patients, I would not be able to attend to all other patients who are not under 5s due to the patient-nurse ratio.					
2.28	It is not practical to always refer to the IMCI chart booklet in the clinic during case management of every presentation.					
2.29	IMCI protocol is too long					
2.30	IMCI protocol is tedious/boring					
2.31	IMCI is time-consuming					
2.32	IMCI is not practical to use at our health facility					
2.33	IMCI is difficult to understand and apply					
2.34	I am not interested in applying IMCI strategy					

PART.3. Question related to nurses' experience in implementing the IMCI strategy

	How often the following case management steps or skills of the IMCI case management process do you find difficult to practice?			
		always	sometimes	Not difficult
3.01	Assess the child's condition using IMCI strategy			
3.02	Classify the child's illness using IMCI strategy			
3.03	Identify treatment using IMCI strategy			
3.04	Treat the child using IMCI strategy			
3.05	Counsel the caretaker using IMCI strategy			
3.06	Provide follow-up care			
How often do you perform the following IMCI activities?				
		always	**sometimes**	**Never**
3.07	Checking for vaccination ,Vit A and deworming			
3.08	Checking for danger signs			
3.09	Checking for pallor			
3.10	Assessing fever			
3.11	Assessing diarrhea			
3.12	Assessing malaria			

3.13	Assessing cough and breathing difficulties			
3.14	Weighing the children			
3.15	Assessing malnutrition			
3.16	Checking weight against the chart			
3.17	Assess ear problems			
3.18	Check HIV status			
3.19	Assess other problems			

Consent to Participate in a Research Study

Title: Factors influencing the implementation of integrated management of childhood illness among nurses working at health center level in a selected health district in RWANDA.

Investigators: NYIRANGORORE Francine

Department: General nursing

Phone: +250783771169/ +250728771170

Email: ngororeft@gmail.com

INTRODUCTION

You are being asked to be in a research study exploring factors influencing the integrated management of childhood illnesses among nurses working at health level in your district.

You were selected as a possible participant because you are a nurse working in a health center, and in way or an other you sick under-fives on your day and / or night and/or weekend duties during your daily activities.

We ask that you read this form and ask any questions that you may have before agreeing to be in the study.

PURPOSE

The purpose of the study is to explore institutional factors, health care providers factors affecting the integrated management of childhood illnesses implementation at health center level

After getting data, they will be published and decision should be made accordingly.

Description of the Study Procedures

If you agree to be in this study, you will be asked to fill the honestly the questionnaire in Kinyarwanda, French or English, that will take you around 20min .

Risks/Discomforts of Being in this Study

The study has no reasonable foreseeable (or expected) risks. There may be unknown risks.

Benefits of Being in the Study

The benefits of participation are to make aware of nurses challenges in implementing IMCI in your health center, so that advocacy can be made to improve its coverage in treating under-fives.

Confidentiality

This study is anonymous. We will not be collecting or retaining any information about your identity.

The records of this study will be kept strictly confidential. Research records will be kept in a locked file, and all electronic information will be coded and secured using a password protected file. We will not include any information in any report we may publish that would make it possible to identify you.

Payments

No payment will be provided to participants

Right to Refuse or Withdraw

The decision to participate in this study is entirely up to you. You may refuse to take part in the study *at any time* without affecting your relationship with the investigators of this study . Your decision will not result in any loss or benefits to which you are otherwise entitled. You have the right not to answer any single question.

Right to Ask Questions and Report Concerns

You have the right to ask questions about this research study and to have those questions answered by me before, during or after the research. If you have any further questions about the study, at any time feel free to contact me, on ***email*** or by telephone on ***phone number provided***. If you like, a summary of the results of the study will be sent to you.

FRENCH VERSION

Consentement à participer à une étude de recherche

Titre: Facteurs influant sur la mise en œuvre de la gestion intégrée des maladies infantiles chez les infirmières travaillant au niveau des centres de santé dans un district de santé sélectionné au RWANDA.

Investigateur: NYIRANGORORE Francine
Département: Soins infirmiers généraux
Téléphone: + 250783771169 / +250728771170
Email: ngororeft@gmail.com

INTRODUCTION

On vous demande de participer à une étude de recherche sur les facteurs influant sur la gestion intégrée des maladies infantiles (PCIME) chez les infirmières travaillant dans le secteur de la santé dans votre district.

Vous avez été sélectionné comme participant potentiel parce que vous êtes une infirmièr(e) travaillant dans un centre de santé et, d'une manière ou d'une autre, que vous soigner les enfants de moins de cinq ans le jour et / ou la nuit et / ou le week-end pendant vos activités quotidiennes.

Nous vous demandons de lire ce formulaire et de poser toutes les questions que vous pourriez avoir avant d'accepter de participer à l'étude.

OBJECTIF

Le but de l'étude est d'explorer les facteurs institutionnels, les facteurs des fournisseurs de soins de santé affectant la Prise en charge intégrée des maladies infantiles au niveau des centres de santé.

Après avoir obtenu les données, elles seront publiées et une décision devra être prise en conséquence.

Description des procédures de l'étude

Si vous acceptez de participer à cette étude, il vous sera demandé de remplir honnêtement le questionnaire en français ou en anglais, ce qui vous prendra environ 20 minutes.

Risques / inconforts d'être dans cette étude

L'étude ne présente aucun risque raisonnable prévisible (ou prévu). Il peut y avoir des risques inconnus.

Avantages d'être dans l'étude

Les avantages de la participation sont de sensibiliser les centres de santé aux problèmes rencontrés par les infirmières lors de la mise en œuvre de la PCIME, afin que des activités de plaidoyer puissent être menées pour améliorer sa couverture du traitement des moins de cinq ans.

Confidentialité

Cette étude est anonyme. Nous ne collecterons ni ne conserverons aucune information concernant votre identité.

Les archives de cette étude resteront strictement confidentielles. Les dossiers de recherche seront conservés dans un fichier verrouillé et toutes les informations électroniques seront codées et sécurisées à l'aide d'un fichier protégé par mot de passe. Nous n'inclurons aucune information dans les rapports que nous pourrions publier permettant de vous identifier.

Paiements

Aucun paiement ne sera fourni aux participants

Droit de refuser ou de se retirer

La décision de participer à cette étude est entièrement à vous. Vous ne pouvez pas prendre part à l'étude à tout moment sans affecter votre relation avec les investigateurs de cette étude. Votre décision n'entraînera aucune perte ni aucun avantage auxquels vous avez par ailleurs droit. Vous avez la bonne réponse à une seule question.

Droit de poser des questions et de faire part de ses préoccupations

Vous devez poser des questions sur cette étude de recherche et est répondu(e) avant, pendant ou après la recherche. Si vous avez d'autres questions concernant l'étude, n'hésitez pas à me contacter à tout moment, par courrier électronique ou par téléphone au numéro de téléphone fourni. Si vous le souhaitez, un résumé des résultats vous sera envoyé.

Consentement

Votre signature ci-dessous indique que vous êtes un volontaire participant à la recherche pour cette étude et que vous avez lu et compris les informations fournies ci-dessus. Vous recevrez une copie datée et signée de ce formulaire à conserver ainsi que tout autre support imprimé jugé nécessaire par les enquêteurs de l'étude.

Nom du sujet (en caractères d'imprimerie):

.....

Date .....

Signature du sujet: .....

Enquêteur .....

Signature: ....

Questionnaire

Tous les questionnaires sont remplis de manière anonyme. Nous vous serions reconnaissants de répondre à toutes les questions et de répondre le plus honnêtement possible.

PART 1: Socio-Demographic related Questionnaires nurses.

Please circle on the number you select that best answers the question. Kindly make only one selection unless otherwise instructed.

Ser.no	sociodémographique	**Réponse**
101	Sexe	1. Male 2. Feminin
102	Age	1 20-30

		2.31-40 3.41-50 4.51 and above
103	Religion	1. Catholique 2. Musliman 3. Protestant 4. Autres (Précisez……
104	Niveau de qualification	1. MSc 2. BSc 3. Diploma 4. Autres (precisez)……
105	Etat civil	1. Marié 2.Celibatire 3.Divorcé 4.Veuf 5. Séparé

Deuxième partie: Facteurs institutionnaires

Les éléments suivants sont des facteurs institutionnels dans la mise en œuvre de la stratégie PCIME		
Disponibilité des installations, infrastructure en bon	**oui**	**Non**

état pour PCIME			
201	Il n'y a pas de place particulière pour la PCIME		
202	La salle PCIME disponible ne suffit pas		
203	Il n'y a pas de registre réservé à la PCIME		
204	Parfois, nous avons des rupture de stocks de registres PCIME		
Disponibilité des dispositifs médicaux			
205	Il n'y a pas de toise pour enfant dans la salle de PCIME		
206	Il n'y a pas de balance pour bébé disponible dans la salle PCIME		
207	Il n'y a pas de balance pour enfant disponible dans la salle IMCI		
208	Il n'y a pas de balance à ressort disponible dans la salle		
209	Il n'y a pas de thermomètre disponible dans la salle PCIME		
210	Il n'y a pas de tensiomètre pédiatrique avec brassard disponible dans la salle PCIME		
211	Il n'y a pas de minuterie (timer) respiratoire pour les infections respiratoires aiguës disponibles dans la		

	salle.		
Disponibilité des médicaments essentiels		OUI	Non
212	Toujours tous les médicaments essentiels pour gestion de cas de moins de 5ans sont disponibles		
213	Parfois, il y a rupture de stocks de médicaments essentiels pour les moins de 5 ans		

organization Institutionnelle			
214	Toujours un(e) infirmièr(e) qui va s'occuper des enfants de moins de cinq ans est prévu(e) ou prévu(e)		
215	Parfois, une infirmière pour s'occuper de moins de cinq ans n'est pas planifiée		
216	Parfois, un patient adulte et moins de cinq ans sont inscrits dans le même livre ou registre		
Autres facteurs institutionnels: selon vous, relevez le défi perçu dans la mise en œuvre de la PCIME dans votre institution: :			
217	Quels sont les principaux défis dans la mise en œuvre de la stratégie PCIME dans votre	1. Pénurie de personnel 2. Consomme plus de temps 3. Notre établissement de santé n'est pas entièrement équipé pour prendre en charge	

	établissement?	l'utilisation de procédures de stratégie de la PCIME 4. Personnel non formé 5. Manque de supervision 6. Manque de connaissance 7. Manque de bonne attitude des infirmières 8. Manque d'organisation 9.veuillez préciser …….....

FACTEURS LIES AU PRESTATAIRES

Veuillez encercler le numero correspondant aux meilleures reponses		
Training factors		
2.18	Avez-vous entendu PCME?	**1**.Oui 2.Non
2.19	Si oui, ou est ce que Avez-vous reçue l'information concernant PCIME?	1. Ecole 2. Media 3. Formation
2.20	Avez-vous eu la formation sur PCIME?	1. OUI 2. Non
2.21	Si OUI # 204, quelle formation PCIME avez-vous	1. Formation pre

	reçue?	service 2.En service
2.22	Quand Avez-vous eu votre dernière formation (années et mois de formation)?	……mois passés ……années passées
2.23	Quelle était la durée de la formation ?	1. Below 6jours 2.6jours 3.Plus 6 a 11jours 4.Plus de 11jours
2.24	Avez-vous reçu une formation de recyclage PCIME ?	1. OUI 2. Non
2.25	Toutes les infirmières de notre structure de santé formées par la PCIME appliquent toutes les étapes du protocole PCIME pendant la prise en charge des enfants de moins de 5 ans inscrits au registre	1.OUI 2.Non
2.26	Les pratiques de gestion des cas pour infirmières formées sur la PCIME et des infirmières non formées sur la PCIME sont incohérentes. les gardiens des enfants de moins de 5 ans préfèrent donc être vus par des infirmières qui ne sont pas formées sur la PCIME	1.OUI 2.Non

Facteurs de Perception et volonté						
Dans quelle mesure êtes-vous d'accord avec les affirmations suivantes?						
		Fortement accord	Accord	Neutre	En désaccord	Fortement en désaccord
2.27	Si j'applique toutes les étapes du processus de prise en charge de la PCIME à tous les patients de moins de 5 ans, je ne pourrai en voir qu'une poignée en raison du ratio infirmière-patient					
2.28	Parce que dans la plupart des cas, je prends soin des adultes et des enfants de moins de cinq ans dans une même salle. Si j'applique toutes les étapes du processus de prise en charge de la PCIME à tous les patients, je ne pourrai pas au ratio patient / infirmière.					
2.29	Il n'est pas pratique de toujours se référer au livret de la PCIME lors de la prise en charge de chaque présentation.					

2.30	protocole IMCI est trop long					
2.31	Le protocole IMCI est fastidieux / ennuyeux					
2.32	L'IMCI prend beaucoup de temps					
2.33	IMCI n'est pas pratique à utiliser dans notre établissement de santé					
2.34	La PCIME est difficile à comprendre et à appliquer					
2.35	Je ne suis pas intéressé par l'application de la stratégie IMCI					

PART.3. Question relative à l'expérience des infirmières dans la mise en œuvre de la stratégie PCIME	À quelle fréquence trouvez-vous les étapes ou les compétences de gestion de cas suivantes du processus de gestion de la PCIME, , difficiles à mettre en pratique?			
		Toujours	Parfois	Pas difficile
3.01	Évaluer la condition de l'enfant à l'aide de la stratégie PCIME			
3.02	Classer la maladie de l'enfant à l'aide de la stratégie PCIME			
3.03	Identifier le traitement à l'aide de la stratégie PCIME			
3.04	Traiter l'enfant en utilisant la stratégie PCIME			
3.05	Conseiller le gardien en utilisant la stratégie PCIME			

3.06	Fournir des soins de suivi			
À quelle fréquence effectuez-vous les activités PCIME suivantes?				
		Toujours	**Parfois**	**Jamais**
3.07	Vérification de la vaccination			
3.08	Vérification des signes de danger			
3.09	Vérification de la pâleur			
3.10	Évaluation de la fièvre			
3.11	Evaluation de la diarrhée			
3.12	Évaluation du paludisme			
3.13	Évaluation de la toux			
3.14	Peser les enfants			
3.15	Évaluation de la malnutrition			
3.16	Vérification du poids contre la carte			
3.17	Evaluer des problèmes d'oreilles			
3.18	Evaluer l'état sérologique			
3.19	Evaluer autres problèmes			

UNIVERSITY OF RWANDA **COLLEGE OF MEDICINE AND HEALTH SCIENCES**

CMHS INSTITUTIONAL REVIEW BOARD (IRB)

Kigali, 14/01/2019
Ref: CMHS/IRB/**051**/2019

NYIRANGORORE Francine

School of Nursing and Midwifery, CMHS, UR

Dear NYIRANGORORE Francine

RE: ETHICAL CLEARANCE

Reference is made to your application for ethical clearance for the study entitled ***"Factors Influencing The Implementation Of Integrated Management Of Childhood Illnesses Among Nurses Working At Health Center Level In A Selected District Hospital."***

Having reviewed your protocol and found it satisfying the ethical requirements, your study is hereby granted ethical clearance. The ethical clearance is valid for one year starting from the date it is issued and shall be renewed on request. You will be required to submit the progress report and any major changes made in the proposal during the implementation stage. In addition, at the end, the IRB shall need to be given the final report of your study.

We wish you success in this important study.

Professor Jean Bosco GAHUTU
Chairperson Institutional Review Board,
College of Medicine and Health Sciences, UR

Cc:
- Principal College of Medicine and Health Sciences, UR
- University Director of Research and Postgraduate Studies, UR

REPUBLIC OF RWANDA

Masaka 01/03/2019
REF 229.../MSK/DH/2018

KIGALI CITY
DISTRICT KICUKIRO
HOPITAL MASAKA
B.P 3472 KIGALI
E-mail: masaka.hospital@moh.gov.rw

TO: Francine NYIRANGORORE

Re: PERMISSION TO CONDUCT DATA COLLECTION IN MASAKA DISTRICT HOSPITAL

Dear Madam,

Referring to the letter written on 25th February 2019 requesting to collect data on **«Factors influencing the implementation of integrated management of childhood illnesses among nurses working at health center level in a selected district hospital in Rwanda »** the management of Masaka District Hospital is pleased to inform you that, you have authorization to conduct data collection in our Hospital from 11/03/2019 to 04/04/2019.

Sincerely

Dr.Marcel UWIZEYE
Director General Masaka Hospital