CHALLENGES IDENTIFIED BY EXPERIENCED IMCI-1-TRAINED REGISTERED NURSES IN IMPLEMENTING THE INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESSES (IMCI) STRATEGY IN GABORONE, BOTSWANA

by

LUCIA MUNGAPEYI MUPARA

submitted in accordance with the requirements

for the degree of

MASTER OF PUBLIC HEALTH
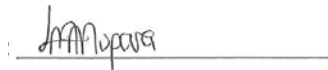
at the

UNIVERSITY OF SOUTH AFRICA

SUPERVISOR: DR JC LUBBE

JUNE 2013

DECLARATION

I declare that **CHALLENGES IDENTIFIED BY EXPERIENCED IMCI-1-TRAINED REGISTERED NURSES IN IMPLEMENTING THE INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESSES (IMCI) STRATEGY IN GABORONE, BOTSWANA** is my own work and all the sources that I have used or quoted have been indicated and acknowledged by means of complete references and that this work has not been submitted before for any other degree at any other institution.

LUCIA MUNGAPEYI MUPARA   14 January 2013
FULL NAMES   **DATE**

CHALLENGES IDENTIFIED BY EXPERIENCED IMCI-1-TRAINED REGISTERED NURSES IN IMPLEMENTING THE INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESSES (IMCI) STRATEGY IN GABORONE, BOTSWANA

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ABSTRACT

The study was a descriptive quantitative survey which endeavoured to identify challenges experienced by IMCI trained registered nurses in implementing the guidelines and procedures of the strategy when tending children under 5 years in Gaborone health district. The study also solicited for recommendations on how to address the identified challenges. The research population comprised of all the IMCI-1 trained registered nurses and systematic sampling was employed to randomly select study participants. Data were collected using a questionnaire and was analysed using Excel Advanced software package. Study findings identified challenges related to political support, cost of IMCI training, training coverage, health systems and features of the IMCI strategy. Recommendations for improving use of the strategy included garnering for more political support, adopting short duration training courses, scaling up both pre-service and in-service training as well as addressing the challenges related to health systems and the unique features of the strategy.

KEY TERMS

Challenges; IMCI, implementation; recommendations; registered nurses; children under 5 years.

ACKNOWLEDGMENTS

Dedication

I wish to dedicate this dissertation to:

- *My late father, Pastor/Teacher Felix Mupara for introducing the light of education into our clan.*
- *My mother, Rev Mrs Winnet Mupara, for the sacrifice, love and guidance.*
- *My siblings BaTanaka, BaTawanda, Baba Guy, and mainini Shamiso.*
- *My dear husband, John Mogaka, for your love and support.*
- *My "little people" Love, Hope and Faith. Having you around me made me appreciate how important it is for every mother to have their under 5 children alive and all over them. Hence this dissertation.*
- *All the under 5 children, the main reason why this study was undertaken.*

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List of abbreviations

ACSD	Accelerated Child Survival and Development
BDS	Botswana demographic survey
CREHS	Consortium for Research on Equitable Health Systems
DHT	District health team
HFS	Health facility survey
HMIS	Health Management Information System
IMCI	Integrated Management of Childhood Illness Strategy
IMCI-1	Integrated Management of Childhood Illnesses – Health Worker Component
IMCI-2	Integrated Management of Childhood Illnesses – Health Systems Component
IMCI-3	Integrated Management of Childhood Illnesses – Community Component
IMR	Infant mortality rate
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
MDGs	Millennium Development Goals
MDG4	Millennium Development Goal 4
MoH	Ministry of Health
PDMMM	Pneumonia, diarrhoea, malaria, measles, and malnutrition
PMTCT	Prevention of mother-to-child transmission
U5MR	Under-five mortality rate
UNICEF	United Nations International Children's Emergency Fund
WHO	World Health Organization

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CHAPTER 1

ORIENTATION TO THE STUDY

"Children are the world's most valuable resource and its best hope for the future"
JF Kennedy (1917-1963)

1.1   INTRODUCTION

In 1991, the under-5 mortality rate (U5MR), also known as the child mortality rate, in Botswana was 63/1,000 live births. In line with the United Nations' Millennium Development Goals (MDGs), Botswana developed its "Vision 2016", which articulates the country's developmental aspiration of "Towards Prosperity for All". This vision is guided by seven pillars, which complement the MDGs. Vision 2016's third pillar, which seeks to build a compassionate, just and caring nation, cites health, among other things, as one of its priorities. It is within this third pillar that Millennium Development Goal 4 (MDG 4) is complemented. MDG 4 addresses child mortality, which has been a major public health challenge from time immemorial. The first target of MDG 4 was to reduce the global infant mortality rate (IMR) from 48/1,000 live births in 1991 to 27/1,000 by 2011. The second target sought to reduce by two-thirds the U5MR from 63/1,000 live births in 1991 to 21/1,000 live births by 2011 (United Nations website 2012).

The United Nations, in its *Level and Trends in Child Mortality Report* of 2011, stated that the under-5 mortality rate (per 1,000 live births) in Botswana in 2010 was 47.70. Figure 1.1 depicts a graphic representation of how, over the past two decades, the child mortality rate in Botswana dropped from 63 in 1991 to 47 by 2010. Although this decrease is encouraging, it is still not on a par with the 2011 MDG 4 projections. If current strategic plans to further reduce the U5MR are not sustained, there could be a reversal of the development achievements attained thus far in child health in Botswana.
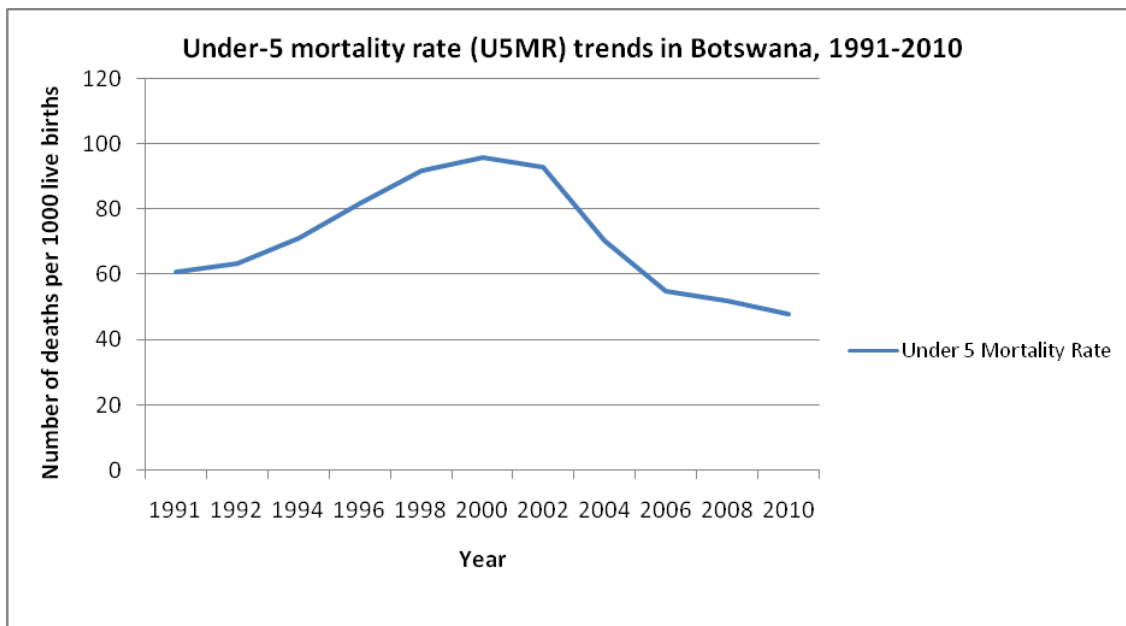
Figure 1.1: Under-5 mortality rate (U5MR) trends in Botswana, 1991-2010
(Adapted from UNICEF 2011)

In an attempt to ensure that there is no reversal in the above-mentioned achievements in child health, the Government of Botswana, through the Ministry of Health (MoH), introduced the Accelerated Child Survival and Development (ACSD) Strategic Plan intervention. One of the high-impact interventions for reducing U5MR is the Integrated Management of Childhood Illness (IMCI) strategy. It is a strategy that was formulated by the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) and was presented to the world in 1996 as the principal strategy to reduce child mortality and improve child health (WHO 2007:1).

The IMCI focuses on the care of children under 5 years of age, not only in terms of their overall health status, but also in terms of the diseases that may occasionally affect them. In addition, the IMCI incorporates a strong prevention component, and it promotes health as an integral component of care. Thus, among other benefits, it helps to increase vaccination coverage and it improves the knowledge and home-care practices of caregivers of children less than 5 years of age, thereby contributing to growth and healthy development. The main goal of the IMCI is to contribute to healthy growth and development during the first five years of life. It is currently regarded as the most efficient strategy for reducing the burden of disease and disability among the population in this age group.

The IMCI strategy was introduced into Botswana in 1997. Since then, the Government of Botswana has been committed to implementing and funding IMCI activities. Hence IMCI is part of Botswana's national health delivery system. According to the IMCI Health Facility Survey (IMCI HFS 2004:7), the IMCI working group was formed in 1997, and five (out of 24) districts were selected to pilot IMCI implementation. This was followed by a national orientation workshop to advocate the impact of the strategy in reducing infant and under-5 mortality rates. In 1998, IMCI guidelines were adapted to suit the local epidemiological situation, and in 1999 national IMCI training was conducted. Gaborone District is one of the pioneer districts in the implementation of the IMCI strategy (IMCI HFS 2004:7).

This limited-scope Master of Public Health study seeks to identify possible challenges faced by the IMCI-health-worker-component-trained (IMCI-1-trained) registered nurses in Gaborone District of Botswana in implementing the guidelines and procedures established by IMCI-1 strategy when tending to children under 5 years of age in their respective health facilities.

1.2   BACKGROUND TO THE RESEARCH PROBLEM

The researcher's concern started in 2005, when the infant mortality rate (IMR) and the U5MR in Botswana were 51 deaths and 76 deaths, respectively, per 1,000 live births Botswana Demographic Survey (BDS) (CSO 2006:74). In 2007, the WHO reported that each year more than 10 million children in low- and middle-income countries die before they reach their fifth birthday. The report added that 70% of these deaths are due to just five preventable and treatable diseases or conditions: pneumonia, diarrhoea, malaria, measles, and malnutrition (PDMMM), and often a combination of these conditions (WHO 2007:1). The most recent data (2010) indicate successes where the U5MR declined to 36.1/1,000 live births in Botswana (United Nations Statistics Divisions 2012). The World Bank website indicated that the number of children that died in 2010 and 2011 has since declined to 7.6 million and 6.9 million, respectively (World Bank 2011). Botswana's ACSD Strategy Plan for 2009/2010-2015/2016 (2009:20) revealed that the same five preventable and treatable conditions are still the leading causes of child mortality.

The ACSD Strategy Plan reported that Botswana has attained high coverage of most child survival interventions. It stated that 90% of children are fully immunised by 1 year of age, 97% of pregnant women attend antenatal care clinics, and 98.5% of deliveries take place under skilled attendance. The report also indicated that Botswana has led the way in the implementation of the prevention of mother-to-child transmission of HIV (PMTCT) programme, with 89% of HIV-infected pregnant women receiving antiretroviral drugs to prevent mother-to-child transmission. Currently, the Government of Botswana gives free immunisations, medical treatment, and food (formula and porridge) to all children under the age of 5 years (ACSD Strategy Plan for 2009/2010-2015/2016 2009:10). However, despite all these seemingly successful measures that are in place, the child mortality in Botswana in 2010 remained at a concerning high rate of 47/1,000 live births (United Nations Statistics Divisions 2012).

The Government of Botswana has embraced the IMCI-1 strategy, which presents a unique public health opportunity, in that it is an integrated approach to child health that focuses on the well-being of the whole child. IMCI aims to reduce death, illness, and disability, and to promote improved growth and development among children under 5 years of age. IMCI includes both preventive and curative elements, which are implemented by families and communities, as well as by health facilities. Thus, it reduces missed opportunities for the early detection and treatment of diseases that can escape the notice of both parents and health workers (UNICEF 2005:26).

In 2004, the latest Botswana IMCI Health Facility Survey (IMCI HFS 2004:6) cited the Human Development Report of 2004 (HDR 2004) that stated that under-5 mortality was largely attributed to the HIV/AIDS epidemic. Botswana adapted the standard IMCI clinical guidelines to the country's needs, by including HIV, in addition to the preventable five killer diseases addressed by IMCI (that is, pneumonia, diarrhoea, malaria, measles, and malnutrition). Hence, the IMCI strategy in Botswana addresses most but not all health problems or complications related to HIV.

Projections based on the 1996 analysis published under the title *The global burden of disease* indicate that the above five killer conditions will continue to be major contributors to child deaths by the year 2020 unless significantly greater efforts are made to control them (WHO 2006:ix). These killer conditions will account for 52% of under-5 deaths by 2020 unless efforts are accelerated to address them.

With the introduction and ongoing implementation of the life-saving IMCI strategy, the researcher seeks to establish whether there are any challenges encountered by registered nurses who have been trained in the IMCI-1 strategy in implementing the guidelines and procedures established by the strategy when tending children under 5 years of age in their respective health facilities.

From the time that the researcher was trained in the IMCI facilitation course in January 2009, several colleagues have informally shared their concerns with the researcher that they cannot implement the strategy as envisaged. The researcher therefore believes that it is important to identify the difficulties faced by the IMCI-1-trained registered nurses in Gaborone Health District of Botswana in implementing the guidelines and procedures established by the IMCI-1 strategy when tending children under 5 years in their respective health facilities. This could lead to the forwarding of relevant recommendations to address the identified challenges. This could help to further decrease childhood morbidity and mortality caused by preventable and treatable conditions.

In addition, the researcher could not find documented research findings on the recommendations to improve and promote the implementation of the stipulated guidelines and procedures of the IMCI strategy in Botswana. This research study will thus be explorative in nature, because it aims to explore a subject which is relatively new (Burns & Grove 2009:139).

1.3   STATEMENT OF THE PROBLEM

Although infant mortality and under-5 mortality rates in Botswana are gradually declining, most of the child deaths in the country are still due to the same preventable conditions, which should be addressed by the procedures and guidelines stipulated by the IMCI strategy. There has been ongoing IMCI-1 training of the health service workers in Botswana since 1999 (IMCI HFS 2004:7). The researcher has not found documented research findings that identify possible challenges in the implementation of the IMCI strategy by the IMCI-1-trained registered nurses. The researcher therefore seeks to ascertain whether the IMCI-1-trained registered nurses are facing any difficulties in implementing the set guidelines and procedures of this strategy when tending to children less than 5 years of age.

1.4   PURPOSE OF THE STUDY

The purpose of this study is to identify possible challenges encountered by registered nurses who have been trained in the IMCI-1 strategy in implementing the procedures established by the strategy when tending to children under 5 in their respective health facilities.

1.4.1 Research objectives

The objectives of this research are:

- To identify the challenges experienced by IMCI-1-trained registered nurses in implementing the procedures stipulated by the IMCI-1 strategy in caring for children under 5.
- To make relevant recommendations to the Department of Public Health in Gaborone Health District for the promotion and improvement of the implementation of the procedures of the IMCI-1 strategy by IMCI-1-trained registered nurses.

1.4.2 Research questions

The following two research questions guided the study:

(1)   What are the challenges experienced by IMCI-1-trained registered nurses in implementing the procedures established by IMCI-1 for the care of children under 5?

(2)   How can the implementation of the guidelines and procedures of the IMCI-1 strategy be improved?

1.5   SIGNIFICANCE OF THE STUDY

This study seeks to identify the challenges faced by the IMCI-1-trained registered nurses in Gaborone District when implementing the guidelines and procedures established by the IMCI-1 strategy. The findings could indicate the challenges faced by

IMCI implementers in Botswana, and could assist in the making of recommendations to policy makers and health planners on how to solve possible problems identified. Addressing the challenges experienced by the registered nurses could contribute to a further lowering of child mortality in Botswana.

1.6   DEFINITION OF KEY CONCEPTS

For the purposes of this study, the following terms will be used, as defined below:

- **Child mortality**

The Collins Paperback Dictionary (2009:510) defines mortality as the condition of being mortal, or susceptible to death. For the purposes of this study, child mortality, also known as under-5 mortality, refers to the death of infants and children under the age of 5 years.

- **Implementing**

The Oxford Advanced Learner's Dictionary (2011:695) defines implementation as the realisation of an application, or the execution of a plan. For the purposes of this research, implementing means the application of all the guidelines and procedures laid out by the IMCI strategy, and in the order in which they are laid out.

- **Integrated Management of Childhood Illnesses (IMCI) strategy**

The IMCI strategy is an integrated approach to child health that holistically focuses on the well-being of the whole child. The IMCI strategy aims to reduce illness, disability, and death, and to promote improved growth and development among children under 5 years of age. The strategy includes both preventive and curative elements that are implemented by families, communities, and health care facilities (WHO 2007:17). For the purposes of this study, the same meaning will be adopted.

- **IMCI-1 components**

The IMCI strategy is made up of three components, namely a health worker component (IMCI-1), a health systems component (IMCI-2), and a community component (IMCI-3) (WHO 2007:8). For the purposes of this study, IMCI-1 will refer to the health worker component of the IMCI strategy, which seeks to improve the performance of health workers when tending children under 5 years and their families.

- **IMCI-1-trained registered nurses**

For the purposes of this research, "IMCI-1-trained registered nurses" refers to diploma and degree holders in nursing who are registered with the Botswana Nursing Council and who have successfully completed the IMCI health worker component training.

- **Sick child**

In this study, "sick child" refers to a child aged 2 months up to 5 years who presents with signs and symptoms related to any of the five killer conditions, namely PDMMM (WHO 2007:23).

- **Sick infant**

For the purposes of this study, "sick infant" refers to a child aged birth up to 2 months who presents with signs and symptoms related to any of the five killer conditions, namely pneumonia, diarrhoea, malaria, measles, and malnutrition (WHO 2007:23).

1.7 PARADIGMATIC FOUNDATION OF THE STUDY

This study is based on three main assumptions of positivist paradigms, namely ontological, axiological and methodological assumptions.

1.7.1 Assumptions

Burns and Grove (2009:688) define assumptions as statements taken for granted or considered true even though they have not been scientifically tested. Assumptions can

also be said to be "basic principles that are assumed to be true based on logic and reason, without proof or verification" (Polit & Beck 2012:15). The sources of assumptions are universally accepted truths, theories, previous research, and nursing practice (Burns & Grove 2009:40). The main advantage of recognising assumptions is to influence the development and implementation of the research process, as well as the logic of the study. Hence, the recognition of assumptions leads to the development of a more rigorous study (Burns & Grove 2009:40).

1.7.1.1   Ontological assumptions

Ontological assumptions are assumptions that question the nature of reality. Polit and Beck (2012:13) explain that the logical view assumes that reality exists, that there is a real world driven by real natural causes and ensuing effects. The fundamental assumption of positivists is that there is a reality out there that can be studied and known. The ontological assumptions of reality underlying this study were that:

- The IMCI strategy guidelines and procedures provided by the WHO and UNICEF are constant and adaptable to any local epidemiological trend.
- An integrated approach to the case management of under-5 patients is superior to single-diagnosis approaches.
- In implementing the guidelines and procedures of the IMCI strategy, the IMCI-1-trained registered nurse faces challenges, and that these challenges can be studied, identified, and known.
- Possible solutions to the identified challenges can be reached if sought, and that if the challenges faced by IMCI-1-trained registered nurses are addressed, this could help to reduce the under-5 morbidity and mortality rates.

1.7.1.2   Axiological assumption

Axiological assumptions are assumptions that seek to uphold the role of values in research. According to Polit and Beck (2012:12), the positivistic scientific approach to research involves using orderly, disciplined procedures with tight controls of the research situation to test the researcher's hunches about the phenomena being studied and relationships among them. In this study, the axiological assumption was that:

- Quantitative studies uphold objectivity and attempt to hold the researcher's personal beliefs, values, feelings, opinions, experiences, and perceptions in check to avoid contamination of the phenomenon under study and of the research findings.

1.7.1.3 *Methodological assumptions*

Methodological assumptions question the manner in which evidence is best obtained. Such assumptions emphasise the use of measured quantitative information, deductive processes, theory verification, a fixed pre-specified design, representative samples, statistical analysis, and generalisation of research findings. In this study, the methodological assumptions were that:

- Quantitative studies are synonymous with precise measurement, the quantification of phenomena, and rigorous and tight controls over the research context.
- The use of survey studies, particularly the use of a questionnaire, is best for obtaining information about views, personal practices, experiences, beliefs, opinions, and ideas.

1.8 RESEARCH DESIGN AND METHODOLOGY

In this study, a quantitative research design was used. Burns and Grove (2009:22) define quantitative research as a formal, objective, systematic process in which numerical data are used to obtain information about the world, usually under conditions of considerable control. Quantitative research is suitable for the description of variables such as knowledge. In order to determine the challenges experienced by the IMCI-1-trained registered nurses in implementing the IMCI strategy, an explorative and descriptive study was used. The same approach was employed to solicit for recommendations on how to improve and promote the implementation of these procedures and guidelines.

The target population for this study was all the registered nurses in Gaborone Health District who are trained in the health worker component of the IMCI strategy and are tending children under 5 years of age in their current station of duty. The researcher

used systematic sampling to select the sample for the study. The study setting was all of the 15 clinics in Gaborone Health District where the IMCI-1-trained nurses are deployed. The researcher considered this setting to be appropriate for this study, because it is a natural setting where there is no control over the setting or the participants.

A questionnaire was used to extract information on the possible challenges faced by the IMCI-trained registered nurses in implementing the IMCI strategy and to solicit for relevant recommendations on how to improve the implementation of this strategy. Data from the closed questions was analysed using the Excel Advanced computer program. Descriptive statistics such as frequency distributions, measures of central location, and measures of dispersion were employed to describe and summarise the data.

1.9 AUTHENTICITY OF THE STUDY

The authenticity and the trustworthiness of any research study depend on the validity and reliability of the methods used to collect and interpret the data (Brink 2009:145). Validity is the extent to which the research instrument actually measures what it claims to measure and accurately represents what is really happening in the situation. In this study, the researcher improved validity through observing all four of the principal assessment strategies, namely face validity, content validity, internal validity, and external validity.

Reliability is concerned with the consistency and stability of the research instrument (Brink 2009:145). The three major characteristics of reliability, namely stability, homogeneity, and equivalence, were upheld to ensure the reliability of the study.

Chapter 3 discusses the measures of reliability and validity in more detail.

1.10 OVERVIEW OF ETHICAL CONSIDERATIONS

Research ethics is the system of moral values that is concerned with the degree to which research procedures adhere to professional, legal and social obligations towards the study participants and the community at large (Polit & Beck 2012:502).

Permission to carry out the research was obtained from:

- The Research and Ethics Committee of the University of South Africa.
- The Health Research and Development Division of the Botswana Ministry of Health.

The ethical principles of respect for persons, beneficence, and justice, as described by Polit and Beck (2012:499), were adhered to in the following ways (these principles are elaborated on in Chapter 3.

- The right to self-determination was ensured by informing all prospective research subjects that they have the liberty to decide whether to participate in the research, without the risk of incurring a penalty or prejudicial treatment.
- The ethical principles of voluntary participation and protection of the participants from harm were observed through obtaining informed and signed consent from each subject before they proceeded to answer the questionnaires.
- To ensure anonymity, no names or personal addresses were included in the data-collection tools.
- Data collected were stored safely on a personal computer with restricted access governed by password protection, they were treated with confidentiality, and they were not used for any other purpose outside of this research.
- Study participants were informed of their right to withdraw from the study at any time, without providing any reason and without incurring any disadvantages.

1.11   STRUCTURE OF THE DISSERTATION

This dissertation of limited scope consists of the following chapters:

Chapter 1: Orientation to the study

This chapter provides an overview of the research problem, the purpose and significance of the study, the research design and methodology, and the theoretical foundation of the study.

Chapter 2: Literature review

This chapter gives a comprehensive review of the literature related to the subject under investigation.

Chapter 3: Research design and methodology

This chapter presents the researcher's overall plan for addressing the research questions and objectives, measures taken to ensure the reliability and validity of the findings, and ethical considerations observed.

Chapter 4: Data presentation, analysis and interpretation

This chapter presents the research findings, and it explains how the data were analysed and interpreted.

Chapter 5: Findings, limitations, and recommendations

This final chapter presents a discussion of the findings, as well as conclusions and recommendations, and it answers the research questions.

1.12 CONCLUSION

This first chapter introduced the IMCI strategy, which was formulated as a response to the global public health challenge of childhood mortality. It was against this background that the aim of the study, the research objectives, and the research questions were developed. Definitions were provided of the key concepts used in this study. The chapter also explained the research methodology, study design, study setting and population, sampling plan, data-collection plan, data-analysis plan, and ethical considerations observed.

In the following chapter, the researcher will review literature on studies conducted on global child mortality, child mortality in Botswana, and the IMCI strategy (its background, goals, objectives, content, components, and process) and its implementation in Botswana. The researcher will also review documented challenges experienced by other health workers in implementing the strategy in other countries, as well as proposed recommendations. The literature review forms an important chapter in a thesis, where its purpose is to provide a background to the research and a justification for the research (De Vos, Strydom, Fouche & Delport 2011:231).

CHAPTER 2

LITERATURE REVIEW

2.1   INTRODUCTION

In this literature review chapter, the researcher provides an overview of the IMCI strategy, its background, goals, objectives, content, components, benefits, advantages, and processes. This chapter also reviews IMCI implementation globally and in Botswana, and the challenges faced by IMCI implementers in a few selected countries. The researcher also reviews relevant recommendations offered by other countries on how to improve and promote the use of the IMCI strategy.

Burns and Grove (2009:108) define a literature review as a systematic identification, location, scrutiny, and summary of written materials that contain information on a research problem. Joubert and Ehrlich (2007:66) cite Charmers (2003), who defines the review of literature as the process of taking stock of existing knowledge in order to make informed choices about policy, practice, research direction, and resource allocation. A literature review also covers important studies related to the topic of interest and provides valuable background with regard to the similarities and differences between the current study and previous research.

The purpose of a literature review is to reveal what is known about a topic and to compare or validate the findings of the current study. Welman, Kruger and Mitchell (2005:39) point out that through a literature review, the researcher collects ideas on how to proceed with the investigation. They also explain that through a literature review, the findings and conclusions of past studies can be accessed, which the researcher can relate to his or her own findings and conclusions. Many other functions of a literature review have been highlighted by Joubert and Ehrlich (2007:67). These include justification for future research, the placing of new findings in context, making sense of research, coping with information overload, and the facilitation of access to relevant research.

The researcher has not found any documented research findings on the challenges faced by health workers in implementing the IMCI strategy in Botswana. Hence, she will review the findings and conclusions of past studies conducted in other African countries and relate them to her own findings and conclusions pertaining to the situation in Botswana. It is important for the researcher to emphasise at this juncture that IMCI is a relatively new strategy that was introduced in Botswana in 1997. Not much has been written on the challenges faced by IMCI-1-trained registered nurses in implementing the strategy in Botswana.

2.2 THE INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESSES (IMCI) STRATEGY

The WHO (2007:1) defines the IMCI as a strategy formulated by the WHO and the UNICEF and presented in 1996 as the supreme strategy for improving child health. The IMCI focuses on the care of children under 5 years of age in terms of the diseases that may occasionally affect them, as well as in terms of their overall health status. The IMCI strategy is designed in such a way that it reduces missed opportunities for the early discovery and treatment of conditions that can escape the notice of both caregivers and health workers, with the resulting risk of the illness becoming progressively worse and complications arising. In addition, the IMCI incorporates disease prevention and health promotion as integral components of care. Among other benefits, the IMCI helps to increase vaccination coverage and to improve caregivers' knowledge and home-care practices for children under 5, thereby contributing to growth and healthy development.

According to the WHO IMCI Handbook (WHO 2006:5), IMCI is a strategy that integrates all available interventions for disease prevention and health setbacks during childhood, for the early identification and effective treatment of childhood diseases, and for promoting healthy routines within the family and the community. Both health workers and caregivers of boys and girls under 5 years of age can employ IMCI principles.

IMCI provides the theoretical knowledge and abilities to successfully evaluate the status of child health and, in this way, to note the diseases or problems that frequently affect the child, according to the epidemiological trends of different locations. Based on this evaluation, IMCI offers clear directives on disease categorisations and problems, and assists in ascertaining the treatment that should be administered for each disease. The strategy also offers instructions on how to manage the progress of treatment, in order to

identify the need for applying prevention measures, as well as methods of informing and educating parents on disease prevention and the promotion of child health (WHO 2007:10).

On this basis, IMCI is currently regarded as the most effective line of attack for reducing deaths and the burden of disease and disability among the population in the age group 0 to 5.

2.2.1 The background of IMCI

In 2007, the WHO reported that every year some 10 million children in developing countries die before they reach their fifth birthday, and many die during their first year of life (WHO 2007:1). As mentioned in section 1.2, under-5 mortality rates decreased to 6.9 million by 2011. The WHO also found that 70% of child deaths are caused by five preventable and treatable diseases or conditions, namely acute respiratory infections (mostly pneumonia), diarrhoea, measles, malaria, and malnutrition (PDMMM), and often a combination of these conditions (WHO 2007:1). Figure 2.1 below illustrates the distribution of the main childhood killer diseases, which gave rise to the formulation of the IMCI strategy more than a decade ago (in 1996).
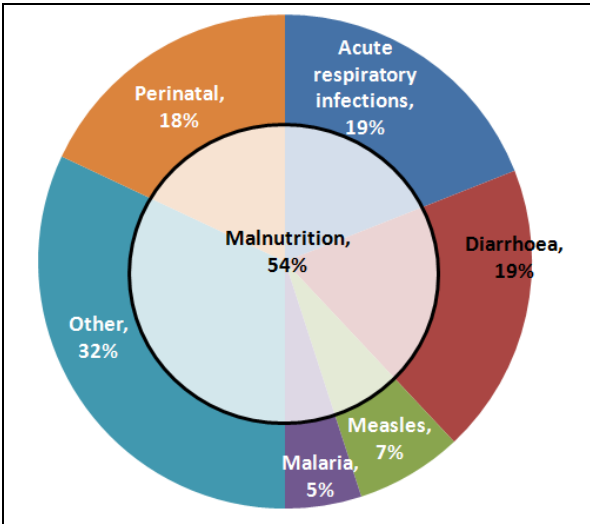
Figure 2.1: Distribution of 11.6 million deaths among children less than 5 years old in all developing countries, 1995

(Adapted from Murray & Lopez 1996:39)

2.2.2 Child mortality projections for 2020

In addition to stating the worrying state of childhood morbidity and mortality, the 1996 Global Burden of Disease Study indicated that the five killer conditions that contributed to 55% of under-5 deaths in 1990 will continue to account for 52% of childhood mortality by year 2020 unless significantly greater efforts are made to control them (WHO 2006:ix). Thus, according to this analysis, by 2020, child deaths caused by these killer conditions will have declined by only 3%. Figure 2.2 provides a graphic overview of the global projected 2020 distribution of deaths of children less than 5 years, by cause of death, and a comparison with statistics from the year 1990.
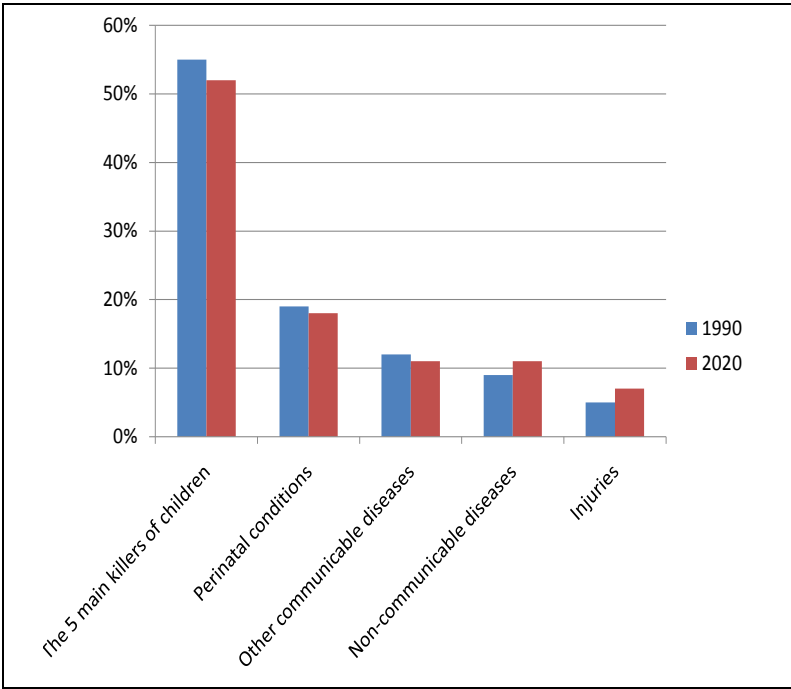
Figure 2.2: Distribution of deaths of children less than 5 years, by cause of death (figures for the world in 1990, and projected global figures for 2020)

(Adapted from Murray & Lopez 1996)

2.2.3 Concurring presentations

The WHO asserts that every day millions of caregivers take children with potentially fatal illnesses to first-level health facilities such as outpatient departments of hospitals, and clinics (WHO 2006:x). UNICEF (2006:26) claims that, "in some countries three in

four incidents of childhood morbidity are caused by one of these five conditions, and that most sick children present with signs and symptoms related to more than one of these conditions". This overlap implies that a single diagnosis may not be feasible or suitable, and that, the need to combine therapy for several conditions may obscure treatment. It became apparent, therefore, that an integrated approach to managing sick children was needed, as a matter of urgency. Yet another fact that became apparent was the need for child health programmes to go beyond single-disease diagnosis, and to address the overall health of the child.

UNICEF (2005:25) pointed out that, first-level facilities in most developing countries, are characterised by lack of diagnostic supports, non-existent laboratory services and scarcity of medication and equipment. This challenge of limited supplies and equipment, together with an uneven flow of patients, denies health care providers at first-level facilities opportunities to practise complicated clinical procedures. The WHO (2005:ix) documented that, "health care providers at first-level facilities are then forced to rely on history and signs and symptoms to determine a course of management that makes the best use of available resources". Providing quality care to sick children in such conditions has been described as an uphill battle.

In response to this challenge of high childhood morbidity and mortality, the WHO and UNICEF collaborated in the early 1990s to design a strategy to integrate existing interventions for the prevention and treatment of childhood diseases and the promotion of health, which could help reduce the crisis and promote better conditions for child health and development during the first five years of life. The outcome of this collaboration was the Integrated Management of Childhood Illnesses (IMCI) guide (WHO 2006:ix).

2.2.4 The objectives of IMCI

The main goal of IMCI is to contribute to healthy growth and development during the first five years of life. This goal comprises three objectives, namely:

(1)   Reducing infant mortality.

(2)   Reducing the incidence and seriousness of illnesses and health problems that affect boys and girls.

(3)   Improving growth and development during the first five years of a child's life (IMCI/AFRO Annual Report 2009:23).

2.2.5 IMCI guidelines

According to the WHO IMCI Handbook (WHO 2006:4), the IMCI guidelines address the key causes of morbidity and mortality in under-5 children, and most, but not all, of the main reasons a sick child is brought to a clinic.

The WHO IMCI Handbook (WHO 2006:13) mentions that the IMCI guidelines explain how to interview the child's mother, how to correctly recognise evidence-based clinical signs, how to choose the appropriate treatment, and how to provide counselling and preventive care.

The IMCI guidelines explain how to care for a child that is brought to a clinic with an illness or for a scheduled follow-up visit to check the child's progress. The guidelines provide instructions on how to routinely assess a child for:

(1)   General danger signs (or possible bacterial infection in a young infant)

(2)   Common illnesses (including HIV/AIDS), in the following sequence:
  - A cough, or difficulty with breathing
  - Diarrhoea
  - Fever
  - An ear problem

(3)   Malnutrition and anaemia

(4)   Other problems (WHO 2006:6)

In addition to treatment protocols, the guidelines also address basic activities for counselling the mother, promoting health, and preventing illnesses (WHO 2006:5).

2.2.6 The rationale for using IMCI rather than single-condition approaches

UNICEF (2006:27) discovered that children brought for medical treatment in the developing world are often suffering from more than one condition, making a single diagnosis impossible. IMCI is an integrated strategy, which takes into account the multitude of factors that put children at serious risk. It ensures the combined treatment of the major childhood illnesses, emphasising prevention of disease through immunisation and improved nutrition (WHO 2006:x).

2.2.6.1 The benefits of IMCI

The following benefits of the IMCI strategy were articulated in the WHO Technical updates of the guidelines on the WHO IMCI Handbook (WHO 2006:33):

(a)   The IMCI strategy systematically addresses major child health problems, which are the most important causes of childhood death and illness.

(b)   IMCI responds to the demand placed on the health care system by current child health epidemiological trends. Every day millions of parents take their sick children to hospitals and health centres, pharmacists, and community health care providers. At least three out of four of these children are suffering from one of the five conditions that are the focus of IMCI.

(c)   The IMCI strategy is likely to have a major impact on health status. This is evidenced by the World Bank's 1993 World Development Report titled *Investing in Health*, which predicted that IMCI would be the group of interventions with the potential for the greatest impact on the global burden of disease.

(d)   The IMCI strategy promotes prevention as well as cure. In addition to its focus on treatment, IMCI also provides the opportunity for, and emphasises, important preventive interventions, such as immunisation and improved infant and child nutrition, including breastfeeding.

(e)   The IMCI strategy is cost-effective. This is evidenced in the 1993 World Bank Report titled *Investing in Health*, which ranked IMCI among the 10 most cost-effective interventions in both low-income and middle-income countries.

(f)   IMCI promotes cost saving. Although increased investment is needed initially for training and reorganisation, the implementation of IMCI in the management of illnesses in under-5 patients' results in cost savings. This is because the IMCI

strategy can be utilised were diagnostic supports such as radiology and laboratory services are minimal or non-existent, and medication and equipment are scarce. It can be used through merely taking into consideration the child's history and an assessment of the present signs and symptoms.

(g)   The IMCI strategy addresses the inequity in global health care that exists between the developed world and the developing world. Nearly all children in the developed world have ready access to simple and affordable preventive and curative care, which protects them from death due to acute respiratory infections (ARIs), diarrhoea, measles, malaria, and malnutrition. Millions of children in the developing world, however, do not have access to this same lifesaving care. IMCI improves equity by closing this undeniable gap between these two worlds (WHO 2006:25).

2.2.6.2   The advantages of IMCI

The following advantages of the IMCI strategy are outlined in the WHO IMCI Handbook (WHO 2006:18). The strategy

- focuses holistically on the child, and not exclusively on the reason for the visit;
- ensures the early identification of all seriously ill children
- ensures integrated management of all prevalent illnesses that the child may present with
- includes the application of preventive measures, along with treatment for detected illnesses and health problems
- includes actions to improve parental practices in caring for the child at home
- can be adapted to the local epidemiological situation

2.2.7 The components of IMCI

The WHO IMCI Handbook (WHO 2005:27) states that IMCI implementation involves the participation of the community, the health service sector, and the family. Implementation of the IMCI strategy is done through the three components illustrated in Figure 2.3.
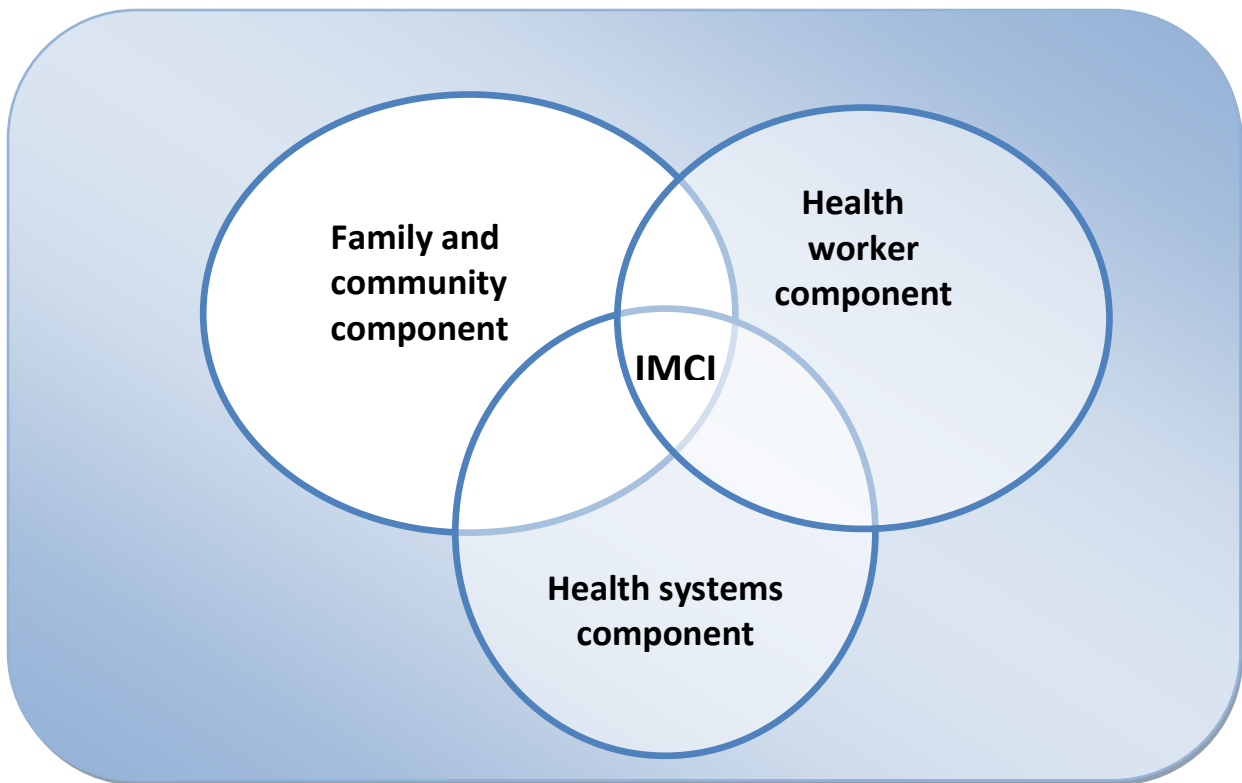
Figure 2.3: The three components of the IMCI strategy

(Adapted from the WHO IMCI Handbook (WHO 2007:8))

The components are the following:

(a)   The health worker component

This component seeks to improve the performance of health workers when tending children under 5 and their families. This is done through the provision of locally adapted guidelines on the integrated management of childhood illness and activities to promote their use. IMCI standard case management guidelines have been designed in such way that they provide a systematic approach to assessing, classifying, and treating sick children from 0 to 5 years old, including the provision of appropriate counselling (WHO 2007:8).

(b)   The health system/service component

This component targets improving the organisation and overall functioning of health care systems/services so that they offer efficient, good-quality care. These system

improvements are needed in order to provide appropriate case management to newborns and children. The improvements include adequate numbers of trained staff, an adequate supply of medicines and other supplies, regular supervision of health workers, high-quality referral care, and mechanisms for ensuring that those children that need referral are referred properly (WHO 2007:8).

(c)   The family and community component

This component aims to improve family and community members' knowledge about best practices for the care of boys and girls up to the age of 5 years at home and in the community. A number of key family and community practices are vital for prevention and the addressing of contributing factors to children's deaths. These practices include exclusive breastfeeding and complementary feeding, the use of insecticide-treated bed nets, seeking vaccines and vitamin A at the right times, recognition of when to seek care for a sick neonate or child, and appropriate management of sick children in the home environment (WHO 2007:8).

This limited-scope Master of Public Health study focuses on the first component (a), which is improving the case management skills of health workers (IMCI-1). It seeks to identify challenges encountered by IMCI-1-trained registered nurses in implementing the procedures established by the strategy when tending children under 5 in their respective health facilities in Gaborone Health District of Botswana. Hence, the following discussion centres on the health worker component of the IMCI strategy.

2.3   TOOLS OF THE IMCI HEALTH WORKER COMPONENT

With regard to improving the performance of health workers tending sick children, IMCI offers a number of practical tools, including:

- Modules for the evaluation, classification, and treatment of children under 5, and training materials on these modules.
- Guides for health care workers to provide support in effective IMCI application.

Training materials on how to improve communication with parents during their child's evaluation, diagnosis, and treatment, educating them on how to deal with problems, and promoting practices for healthy growth and development (WHO 2007:3).

2.3.1 The IMCI integrated case management process

According to the WHO IMCI Handbook (WHO 2006:4), integrated case management is founded on case detection, using simple clinical signs and experiential treatment. As few clinical signs as possible are used. The signs are based on proficient clinical opinion and research findings, where a careful balance is struck between sensitivity and specificity. The treatments are developed according to action-oriented classifications rather than exact diagnosis. They cover the most likely diseases represented by each classification.

The integrated case management process was designed for doctors, nurses, and other health professionals tending sick infants and children aged 0 to 5 years. It is a case management process for a first-level facility, such as a clinic, a health centre, or an outpatient department of a hospital (WHO 2007:3).   The complete IMCI case management process involves the following elements:

(1)   The first step of the process is to **assess** a child by checking first for danger signs (or possible bacterial infection in a young infant). The health worker asks questions about common conditions, examines the child, and checks the child's nutrition and immunisation status. Assessment also includes checking the child for health problems other than those covered by the routine integrated process.

(2)   After the child has been assessed, the health worker is expected to **classify** the child's illnesses using a colour-coded triage system. Because many children present with more than one condition, each illness is classified according to whether it requires:

- Urgent pre-referral treatment and referral (colour-coded red)
- Specific medical treatment and advice (colour-coded yellow)
- Simple advice on home management (colour-coded green)

(3)   After classifying all conditions, the health worker needs to **identify** specific treatments for the child. If a child requires urgent referral, he or she should be given essential treatment before being transferred to the next health facility for further management. If a child requires treatment at home, the health worker should develop an integrated treatment plan for the child and administer the first dose of medication at the clinic. If a child needs to be immunised, the immunisations should be administered.

(4)   The fourth step is to provide practical **treatment** instructions, including instructing the caregiver on how to administer oral drugs, how to feed and give fluids during illness, and how to treat local infections at home. The health worker should ask the caregiver to return for follow-up visits on a specified date, and she should explain to her how to recognise signs that indicate that the child should return immediately to the health facility.

(5)   The fifth step is to assess feeding, including assessment of breastfeeding practices, and to **counsel the caregiver** to resolve any feeding problems encountered. The caregiver will need to be counselled about her own health as well.

(6)   Lastly, when a child is brought back to the clinic, as requested, the health worker is expected to **give follow-up care** and, if necessary, reassess the child for new problems (WHO 2002:6). Figure 2.4 provides a graphic representation of the IMCI case management process.

The IMCI integrated case management process

- Assess the child for general danger signs and all the presenting health problems

- Classify the child's illnesses using the colour-coded triage system

- Identify specific treatments needed for the child's classifications

- Treat the child

- Counsel the caretaker to resolve any feeding problems found

- Give follow-up care

Figure 2.4: The IMCI case management process

(Adapted from the WHO IMCI Handbook (WHO 2006:3-5))

2.4   DEFINING IMCI IMPLEMENTATION

According to the WHO (2010:5), introducing and implementing the IMCI strategy in a country is a phased process that requires a great deal of coordination among existing health programmes and services. It involves working closely with local governments and ministries of health to plan and adapt the principles of the approach to local circumstances.

A country is said to be implementing IMCI if it has gone through the following principal steps:

(1)   The first step is to orient the Ministry of Health, policy makers, managers, and other stakeholders in the country about the IMCI strategy and to reach an agreement to adopt IMCI as a key child health strategy.

(2)   Secondly, the country identifies an IMCI focal person or coordinator and the formation of an IMCI working group to plan and oversee the introduction of IMCI.

(3)   Thirdly, the IMCI case management guidelines are adapted to ensure that they are appropriate for the local epidemiology. Adaptation also includes modification of feeding recommendations to use locally available foods and the incorporation of local terms and expressions, where necessary.

(4)   Lastly, the country conducts IMCI activities such as training, IMCI follow-up after training or supervision, and/or community IMCI activities (WHO 1999:9).

Once IMCI has been embraced officially, the rate at which it is rolled out to each district in a country is different and depends on a number of factors, including the availability of funding, resources for training, essential drugs, and equipment at first-level facilities (WHO 2010:5).

2.5   THE STATE OF IMCI IMPLEMENTATION GLOBALLY

Implementation of IMCI involves three phases, namely the introductory phase, the early implementation phase, and the expansion phase.

2.5.1 The introductory phase

According to the WHO UNICEF IMCI Information Package (WHO 1996:1), the main activities of the introductory phase include the initiation of contact to provide information, the holding of orientation meetings, and the building of national capacity in IMCI. These activities are carried out to ensure that key officials of the MoH understand the IMCI strategy and its implications. The information package documented that by June 1999, 20 countries were in the process of introducing IMCI. These countries were Belarus, Benin, Bhutan, China, Colombia, Georgia, Ghana, India, Iran, Kenya, Kyrgyzstan, Laos, Myanmar, Namibia, Syria, Tajikistan, Turkey, Turkmenistan, Uzbekistan, and Yemen.

2.5.2 The early implementation phase

The WHO UNICEF IMCI Information Package (WHO 1996:2) states that during the early implementation phase, the Ministry of Health staff plans and prepares for IMCI implementation, and carries out and monitors IMCI activities in a limited number of districts, to create a basis for future planning. Activities in this phase include adaptation of the generic IMCI clinical guidelines to reflect the epidemiological and cultural characteristics of the country, selection of a limited number of districts for initial implementation, planning for IMCI activities at both national and district level, building national and district capacity to implement IMCI activities, and monitoring the implementation of the strategy.

The report also named the 31 countries that had successfully introduced IMCI and moved to preparation and implementation of initial activities in selected countries. The countries mentioned were Argentina, Armenia, Azerbaijan, Bangladesh, **Botswana**, Cambodia, Côte d'Ivoire, Egypt, El Salvador, Eritrea, Ethiopia, Haiti, Honduras, Kazakhstan, Madagascar, Malawi, Mali, Moldova, Morocco, Mozambique, Nicaragua, Niger, Nigeria, Pakistan, Paraguay, Senegal, South Africa, Sudan, Togo, Venezuela, and Zimbabwe. It is of interest to the researcher to note that Botswana was categorised as being in the early implementation phase by June 1999 (WHO 1996:2).

2.5.3 The expansion phase

The WHO UNICEF IMCI Information Package (WHO 1996:1) explains that the third phase includes efforts both to increase access to interventions initiated during the early implementation phase and to broaden the range of IMCI interventions. The report adds that during this phase, problems identified during the early implementation phase are addressed, priorities are agreed upon, and strategies are developed to expand access while maintaining quality. Other activities that are carried out in this phase include further strengthening of district-level capacity, improved drug availability and management, monitoring, and measurement of outcome indicators. By June 1999, 12 countries were said to have moved from early implementation to expansion of the activities. These countries were Bolivia, Brazil, the Dominican Republic, Ecuador, Indonesia, Nepal, Peru, the Philippines, the United Republic of Tanzania, Uganda, Vietnam, and Zambia (WHO 1996:2).

2.5.4 IMCI implementation in Africa by December 2010

By December 2010, the WHO published a *Child and Adolescent Health Annual Report*, which reported on the state of IMCI implementation globally by the year 2010. The report cited Botswana as being one of the countries with 75% of their districts implementing IMCI. In addition, Botswana was also reported to have received technical support for IMCI pre-service training from the World Health Organization. Figure 2.5 below, derived from the Child and Adolescent Health Annual Report of 2010, shows the state of implementation of the IMCI strategy in Africa by 2010.
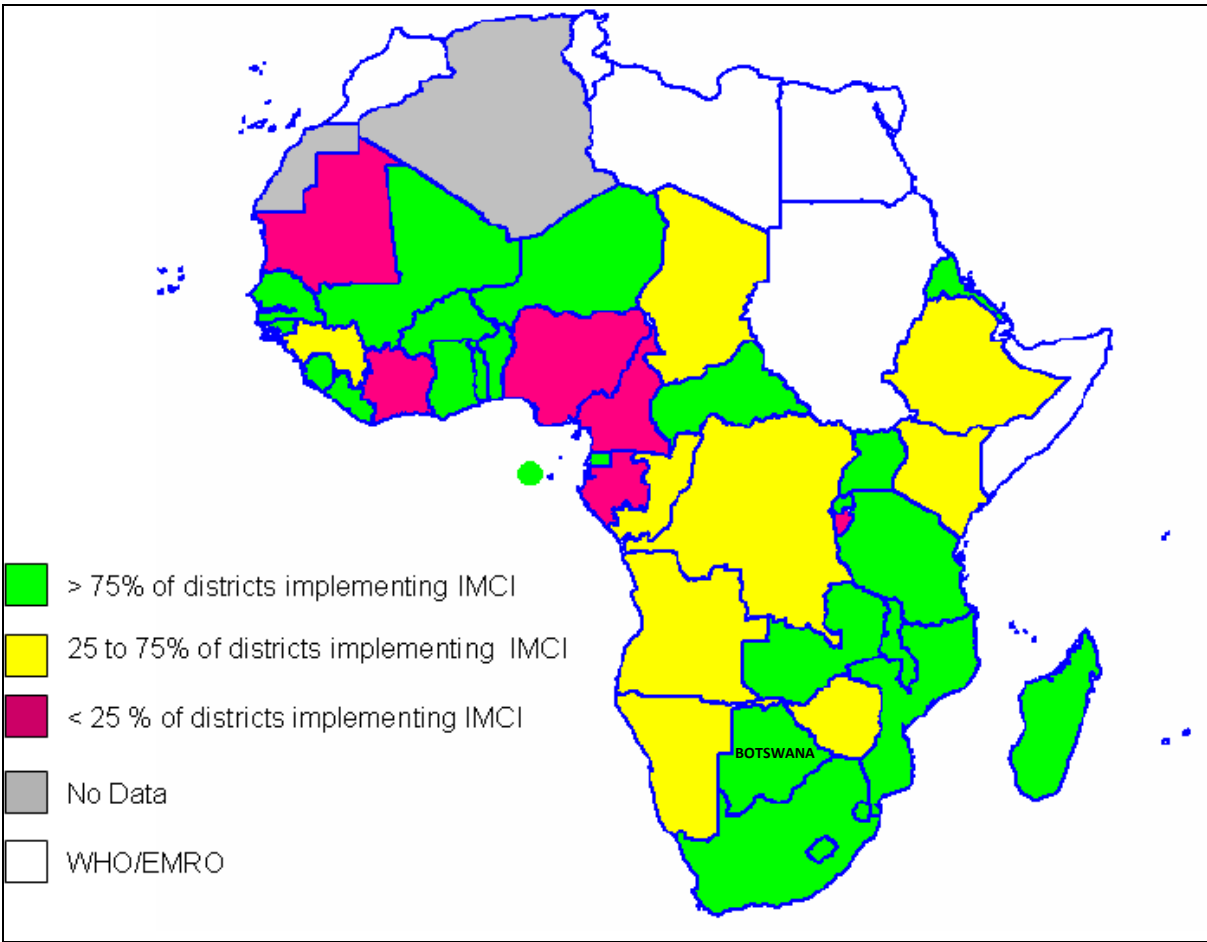
Figure 2.5: The state of implementation of the IMCI strategy, 2010, World Health Organization Regional Office for Africa

Source: (WHO 2010a:12)

2.6　IMCI IMPLEMENTATION IN BOTSWANA

This section opens with a brief background of child mortality trends and responses to child health in Botswana. It will then proceed to discuss IMCI implementation.

2.6.1　Child mortality in Botswana

Child mortality is the deaths of infants and children under the age of 5 years. The researcher will use infant mortality rate and U5MR as the two key child health indicators to illustrate child health trends in Botswana.

2.6.2　Under-5 mortality rate

The Botswana Demographic Survey (CSO 2006:77) quotes the Human Development Report (2004) which cited Botswana as being one of the countries that have been "slipping back" in attaining Millennium Development Goal 4 (MDG 4), which aims to reduce by two-thirds the under-5 mortality rate by 2015. The report noted an increase in U5MR between 1990 and 2001, from 58 to 95 per 1,000 live births. The sharp upward trend observed from 1990 to 2001 in U5MR is attributed to the HIV/AIDS epidemic. The other causes of U5MR are diarrhoeal diseases, acute respiratory infections, and neonatal infections (CSO 2006:77). U5MR was estimated to be above 90 deaths per 1,000 live births from 2000 to 2002, dropped to 88 deaths per 1,000 live births in 2003, declined to 70 deaths in 2004. From then on, it has taken a sharp declining trend until it reached 47 deaths per every 1,000 live births in 2010 (World Bank 2011).

2.6.3　Infant mortality rate

The estimates of the CSO (2006:74) indicate that the infant mortality rate (IMR) for the national population was estimated at 40 per 1,000 live births in 1992. This figure dropped to 38 and 36 per 1,000 live births in 1994 and 1997, respectively. The year 2000 saw an increase in infant mortality rate by four (4) points from the 1997 estimate of 36 per 1,000 live births. According to World Bank (2011:10), in 2002 the infant mortality rate in Botswana was 74 per 1,000 live births. The increase is sustained over the period 2000 to 2005, decreasing to 51 per 1,000 per live births in 2005. From 2006 to date, the infant mortality rate has been recorded to be declining by the passing of each year. The

World Bank reported infant mortality rate to be 21 deaths per every 1,000 live births in 2010 (World Bank 2011). Figure 2.6 below gives a graphical representation of the IMR and U5MR trends, as depicted by the World Bank Country Statistics updated by 2011.
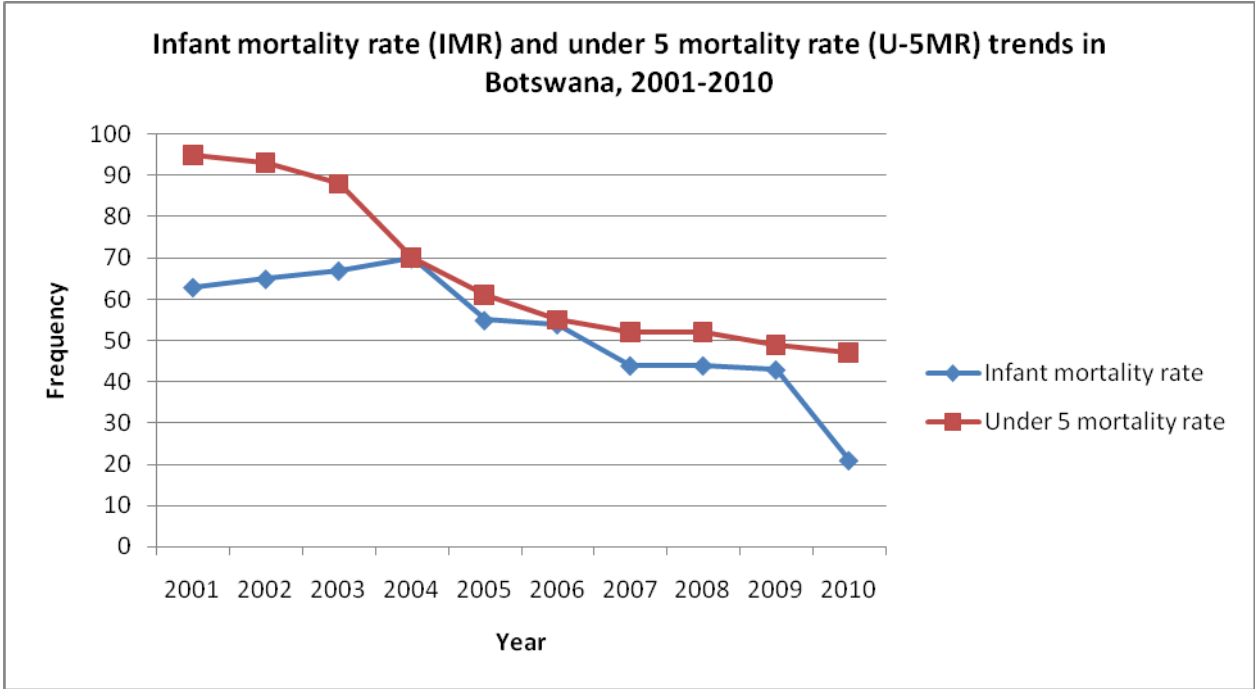
Figure 2.6: Infant mortality rate and under-5 mortality rate trends in Botswana, 2001-2010

(Adapted from World Bank 2012)

2.6.4 National trends and responses to child health in Botswana

According to the latest Botswana IMCI Health Facility Survey (IMCI HFS 2004:6) the government expenditure on health currently comprises 8% of the total Government development budget. The facility survey findings reported that the Government of Botswana is committed to health development as an integral part of the total development of Botswana; hence, the health of citizens is important in pursuit of national objectives in the context of Botswana's vision 2016[1]. It also highlighted that the implementation of primary health care, as a strategy for attaining health for all, together with activities geared towards health promotion, care and disease prevention, have been prioritised by the Botswana Government.

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[11] For more information on Vision 2016, please visit www.vision2016.co.bw

The IMCI HFS (2004:8) recorded that Botswana has a well-organised health care system and that health facilities are accessible to the general community. There are two referral hospitals, 13 district hospitals, 17 primary hospitals, 248 clinics (92 with maternity facilities), and 339 health posts (that is, the lowest level of health care delivery). The Ministry of Local Government largely provides Primary Health Care services that are coordinated by council's health departments. Currently 24 health districts are structured and functioning as a district health team (DHT) led by public health specialists (IMCI HFS 2004:9). The study site for this research, namely Gaborone Health District, has 15 clinics where IMCI-1-trained registered nurses provide primary health care services to under-5 patients.

2.6.5   IMCI implementation in Botswana

According to the IMCI HFS (2004:10), the IMCI strategy was introduced to Botswana in 1997. The IMCI working group was formed in 1997 and five (out of 24) districts were selected to start IMCI implementation. A national orientation workshop to advocate the impact of the strategy in reducing infant and under-5 mortality rates followed. It also recorded that by 1998, the generic materials were adapted, and that in 1999 national IMCI training was conducted. Shortly after that, district IMCI training and follow-up after training, complemented with health facility support visits commenced.

The IMCI HFS (2004:7) reported that by 2004, IMCI was part of the national health delivery system, with government commitment and funding (US$180,000 per year), as well as the support of partners such as the WHO and UNICEF. Moreover, by 2004 IMCI was in the expansion phase of implementation, and was being implemented in 11 of the 24 districts of Botswana, namely Gaborone, Francistown, Chobe, Okavango, Maun, Kgalagadi North, Kgalagadi South, Kweneng, Kgatleng, South-East District, and Mahalapye. In 2010, the WHO reported that Botswana had reached the expansion phase, as 75% of its health districts were implementing the IMCI strategy (WHO 2010:15).

Despite having conducted extensive searches in Internet search engines such as Google Scholar, and in local libraries and statistical offices, the researcher was not able to find any other documented findings with a specific focus on challenges experienced

by IMCI-1-trained registered nurses when implementing the IMCI strategy in Botswana. The researcher will, therefore, in the remainder of this chapter explain the challenges identified by health workers in the implementation of the IMCI strategy in a few selected African countries and relate them to the findings and conclusions pertaining to the situation in Botswana.

2.7   CHALLENGES IDENTIFIED BY HEALTH WORKERS IN IMPLEMENTING IMCI

This section discusses the challenges identified by health workers in other countries in implementing the IMCI strategy. The Consortium for Research on Equitable Health Systems (CREHS) reviewed a policy brief on IMCI implementation in Kenya in 2008. The review identified three main challenges experienced by IMCI implementers. The challenges identified in Kenya reflect a range of IMCI-specific challenges, as well as challenges in the health system in general. The challenges identified are low training coverage, health workers not following IMCI guidelines, and barriers to access to IMCI services in communities (Mullei, Wafula & Goodman 2008:37).

In a multi-country survey on the global challenges to IMCI implementation, Goga and Muhe (2011:23) grouped the challenges into four main categories, namely political challenges, the cost of training, the unique features of IMCI, and resources and health systems. The researcher will discuss the challenges according to the categories shown in Figure 2.7. To provide a comprehensive overview, the researcher included two other challenges, as found in literature, in her illustration of the challenges experienced by health care workers.

Figure 2.7: Challenges identified by health workers in implementing the IMCI strategy

2.7.1   Challenges related to political support

Political will is vital for the smooth implementation of the IMCI strategy. In the countries reviewed, lack of political support is evident from a lack of commitment from governments, a lack of support from the ministries of health of the respective countries, a lack of clear division of the roles and responsibilities with regard to child health, and strategic differences of opinion regarding the place of IMCI as a vehicle for child health interventions. These challenges can pose as serious obstacles.

In Uganda, the national IMCI focal persons that participated in the multi-country survey pointed out that there were strategic differences of opinion regarding the role of IMCI. Some stakeholders viewed IMCI as a vertical programme, and not as a standard approach to managing children in health facilities (Goga & Muhe 2011:6). There was a lack of consensus among key child health stakeholders in Nigeria on whether IMCI was

the most viable vehicle for child health interventions. As a result, only two agencies were reported to be providing support for facility-based IMCI training. Such strategic differences of opinion have an impact on the amount of support available for the implementation of the strategy. This raises the political question of competing priorities. There is thus no uniformity between countries in the way IMCI activities are funded. Rather, the funding of such activities will depend on the extent to which the political office of the time acknowledges the place of IMCI (Goga & Muhe 2011:8).

2.7.2 Challenges related to cost of training

The high cost of IMCI training has been cited as the cause of the low training coverage for IMCI. The deficit in training coverage in a country is measured by comparing the coverage of IMCI-trained health workers in the country to the WHO's expectation of 60% coverage. For example, in 2007 the coverage of health workers trained in IMCI in Kenya was 18% (Mullei et al 2008:28), while the coverage in Tanzania was 14% (Prosper & Borghi 2008:3).

The main reason cited for the low coverage of IMCI training is the high cost of the training, which is due to the long duration of the course (11 days). This lengthy course duration translates into high expenditure on accommodation, facilitators, and training materials. The CREHS policy brief of Tanzania states that it costs approximately $1,000 to train one health worker in the IMCI strategy. Alternative lower-cost training courses, such as pre-service training, on-the-job training, and shorter-duration IMCI courses (six days), could have been offered, but they have limitations that could compromise the quality of the IMCI trainees (Prosper & Borghi 2008:8). The problem of the high cost of IMCI training is compounded by the WHO's expected facilitator-to-participant ratio, namely 1:4 (Goga & Muhe 2011:50).

Another factor that has contributed to low training coverage in most countries is the general shift in priorities from IMCI to vertical programmes, such as HIV/AIDS, tuberculosis and malaria prevention. The 2009 CREHS policy brief of Tanzania states that, this was due to the fact that, IMCI is difficult to monitor and determine value for money (Prosper & Borghi 2008:8). In addition, Mullei et al (2008:60) expressed that in Kenya there seems to be some reluctance, from both the government and development partners, to fund IMCI implementation. This reluctance is attributed to the high cost of

the training and the fact that the impact of IMCI on reducing childhood mortality could not be easily measured. In addition, it is difficult to distinguish the impact that IMCI has from the impact that other child survival health programmes have. These unanswered questions on the measurement indicators and financial sustainability of IMCI have meant that funding for IMCI training has decreased.

2.7.3 Challenges related to the unique features of the IMCI strategy

According to Prosper and Borghi (2008:3), the nature of the IMCI strategy contributes to health workers' poor adherence to IMCI guidelines. These authors argue that interventions which seek to improve quality of care, such as IMCI, are naturally not easy to monitor. This is due to the fact that such interventions lack clear indicators to establish whether IMCI is being implemented properly or not. This discourages health workers from implementing the strategy.

Horwood, Voce, Vermaak, Rollins and Qazi (2009:5) report on the experiences of training and implementation of the IMCI strategy in South Africa in 2009. One of the challenges they identified was that IMCI consultations take a long time. They maintain that "the counselling messages recommended by IMCI are time-consuming for health workers to deliver, and health workers under time pressure could limit counselling messages to those that are most essential" (Horwood et al 2009:5). This is a challenge to IMCI implementation, particularly in the light of the acute staff shortages at many first-level health facilities in South Africa.

The lengthy duration of the IMCI consultations result in longer waiting queues (Mullei et al 2008:44). Mullei et al (2008:42) report that some health workers have regarded the period of 10 to 20 minutes that has been prescribed to assess each child fully as being excessive. As a result, the IMCI-trained health workers feel compelled to omit sections that they perceived to be unnecessarily time-consuming. The Tanzanian CREHS policy brief made the same observation. It stressed that the IMCI protocol is seen as time-consuming, and that health workers feel obliged to cut corners so that they can attend to other clients, particularly in areas that have an acute shortage of health workers (Prosper & Borghi 2008:2). The same sentiments have been expressed by health workers in South Africa. They expressed that "the time taken for IMCI did cause longer waiting times; [...] non-IMCI trained nurses took over care of some children, and, as a

result, IMCI was only partially implemented" (Horwood et al 2009:6). This challenge of the long duration of the assessment of the sick child has actually resulted in another challenge, namely poor adherence to IMCI protocols by health workers.

2.7.4 Challenges related to resources

Poor adherence and non-adherence to IMCI guidelines is another challenge to the implementation of IMCI, which is attributed to broader health system limitations and the unique features of the IMCI strategy. Mullei et al (2008:37) cite examples of certain guidelines that are usually not followed by IMCI-trained health workers. These guidelines include checking for general danger signs, monitoring growth, and referral. A high workload, long patient queues, and low staffing levels are the main factors that have forced health workers to omit sections of the IMCI protocol, or even to resort to former patient assessment practices.

Poor adherence and non-adherence to IMCI protocol is compounded by the continual unavailability of IMCI medication in health facilities. The policy brief noted that health facilities in Kenya frequently experience a chronic shortage of IMCI drugs, because drug deliveries are often delayed or do not meet the quantities requested by the facilities (Mullei et al 2009:46).

Another contributing factor in IMCI-trained health workers' non-adherence to IMCI protocol is the lack of job aids. The Kenyan CREHS policy brief documents that IMCI job aids, such as wall charts, chart booklets, photograph booklets, and recording forms are only provided to participants during training, and they are not replaced when they have been damaged, lost, or used up. Hence, IMCI implementers do not have supporting material to refer to in the day-to-day execution of their duties (Mullei et al 2008:47). Prosper and Borghi (2008:3) maintain that the lack of IMCI job aids, such as timing devices, recording forms, cups, and buckets for storing water discourage IMCI implementers from observing the protocol of this lifesaving strategy.

2.7.5 Challenges related to low training coverage

Another challenge that has been cited as confronting IMCI implementers is the persistent low numbers of IMCI-trained health workers. This is attributed to inadequate funding. In Kenya, district budgets are reported to be insufficient to cover training costs. As a result, the districts depend on donor funding to boost their training capacity (Mullei et al 2008:27). IMCI training will therefore depend on donor priorities. If there are more pressing issues, such as outbreaks of communicable diseases, donor funds are likely to be channelled to more critical public challenges. One health worker from South Africa is quoted as having said "increasing IMCI coverage would strengthen implementation" (Horwood et al 2011:6).

Another contributing factor to the low training coverage of IMCI-trained health workers in Kenya is inadequate pre-service training. Mullei et al (2008:28) noted that in Kenya by 2007, less than half of the medical training colleges offered IMCI pre-service training. Secondly, the time allocated to IMCI training in Kenyan medical training colleges that offer IMCI is not adequate. The Kenyan policy brief also pointed out two weaknesses of IMCI pre-service training that compromise the quality of the training. Firstly, it does not give the students enough exposure to practise skills in clinical settings. Secondly, it lacks the counselling component of the IMCI case management process.

2.7.6 Challenges related to health systems

The following challenges related to health systems were reviewed:

2.7.6.1 *Physical layout of health facilities*

Yet another contributing factor in IMCI-trained health workers' poor adherence to IMCI protocol is the physical layout of the health facilities. The layout of some facilities does not make it easy for IMCI implementers to directly observe treatments. Mullei et al (2009:46) highlight that some drugs are dispensed from separate pharmacies, where the health worker cannot witness the first dose treatment. Another protocol that is often not observed by IMCI-trained health workers is appropriate referral of sick children with specific general danger signs for further management. Prosper and Borghi (2008:11) documented that health workers were reluctant to refer children that they felt they could

treat themselves. They also identified underlying reasons that discourage health workers from referring patients for further assessment. They state that "follow-up and referral care were also poorly adhered to by patients due to high transport costs, poor infrastructure and lack of familiarity with referral facility staff".

2.7.6.2   Lack of support from supervisors

Still on the topic of challenges related to health systems, Horwood et al (2009:7) point out that lack of support from supervisors and work colleagues, particularly those not trained in IMCI is a major discouraging factor among IMCI implementers in South Africa. This is noted to be a problem in cases where supervisors are not IMCI-trained. They specifically noted that it was an uphill battle for IMCI implementers to encourage other members of the health team, such as ambulance service personnel and doctors, at the referral hospitals to support IMCI. Some clinical officers and doctors have a negative attitude towards IMCI. They refuse to embrace the IMCI strategy, stating that it is too simplistic, and that it undermines the full use of their clinical training.

2.7.6.3   Lack of supervision

Lack of supervision is another challenge identified in the implementation of IMCI. The Kenyan policy brief highlighted that IMCI is seldom addressed during integrated supervision visits, and that IMCI case management observations are hardly ever undertaken. This was attributed to heavy workloads and limited transport resources. In some instances, the supervisors are not IMCI-trained; as a result, they do not appreciate the contribution of IMCI in reducing childhood mortality (Horwood et al 2009:7). Prosper and Borghi (2008:10) also highlighted this challenge. They maintained that IMCI supervision is infrequent, poorly integrated into routine supervision, and that routine checklists of areas to be covered during integrated supervision are not always available.

2.7.6.4   Lack of follow-up visits by IMCI facilitators

Another challenge which is closely related to supervision is lack of follow-up visits. Follow-up visits to health workers after case management training are a critical part of IMCI implementation. Mullei et al (2008:32) mention the advantages of follow-up visits

after IMCI training. They include reinforcement of the acquired case management skills, identification of potential challenges that health workers could face when trying to implement IMCI and gathering of information on facility level support. According to Horwood et al (2009:7), IMCI calls for radical changes in practice. Hence, follow-up visits are vital for helping newly trained IMCI practitioners to transfer their new skills into practice. Lack of these follow-up visits by facilitators could impact negatively to the implementation of IMCI. Horwood et al (2009:8) cited that this challenge of lack of follow-up visits was critical in Bangladesh, Tanzania, Peru, and Uganda.

2.7.6.5 Frequent rotation of staff

Frequent rotation of staff within health facilities and high attrition rates were additional challenges cited as contributing to IMCI-trained health workers' poor adherence to the IMCI protocol. In most health facilities, IMCI training is not used as a criterion for daily allocation of duties, and health workers can be moved around at any time. This frequent rotation decreases the chances that health workers will practise the acquired skills and knowledge (Prosper & Borghi 2008:23).

2.7.6.6 Client expectations

Horwood et al (2009:8) pointed out that the expectations of caregivers undermine the implementation of IMCI in more than one way. According to their report, caregivers expect to receive treatments that are no longer used, according to IMCI guidelines. This challenge is problematic in cases where the practices of IMCI-trained and non-IMCI-trained health workers are different. In most cases, the IMCI-trained nurse is obliged to give in to the demands of the caregiver, in an attempt to save the life of the sick child.

The above are the main challenges identified in the countries reviewed by the researcher. These challenges are mirrored in Botswana's IMCI HFS of 2004. The IMCI HFS of 2004 reports that, despite the fact that Botswana was in the expansion phase of IMCI implementation, some challenges were evident. One of the challenges observed then was the low training coverage (as discussed in section 2.6.5). The report stated that few facilities were saturated with IMCI-trained health workers. It also stressed that the health system was not capacitated enough to support the main IMCI child health care services, such as immunisation (IMCI HFS 2004:7).

The researcher has not found any documented information focusing on the challenges faced by health workers in implementing IMCI in Botswana from sources in libraries, the Internet, or ministry of health offices. The researcher will therefore review recommendations offered by other countries on how to resolve the identified challenges.

2.8   RECOMMENDATIONS

This section discusses the recommendations identified by IMCI-trained health workers in other countries on how to address certain IMCI-related challenges, in an attempt to promote and improve implementation of the IMCI strategy. This study seeks to identify the challenges (if any) faced by IMCI-1-trained registered nurses that are implementing IMCI in Botswana, as well as recommendations for the promotion of the use of the strategy.

2.8.1 The building of political support

Child health practitioners need to work hard to encourage health decision-makers to prioritise IMCI. The shift of interest from IMCI towards vertical programmes needs to be confronted with an intensive campaign to make the main opinion leaders and policy makers re-embrace the role of IMCI in reducing childhood mortality. The Kenyan CREHS policy brief stresses that the crusade should aim at raising the profile of child health, as well as emphasising the rationale of employing a more integrated approach over the single-diagnosis approach taken by the vertical programmes. This campaign should be targeted at doctors and politicians, as they are the key influences in policy formulation and resource allocation (Mullei et al (2008:58).

2.8.2 Cutting the costs of IMCI training

Reducing the costs of IMCI training is suggested as a solution to rapidly expand coverage of trained health workers. This can be done through exploring alternative training versions. The proposed alternatives include shortened training (5-8 days), pre-service training, on-the-job training, and reducing the facilitator-participant ratio. Goga and Muhe (2011:6) highlight the acceptability of standardised shortened IMCI courses that include participatory methodologies and adequate clinical practice.

Although it is believed that adopting alternative training options could automatically reduce costs and facilitate an improved training ratio, the weaknesses of the substitute courses need to be investigated.

Some countries have not explored these options for fear of compromising the quality and standard of the IMCI training. Some countries have already adopted the shortened training courses in an attempt to reduce costs. Goga and Muhe (2011:6) mention the following countries:

- A five-day course: China, Fiji, Indonesia, Kazakhstan, Nicaragua, Nigeria, Madagascar, Peru, and Sudan.
- A six-day course: Ethiopia, India, Indonesia, Kazakhstan, Madagascar, Niger, Nigeria, and Uganda.
- A seven-day course: Egypt, Jordan, Nepal, and Peru.
- An eight-day course: Egypt, India, Jordan, and Kosovo.

Goga and Muhe (2011:6) documented a randomised trial in Zambia, which compared the performance of primary health care workers trained in the 11-day course against the performance of those trained in a six-day abridged course. This trial is said to have found no major discrepancy in performance between the two courses. Prosper, Macha and Borghi (2009:23) also quote a different research study conducted in Kosovo which revealed equally good or better assessment performance by primary health care physicians trained in the eight-day course compared to those trained in the 11-day course. On the other hand, they also reported on a systematic review of the effectiveness of shortening IMCI guidelines training, which found that the standard in-service training is to some extent more effective than short training, although the magnitude of the difference was not clear. In the light of all these different research findings, it is therefore important to consider the advantages, as well as the limitations, of the lower-cost training alternatives, and to make provision for them.

Prosper and Borghi (2008:5) indicate that the main limitations of pre-service training are the absence of a counselling component and the difficulty in tracing health workers that would have been trained in pre-service training. A limitation of on-the-job training is that there are not enough IMCI job aids for other staff to use. Another limitation with the in-

service training option is that when health workers return from the training, feedback to fellow workers is limited to short sessions during clinical meetings. These short sessions do not provide enough time to impart the acquired IMCI knowledge and skills to colleagues.

2.8.3 Scaling up of IMCI training

Scaling up of training coverage could be achieved by a shift in training focus. Instead of focusing on clinicians, training could also be extended to district managers, which will improve the implementation of the IMCI strategy in a way, as this will boost managers' confidence in supervising IMCI implementers. Goga and Muhe (2011:7) mentioned Kenya, Ghana, Indonesia, Nicaragua, and Madagascar as countries that have developed an IMCI abridged course for senior managers.

IMCI training coverage can also be increased through a shift of emphasis from in-service training to pre-service training. Governments can ensure that IMCI is fully integrated into the pre-service training curriculum of health workers, and that coverage occurs across all nursing training institutions, so as to ensure uniformity in the practices of registered nurses. Another eminent advantage of pre-service training is that it reduces the cost of training, as many learners are reached at the same time, without an incurrence of extra costs for accommodation, transport, or food, among other things (Mullei et al 2008:47).

2.8.4 Addressing health system challenges

Goga and Muhe (2011:9) record that almost all the IMCI focal persons that participated in their study agreed that finding solutions to larger health system challenges, such as political commitment, human resources, financing, and integrated programme management, will go a long way in improving the implementation of IMCI.

2.8.3.1 Increasing the number of IMCI facilitators

The shortage of IMCI facilitators has been cited as an obstacle to the implementation of the IMCI strategy. It has been noted that it increases the cost of training and limits the capacity to conduct training (Horwood et al 2009:9). This challenge can be addressed by keeping a record of the number and location of trained facilitators at national level. This will provide a clear assessment of current needs and will help in the formulation of plans to increase the number of IMCI facilitators. One respondent from South Africa is on record as having suggested that "facilitators work full-time on IMCI, as this will afford them space to focus on supervision, follow-up visits and hold IMCI update workshops" (Horwood et al 2011:6).

2.8.3.2 Ensuring availability of resources

IMCI implementation can be improved by ensuring availability of drugs and IMCI job aids, space, transport, and human resources. Mullei et al (2009:47) stress that understaffing and unreliable drug supplies must be addressed. They also emphasise that health workers need greater support to facilitate IMCI implementation. The support should include staffing arrangements, the setting up of oral rehydration corners, and ensuring direct observation of treatment doses.

2.8.3.3 Ensuring IMCI supervision and follow-up visits

Ensuring IMCI supervision and follow-up visits is another health system challenge that needs to be addressed. IMCI must be included in integrated supervision visits. To stress this fact, Horwood et al (2009:7) point out that for sustainable improvement to occur in IMCI implementation, training should be combined with other approaches, such as supervision and follow-up visits. Horwood et al (2009:7) cite a study that evaluated interventions to improve the performance of IMCI-trained health workers, in which the provision of training and support for supervisors, ongoing supervision, additional job aids, and non-financial incentives was found to improve the implementation of IMCI.

2.8.3.4   Inclusion of IMCI in Health Management Information System (HMIS)

IMCI implementation can also be improved by promoting accountability. Health worker adherence needs to be monitored. There is a need for emphasis on the implementation of case management observations by national, provincial and district managers. This can be made feasible through the development of IMCI indicators, which allow for the inclusion of IMCI in the Health Management Information System (HMIS) (Mullei et al 2009:23).

2.8.3.5   Standardisation of case management practices

Lastly, the challenge of caregivers' demands for medications not recommended by IMCI needs to be dealt with. Horwood et al (2009:8) indicate that this problem will continue to undermine the implementation of IMCI if it is not addressed and resolved. They suggest that treatments which are not recommended by IMCI should be removed from clinics, and that if treatments are to be discontinued, the policy must be observed consistently by all health workers that tend child patients. In this way, caregivers will have no option but to cooperate with whoever is helping them at the time, in the knowledge that there are no other drugs available besides those that are being prescribed.

The above are recommendations that have been offered by IMCI implementers in other countries, who are facing the same challenges that Botswana is facing in implementing the IMCI strategy.

2.9   CONCLUSION

In this chapter, the researcher gave an overview of the IMCI strategy, the background to it, as well as the goals, objectives, content, components, benefits, advantages, and processes of the strategy. The chapter also reviewed the state of IMCI implementation globally and in Botswana, and the challenges faced by IMCI implementers from a few selected countries.

The following chapter discusses the research design and methodology used in the study.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1   INTRODUCTION

In the previous chapter, literature related to the subject under study was reviewed. This third chapter provides a description of the research design and methodology used to identify challenges faced by IMCI-1-trained registered nurses in implementing the IMCI strategy, and to solicit recommendations to resolve the identified problems in the Gaborone Health District of Botswana. The researcher will discuss the research design, the population and the sample, the data-collection instruments used, the data analysis, measures of validity and reliability, as well as the ethical considerations that were adhered to.

3.2   RESEARCH DESIGN

A research design is the set of logical steps taken by the researcher to answer the research question (Brink 2009:92). Thus, it describes the study design which will be implemented, as well as the justification for selecting that specific design, the study population, sample size, sampling method and procedure, the instrument design, the data management, and ethical considerations (Polit & Beck 2012:252). By making use of a survey, the researcher used a quantitative, explorative and descriptive research design to determine the challenges experienced by IMCI-1-trained registered nurses in applying the guidelines and procedures set by the IMCI strategy when tending children under 5 years of age in health facilities in Gaborone.

3.2.1 Quantitative research

Burns and Grove (2009:22) define quantitative research as a formal, objective, systematic process in which numerical data is used to obtain information about variables. Brink (2009:10) stresses that quantitative research has its roots in logical positivism and that it focuses on measurable aspects of human behaviour. Quantitative

research employs structured procedures and formal instruments for the gathering of information and it amasses information under controlled conditions. It also ensures objectivity in the collection of the data, which is analysed through statistical procedures. Quantitative research is suitable for the description of variables such as knowledge, and is appropriate for this study, which seeks to identify the problems experienced by IMCI-1-trained registered nurses in implementing the IMCI strategy. Lastly, it aims to solicit recommendations on how to improve and promote the implementation of these procedures and guidelines.

3.2.2 Explorative research design

Polit and Hungler (2009:528) define exploratory research as a study designed to explore the dimensions of a phenomenon or to develop or refine hypotheses about the relationships between phenomena. Polit and Beck (2012:718) explain that an explorative research design can be used for an in-depth exploration and description of a single variable, process, or phenomenon to arrive at a complete description and explication. De Vos et al (2011:95) cite Blaikie (2000), who states that exploratory research is conducted to gain insight into a situation, phenomenon, community, or individual. He further states that the need for exploratory research could arise out of a lack of basic information on a new area of interest, or in order to become acquainted with a situation, so as to formulate a research problem or develop a hypothesis. The researcher has not found any documented research findings on the challenges experienced by IMCI-1-trained registered nurses in implementing the IMCI strategy in Botswana. Furthermore, the researcher believes that the findings from this exploratory research could mark the first stage in a sequence of studies that could emanate from them. Burns and Grove (2009:35) indicate that a descriptive research design assists quantitative researchers to develop hypotheses, which can be investigated and tested later with more precise and more complex research designs and data-collection techniques.

3.2.3 Descriptive research design

Descriptive research designs are designed to gain more information about characteristics within a particular field of study (Burns & Grove 2009:237). Their purpose is to provide a picture of situations as they occur naturally. A descriptive design

may be used to develop theory, identify problems with current practice, make judgements, or determine what others in similar situations are doing. This particular research design suits this study, in that the study aims to identify the key problems experienced by IMCI-1-trained registered nurses in applying the guidelines and procedures of the IMCI strategy. This is because there is insufficient existing literature describing the experiences of IMCI-1-trained registered nurses in implementing the IMCI strategy in Botswana. Secondly, there are no documented recommendations found for the improvement of the use of the IMCI strategy by the IMCI-1 implementers in Botswana. This study sets out to describe the occurrence of the research problem and to quantify the extent to which it occurs.

3.2.4 Survey

A survey was deemed an appropriate research method to resolve the research problem in this study, namely to break new ground on the undocumented challenges encountered by IMCI implementers in Gaborone. Polit and Hungler (2009:178) define a survey as any research activity in which the investigator gathers data from a portion of a population for the purpose of examining the characteristics, opinions, and intentions of that population. In this research, a representative sample of IMCI-1-trained registered nurses was selected and given the opportunity to express the challenges that they face in implementing the IMCI strategy. Polit and Hungler (2009:179) add that surveys often focus on what people do and think and what kind of behaviours they engage in, and that they guide the researcher to collect information on people's opinions, attitudes, and values. This advantage of surveys was exploited in soliciting relevant recommendations for health planners and policy makers on how to promote and improve the use of the IMCI strategy by health workers tending children under 5 years of age. Yet other advantages of using surveys are their cost-effectiveness, unique ability to cover large populations, and their capacity to gain insight into new phenomena (Brink 2009:112).

3.3 RESEARCH METHODOLOGY

In that the study made use of a survey questionnaire as data-collection tool, it employed a quantitative research design.

3.3.1 Study setting

The study setting is the physical location and conditions in which data collection takes place for a study, such as a natural, partially controlled, or highly controlled setting (Polit & Beck 2008:510). In this research, the study setting was the 15 clinics in Gaborone Health District in Botswana, where IMCI-1-trained registered nurses are deployed and tend children under the age of 5 years. They are:

- Extension 2 Clinic
- Extension 14 Clinic
- Extension 15 Clinic
- Bontleng Clinic
- Broadhurst 1 Clinic
- Broadhurst 2 Clinic
- Broadhurst 3 Clinic
- BTA Clinic
- G-West Phase 1 Clinic
- G-West Phase 2 Clinic
- Block 9 Clinic
- Old Naledi Clinic
- Block 6 Clinic
- Block 8 Clinic
- Sebele Clinic

The researcher considers this setting to be appropriate for this study, because it is a natural setting where there is no control over the setting or the participants. It is also a true representation of the physical location and conditions in which data collection takes place. Thus, the research findings can easily be generalised to the entire health district, as the study setting is representative of all the health facilities in the district where IMCI-1-trained registered nurses tend children under 5 years of age.

3.3.2 Study population

Burns and Grove (2009:714) define a study population as all the elements (individuals, objects, events, or substances) that meet the criteria for inclusion in the study. It is sometimes referred to as a target population. A target population is a group of individuals that meets the sampling criteria and to which the study findings will be generalised (Burns & Grove 2009:724). In this study, the population under investigation was all the registered nurses who have been trained in the IMCI strategy and are working in health facilities in Botswana, tending children under 5 years of age as part of their daily duties. The accessible population is the group of people or objects that is available to the researcher for a particular study (Brink 2009:198). In this study, the accessible population were all the IMCI-1-trained registered nurses tending children under 5 years of age in Gaborone Health District. The sample population is the subset of the population that is selected to represent the target population (Brink 2009:207). In this study, the sample population were the few selected IMCI-1-trained registered nurses to whom the questionnaires were administered. Figure 3.1 below provides a graphic representation of the target population, the accessible population, and the sample population.

Target population: All IMCI-trained registered nurses in Botswana

Accessible population: All IMCI-trained registered nurses in Gaborone Health District

Sample population: IMCI-trained registered nurses to whom questionnaires were administered
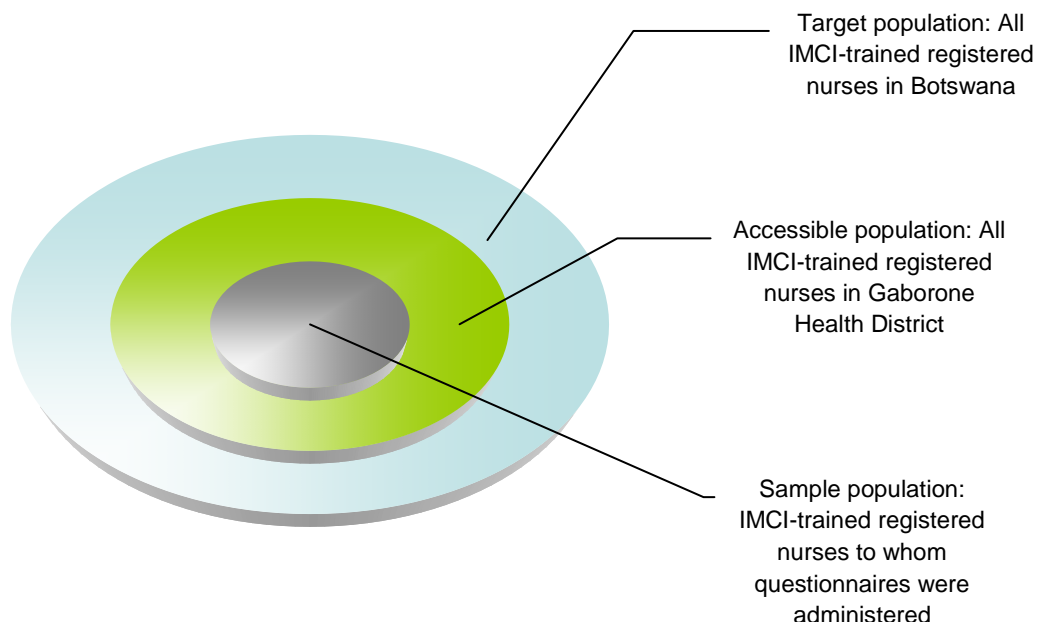
Figure 3.1: A graphic representation of the population under investigation

3.3.3 Selection criteria

LoBiondo-Wood and Haber (2006:387) refer to inclusion criteria as the requirements identified by the researcher that must be present for the element or subject to be included in the sample. In this research, the study participants were selected based on their compliance with the following inclusion criteria:

- They had to have a degree or a diploma in nursing
- They had to be IMCI-1-trained
- They had to be tending children under 5 years in their current station of duty
- Their current station of duty had to be located in Gaborone Health District

The registered nurses who were excluded from this study were:

- Those who had not consented to participate in the study.
- Those who were on leave at the time that the questionnaire was administered.
- Those who had not been IMCI-1-trained.
- Those who were not tending children under 5 years in their current station of duty.
- Those whose current station of duty was outside Gaborone Health District.

3.4 SAMPLING PLAN

Sampling is the process of selecting a portion of the target population to represent the entire population (LoBiondo-Wood & Haber 2006:433). According to Burns and Grove (2009:349, 721), a sampling plan describes the strategies that will be used to obtain a sample for a study, and may include either probability or non-probability sampling methods. In this study, sampling refers to how the IMCI-1-trained registered nurses were selected for this study. A sampling plan specifies the sampling method and sample size, as well as the procedures that will be followed for the recruitment of study subjects.

3.4.1 Sampling method

A sampling method is the process of selecting a group of people, events, behaviours, or other elements that are representative of the population being studied. It includes probability and non-probability sampling (Burns & Grove 2009:349, 721). In this research, the researcher used probability sampling. In probability sampling all elements in the target population have an equal chance of being included in the sample. The researcher chose probability sampling because it allows for an estimation of the sampling error and it enables a reduction of bias in the sample. Lastly, probability sampling was chosen because it enables the researcher to use inferential statistics correctly.

3.4.2 Systematic sampling

According to Polit and Beck (2008:511), systematic sampling is the selection of the sample in such a way that every kth (for example, every 10th) person (or element) in a sampling frame is chosen. Systematic sampling is conducted when an ordered list of all members of the target population is available, and it involves selecting every kth individual on the list, starting from a point that is selected randomly (LoBiondo-Wood & Haber 2006:385). Systematic sampling is the most appropriate sampling strategy for this study. The researcher obtained a list of all the IMCI-1-trained registered nurses in Gaborone Health District from the Gaborone District Health Management Team (DHMT). The list showed the total number of IMCI-1-trained registered nurses, as well as their current station of duty. The researcher controlled systematic bias by ensuring that the original list obtained from the DHMT was not set up with any ordering that could be significant in relation to the study.

3.4.3 Sampling procedure

The list secured from the District Health Management Team (DHMT) showed that there are 90 IMCI-trained registered nurses distributed across the 15 clinics in Gaborone Health District. Following the formula proposed by Fox, Hunn and Mathers (2009:7), the researcher calculated the sampling interval by dividing the target population (that is, 90 IMCI-1-trained registered nurses) by the sample size of 45, to obtain a sampling fraction of 2. From the list, the researcher randomly picked a number which fell within the

sampling fraction, of which the number 1 was selected. The IMCI-1-trained registered nurse that had been assigned the number 1 was then selected as the starting point. After that, every second IMCI-1-trained registered nurse was selected, according to the kth principle. This gave the researcher a total sample size of 45, which is 50% of the target population. The researcher located the health facilities where the selected IMCI-1-trained registered nurses were stationed for duty, and questionnaires were administered to them. Of the 45 questionnaires that were sent out to study participants, 33 were fully completed and collected by the researcher.

3.4.4 Control of sampling bias

Sampling bias occurs when the researcher fails to select the sample with vigilance. Brink (2009:126) explains that sources of sampling bias could be the time the data were collected, the places in which the data were collected, the language used, the extent to which personal views colour the data, use of an incomplete or incorrect sampling frame, or the researcher being guided by preference in the selection of research subjects. In this study, the researcher minimised sampling bias by employing random sampling technique, and by ensuring that the sampling frame used was a full list of the target population. Lastly, the researcher ensured that individuals and sites in the sample did not differ systematically in characteristics and conditions from the study population and study setting, respectively. This was achieved by ensuring that all individuals and sites met the selection criteria.

3.4.5 Sample size

Sample size is the number of subjects or participants recruited and consenting to take part in a study (Burns & Grove 2009:721). According to Polit and Beck (2006:267), there is no simple equation to determine how large a sample is needed, but quantitative researchers are generally advised to use the largest sample possible. Joubert and Ehrlich (2007:102) state that although the sample size need not be a specific percentage of the study population, the researcher needs to avoid too large and too small samples. This is because unnecessarily large samples can pose a threat in supervision of the collection of huge amount of information. It can also lead to waste of resources and time. On the other hand, too small samples could produce inconclusive and useless results.

De Vos et al (2011:225) quote Grinnell and Williams (1990:125), who state that in most cases, a 10% sample should be sufficient for controlling for sampling errors. They add that a sample size of 30 is sufficient to perform basic statistical procedures. The researcher settled for a sample size of 50% of the target population (including allowance for non-response), as she deemed this size large enough to allow for generalisation of findings and sufficient to control for sampling errors and to perform basic statistical procedures. This sample size corresponds with the guidelines for sampling proposed by De Vos et al (2011:225).

3.5   DATA-COLLECTION PLAN

According to Burns and Grove (2009:43), data collection is the precise, systematic gathering of information relevant to the research purpose of the study. In quantitative studies, data collection involves obtaining numerical data to address the research objectives, questions or hypothesis (Brink & Wood 2008:265). The data-collection plan "typically specifies procedures for actually collecting the data, like where, when, and how data will be gathered" (Polit & Beck 2008:57).

The data-collection methods employed in a descriptive research design include observation, questions (interviews and questionnaires), review of available data, projective techniques, physiological tests on humans, and chemical or physical tests on humans or inanimate objects (LoBiondo-Wood & Haber 2006:329). In this study, structured self-report questionnaires were used to collect data.

3.5.1 Questionnaires

Polit and Beck (2008:508) define a questionnaire as a method of gathering self-reported information from respondents through the self-administration of questions in a paper-and-pencil format. Burns and Grove (2009:408, 717) explain that questionnaires are used in descriptive studies and are designed to determine facts about the subject or persons known by the subject, facts about events and situations known by the subject, or beliefs, attitudes, opinions, levels of knowledge, or intentions of the subject. In this study, a questionnaire was used to gather information about the challenges perceived by IMCI-1-trained registered nurses in implementing the IMCI strategy. The same

questionnaire also captured relevant recommendations for the promotion and improvement of the use of the strategy to health planners and policy makers, based on registered nurses' personal experiences.

3.5.1.1 Advantages of using questionnaires

A questionnaire was chosen as a data-collection tool for several reasons. Firstly, questionnaires have the capacity to capitalise on "the unique ability of humans to communicate verbally at a sophisticated level" (Polit & Hungler 2009:192). Questionnaires are less costly and require less time and effort to administer, and they offer the possibility of complete anonymity, which is crucial in obtaining information about people's personal practices (Brink 2009:147). In this research, anonymity was essential, because the research sought to identify the challenges faced by IMCI-1-trained registered nurses in implementing the strategy of IMCI. This could have revealed broader sensitive health systems flaws, a lack of political will, and insensitivity to the childhood health issues. Due to the potential sensitivity of the findings, the use of a questionnaire enabled subjects to feel a greater sense of anonymity and increased the chances that they would respond truthfully.

A questionnaire was also chosen because it ensured that there was no bias reflecting the respondents' reaction to the interviewer rather than to the questions themselves. Lastly, a questionnaire was chosen for its capacity to enhance measurement, due to the fact that all respondents answered the same questions. Thus, questionnaires are the easiest research instrument to test for reliability and validity, and they are a rapid and efficient method of gathering adequate information on a particular subject (Brink 2009:148).

Polit and Beck (2012:294) indicate that both closed questions and open-ended questions have strengths and weaknesses. Closed questions, although difficult to construct, are easier to administer and to analyse, and they are "more efficient: people can complete more closed questions than open questions in a given amount of time" (Brink & Wood 2005:333). On the other hand, open-ended questions allow for richer and fuller information and are easier to construct. In the light of the above comparison of the two types of questions, the researcher settled for a questionnaire consisting of closed questions.

3.5.1.2 Questionnaire pre-testing

A pilot study is a test run of aspects of the main study (Joubert & Ehrlich 2007:116). They add that, in developing a questionnaire, a series of small pilot studies is needed to refine the instrument. The aim of pre-testing the questionnaire is to improve the quality of the questionnaire and test for the validity and the reliability of the instrument. In this study, pre-testing of the questionnaire was done on five respondents who had the same characteristics as the target population but did not participate in the actual study. The questionnaire pre-test that was administered revealed weaknesses in the research instrument, it provided an estimate of the time required to complete the questionnaire, and it identified questions that were ambiguous, difficult to comprehend, or irrelevant.

The pilot study indicated that an average time of 20-30 minutes was required for completion of the questionnaire. The researcher deemed this duration appropriate. The questionnaire pre-test also revealed incorrect question numbering in section C, where items were numbered as B1, B2, B3, etc, instead of as C1, C2, C3, etc. The researcher simply renumbered the questions correctly. Lastly, the pre-test revealed a question which was irrelevant, as it inquired about the participants' knowledge base of the IMCI strategy. The question was said to be irrelevant, as it did not in any way contribute towards the answering of either of the two research questions for this study. Consequently, the question was omitted. After the questionnaire had been amended, the researcher did not pilot it again, as the changes that were effected were minor, such that they did not warrant a second piloting of the research instrument.

3.5.1.3 Format of the structured self-report questionnaire

The questionnaire was divided into the following three sections:

Section A: Biographical data of the respondents

Section A solicited biographical data on the subject, his or her professional background, area of specialisation, experience obtained since completing training, and the year in which IMCI training was completed, as well as the type of training received.

Section B: Challenges experienced in implementing the IMCI strategy

Section B inquired about the problems and challenges faced by IMCI-1-trained registered nurses in implementing the guidelines and procedures of the IMCI strategy.

Section C: Recommendations to promote and improve the use of the IMCI strategy

Section C solicited relevant recommendations on how to promote and improve the implementation of the lifesaving strategy of IMCI.

See Annexure 2 for a copy of the questionnaire used in this study.

3.5.1.4   *Questionnaire administration*

The researcher delivered the questionnaire in person to all the health facilities in Gaborone Health District. After requesting permission from the nurse in charge, the researcher explained the purpose and the objectives of the study and handed the questionnaires to the respondents in person. She then left the study participants to complete the questionnaire in their own time and space, and collected them after a few days. It was not feasible for the participants to complete the questionnaire while the researcher waited, as there were continually patients waiting to be attended to by the nurses.

3.6   MEASURES OF RELIABILITY AND VALIDITY

The two major criteria that will be used to assess the quality of the research instrument in this quantitative study are reliability and validity.

3.6.1 Reliability

Joubert and Ehrlich (2007:117) define reliability, or precision, as the degree of similarity of the results obtained when the measurement is repeated on the same subject or the same group. LoBiondo-Wood and Haber (2006:499) define reliability as the extent to which the research instrument yields the same results on repeated measures. The

reliability of a measure indicates the extent of uniformity of results obtained when using a particular instrument.

The three main attributes of reliability are stability, homogeneity, and equivalence. Stability denotes the capacity of a research instrument to produce the same results with repeated testing, while homogeneity is the extent to which all items in a data-collection tool measure the same concept or characteristic. Equivalence is the capacity of a research instrument to yield the same measures when similar procedures are employed (Brink 2009:165).

In this research, the following procedure was employed to ensure that the instrument had stability, equivalence, and homogeneity:

- Guidance from supervisors was sought, and consultations were held with WHO and UNICEF IMCI strategy experts. The researcher worked closely with the national IMCI coordinator, the IMCI national focal person, and the doctor who is responsible for IMCI-1-trained registered nurses in Gaborone Health District.
- A pilot study was conducted using subjects with the same characteristics as the study sample, to establish consistency of response.

3.6.2 Validity

Polit and Hungler (2009:293) define validity as the degree to which a research instrument measures what it purports to measure. Polit and Beck (2012:537) refer to validity as the extent to which a specific measurement provides data related to commonly accepted meanings of a particular concept under consideration. According to De Vos et al (2011:173), the definition of validity has two aspects, namely that the instrument actually measures the concept in question, and that the concept is measured accurately. The four main assessment approaches to validity that have been upheld in this research are face validity, content validity, internal validity, and external validity.

3.6.2.1 *Content validity*

According to Babbie (2010:147), content validity has to do with the degree to which a measure covers the range of meanings included in the concept. De Vos et al (2011:173)

explain that a valid measure should provide an adequate or representative sample of all the content, or elements, or instances, of the phenomenon being measured. Content validity is concerned with adequacy of coverage of the content being measured (Polit & Beck 2012:328). Content validity is crucial for the testing of knowledge, and this makes is very relevant to this study, which seeks to identify the challenges faced by IMCI-1-trained registered nurses in implementing the strategy of IMCI.

In this research, content validity was ensured in the following ways:

- The researcher sought "feedback from individuals who are considered experts in measuring the concept" (Burns & Grove 2009:384). In this case, reports by WHO and UNICEF experts who have been training and implementing IMCI since its introduction were consulted to evaluate the relevance and congruency of the questions.
- Experts on the IMCI strategy checked on how well the questionnaire had been designed.
- The researcher conducted an extensive literature review of the IMCI strategy, the challenges experienced by IMCI implementers in other countries, as well as proposed solutions to resolve the various different challenges.
- Wrongly phrased questions were rephrased.
- Errors in the questionnaire were detected and corrected by means of a pre-testing of the questionnaire being administered to respondents who would not participate in the actual study.

3.6.2.2 Face validity

Face validity means that the measure appears to accurately assess the intended variables (Brink & Wood 2005:315). According to De Vos et al (2011:173), face validity is concerned with the superficial appearance, or face value, of a measurement procedure. They add that face validity, although not technically a form of validation, is a desirable characteristic of a measuring instrument, as it serves to counter resistance on the part of the respondents. Thus, the measuring instrument should appear relevant to those who will complete it. In this study, face validity was achieved in the following ways:

- Consultations were held with experts on the IMCI strategy, namely UNICEF and WHO national representatives, IMCI strategy facilitators, and IMCI implementers.
- The researcher carefully selected items to include in the questionnaire. The items included in this study pertained to challenges identified by IMCI-1-trained registered nurses from other countries in implementing the strategy of IMCI, as well possible suggestions for improving and promoting the use of the strategy.

3.6.2.3 Internal validity

In this study, internal validity was enhanced in two ways. Firstly, the researcher validated the questionnaire through an intensive review of the literature, as well as consultations with IMCI experts who are country representatives of the WHO and UNICEF. Secondly, the researcher ensured that all the study participants answered the same questionnaire, and ensured that the conditions under which data were collected were standardised throughout the two-week period of data collection.

3.6.2.4 External validity

External validity refers to the degree to which the results of a study can be generalised to other people and other settings (Brink 2009:101). In this study, the researcher enhanced external validity in more than one way. Firstly, the researcher used a sample size of 50% of the accessible population, which is a sample size which is sufficient to control for sampling errors. This sample size also warrants generalisation of the research findings to other health facilities within the health district. Secondly, the researcher made certain that the sample had characteristics that were representative of the target population of IMCI-1-trained registered nurses. Lastly, the study setting comprised all the health facilities within Gaborone Health District where IMCI-1-trained registered nurses are deployed and are tending children under 5 years of age in their daily duties. The findings can therefore be considered a true reflection of the challenges encountered by IMCI implementers in all the health facilities within the health district.

3.7 ANALYSIS OF THE DATA

Data analysis is the systematic organisation and synthesis of research data and, in most quantitative studies, the testing of the research hypothesis using those data (Polit

& Beck 2012:498). The raw data collected during the research only provide meaningful answers to the research questions after they have been processed and analysed in some orderly, coherent fashion, so that relationships can be clearly seen (Brink & Wood 2005:362).

According to Burns and Grove (2009:409), data from questionnaires are usually ordinal in nature, which limits analysis, for the most part, to summary statistics and non-parametric statistics. For this reason, the Excel Advanced computer program was used to analyse the data. Descriptive statistics such as frequency distributions, measures of central location, and measures of dispersion were employed to describe and summarise the data. An analysis of the data and the results is given in Chapter 4.

3.8   OVERVIEW OF ETHICAL CONSIDERATIONS

Polit and Beck (2012:499) define research ethics as the system of moral values that is concerned with the degree to which research procedures adhere to professional, legal and social obligations towards study participants. Brink (2009:35) states that there are three main ethical principles that guide researchers, namely respect for persons, beneficence, and justice, and that these principles are based on the human rights that need to be protected in research. These rights are the right to self-determination, to privacy, to anonymity and confidentiality, to fair treatment, and to being protected from discomfort and harm.

3.8.1 The principle of respect for persons

The principle of respect for persons seeks to protect the human right to self-determination and it emphasises that individuals are autonomous. Brink (2009:32) stresses that an individual has the right to decide whether or not to participate in a study, without the risk of incurring a penalty or prejudicial treatment. An individual has the right to withdraw from a study at any time, to refuse to give information, and to ask for clarification about the purpose of the study. The researcher should therefore desist from using coercion in respect of this right. In this study, the right to self-determination was observed in the following ways:

- The researcher informed all prospective research subjects that they had the freedom to decide whether or not to participate in the research, without the risk of incurring a penalty or prejudicial treatment.

- Study participants were informed of their right to withdraw from the study at any time, without needing to provide any reason and without incurring any disadvantages, being discriminated against, or being victimised.

3.8.2 The principle of justice

The principle of justice addresses the right to fair selection and treatment, and the right to privacy. The right to fair selection and treatment means that the researcher should select study participants for reasons directly related to the study problem. By contrast, the right to privacy means that the study participant has the right to determine the extent to which, and the general circumstances in which, his or her private information will be shared with or withheld from others. The principle of justice can be addressed through anonymity and confidentiality procedures (Brink 2009:33).

According to Brink (2009:34), the process of ensuring anonymity refers to the researcher's act of keeping the subjects' identities a secret with regard to their participation in the research study. In this study, to ensure anonymity, no names or personal addresses or any other identifiable information were requested in the data-collection instrument.

The process of ensuring confidentiality refers to the researcher's responsibility for preventing data gathered during the study from being divulged or made available to any other person (Brink 2009:35). In this study, the data that were collected were treated with confidentiality, they were stored on a personal computer with a personalised password, and they were not used for any other purpose outside of this research.

3.8.3 The principle of beneficence

This ethical principle of beneficence seeks to address the study participant's right to protection from discomfort and harm, be it physical, emotional, spiritual, economic, social, or legal (Brink 2009:32). In this study, the ethical principles of voluntary participation and protecting the participants from harm will be observed through

obtaining informed and signed consent from each subject before they proceed to answer the questionnaire. Data were stored on the researcher's personal computer, and the password was protected to ensure that no one else besides the researcher could access the data.

3.8.4 Institutional rights

Permission to carry out the research was obtained from the following parties:

- The Research and Ethics Committee of the University of South Africa
- The Research Division of the Botswana Ministry of Health
- The Gaborone District Health Management Team
- Nurses in charge at the respective clinics

See Annexures 4, 5, and 6 for copies of the above-mentioned documents.

3.9 CONCLUSION

This chapter gave a description of the research design and methodology that was used to identify challenges faced by IMCI-1-trained registered nurses in implementing the IMCI strategy, and to solicit recommendations to resolve the identified challenges in Gaborone Health District in Botswana. The researcher discussed the research design, the population and sample, the data-collection instruments used, the analysis of the data, measures of validity and reliability, as well as the ethical considerations observed.

The following chapter provides a detailed presentation, analysis, and interpretation of the data.

CHAPTER 4

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1   INTRODUCTION

In the previous chapter, the researcher described the research design and methodology used in this study. This fourth chapter contains the presentation, analysis, and interpretation of the data collected by means of a questionnaire.

In this limited-scope dissertation, a quantitative, explorative and descriptive study was used to identify the challenges faced by IMCI-1-trained registered nurses in implementing the guidelines of the IMCI strategy in Botswana. The study also solicited relevant recommendations to improve and promote the use of the strategy.

The objectives of this research were:

- To identify the challenges experienced by IMCI-1-trained registered nurses in implementing the guidelines and procedures stipulated by the IMCI strategy for the case management of children under 5 years of age.
- To make relevant recommendations to the Department of Public Health in Gaborone Health District to promote and improve the implementation of the guidelines and procedures of the IMCI strategy by IMCI-1-trained registered nurses.

4.2   RESPONSE RATE

According to Welman et al (2005:74), the most common way of calculating the response rate is by dividing the number of responses by the total number in the sample. Applying this formula, the response rate in this study is found to be 83%, as there were 33 responses out of a total sample of 45 respondents to whom the questionnaire was administered. Table 4.1 provides a breakdown of the response rate per question. From this table, it is evident that not all respondents answered every question. Nevertheless,

the response rate of 83% is sufficient to ensure a representative sample, as a response rate of 60% is deemed acceptable for a quantitative study (Welman et al 2005:73).

Table 4.1: Response rate

Questionnaire 1			
Question	**Answered**	**Omitted**	**Aspect/Context**
001	33	0	Informed consent
A1	33	0	Age
A2	33	0	Gender
A3	33	0	Nationality
A4	33	0	Nursing qualifications
A5	33	0	Nursing speciality
A6	33	0	Period of IMCI training
A7	33	0	Type of IMCI training
A8	33	0	Duration of IMCI training
A9	33	0	Number of years after IMCI training
A10	32	1	IMCI follow-up training
B1	30	3	IMCI as a criterion in the assignment of duties
B2	30	3	Steps in the IMCI case management protocol found difficult to apply
B3	33	0	Application of all the steps in the IMCI protocol
B4	31	2	Effect of IMCI protocol on patient-nurse ratio
B5.1	31	2	Estimate of time spent tending an under-5 patient when using the IMCI protocol
B5.2	31	2	Estimate of time spent tending an under-5 patient when not using the IMCI protocol
B6	31	2	Impact of IMCI on case management skills
B7	33	0	Challenges faced in implementing the IMCI strategy
C	32	1	Recommendations for improving and promoting the use of the IMCI strategy

4.3   DATA ANALYSIS

The questionnaire used to collect data from IMCI-1-trained registered nurses consisted of three sections, namely:

- Section A: Biographical and professional data of the respondents
- Section B: Problems experienced in the implementation of the IMCI strategy
- Section C: Recommendations to promote and improve the use of the IMCI strategy

Data were analysed and interpreted using the Excel Advanced program. Descriptive and inferential statistical tests such as frequencies, percentages, and modes were used to interpret and present the data. A statistician verified the results (see Annexure F). The results of this research are discussed with reference to the sample characteristics of the IMCI-1-trained registered nurses.

4.4 SECTION A: BIOGRAPHICAL AND PROFESSIONAL DATA

Section A of the questionnaire consisted of 10 questions which solicited biographical information about the subjects, their professional background, nursing qualifications, and areas of nursing speciality, the amount of experience they had acquired since completing their IMCI training, and the type, period, and duration of their training. This information was essential to ensure that the registered nurses that participated in the study met the inclusion criteria. It also showed the professional background of the study participants and gave assurance that the participants had experience in implementing the IMCI strategy.

4.4.1 Respondents' age

The majority of the IMCI-1-trained registered nurses who participated in this study fell within the age range of 35-44 years. Figure 4.1 below shows the age distribution of the respondents.
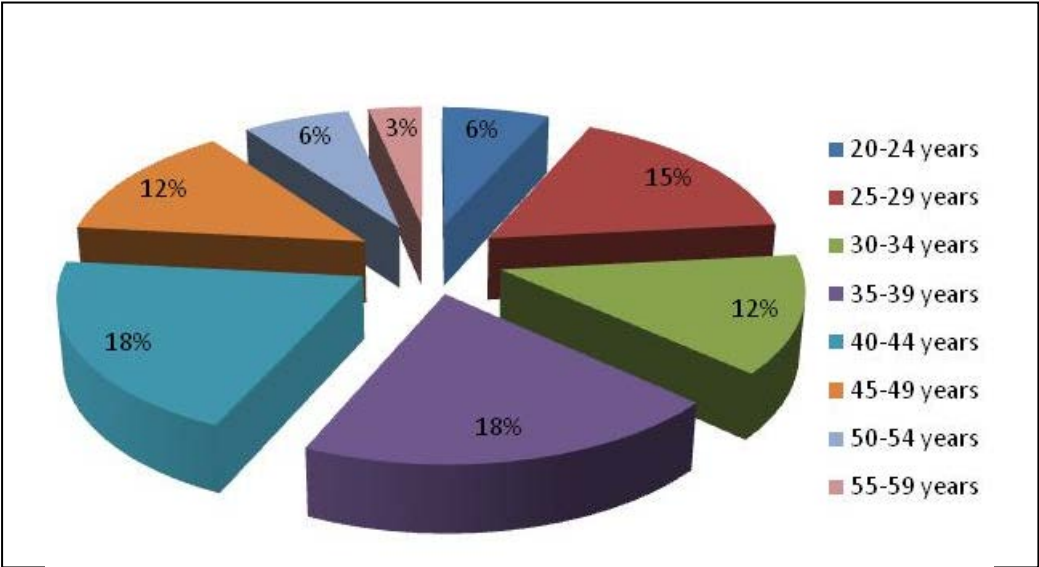
Figure 4.1: The age distribution of respondents

4.4.2 Respondents' gender and nationality

Of the 33 respondents, 27 (82%) were females and 6 (18%) were males. Thus, more female IMCI-1-trained registered nurses were included in this study. All of the 33 respondents who participated in this study were Batswana.

4.4.3 Participants' nursing qualifications and speciality

Of the 33 IMCI-1-trained registered nurses, the majority (n=29; 87.9%) were diploma holders, while 12.1% (n=4) were degree holders. All of the 33 IMCI-1-trained registered nurses who participated in this study were general nurses. Of the 33 general nurses, 15 (45%) were midwives, one (3%) had an additional qualification in psychiatry, and one (3%) was a family nurse practitioner.

4.4.4 Participants' period of training

The majority of the IMCI-1-trained registered nurses who participated in this study (n=22; 67%) were trained in the IMCI strategy between 2006 and 2012, while the remaining 33% (n=11) trained between 1999 and 2005 (see Figure 4.2). The relevance of this question was to indicate that there were more registered nurses trained in the IMCI strategy in the last six years than in the previous six years. The trend of more nurses having been trained in recent years is consistent with the finding of the WHO CAHAR Report of 2010 that Botswana has moved from the early implementation phase to the expansion phase in its implementation of the IMCI strategy, which is characterised by spreading IMCI implementation from pioneer districts to other districts in a country. This is evidenced by the fact that in 1997, Botswana had selected five districts (out of a total of 24 districts) to start IMCI implementation (IMCI HFS 2004:7), and by 2010, 75% of Botswana's health districts were implementing IMCI (WHO 2010b:12).
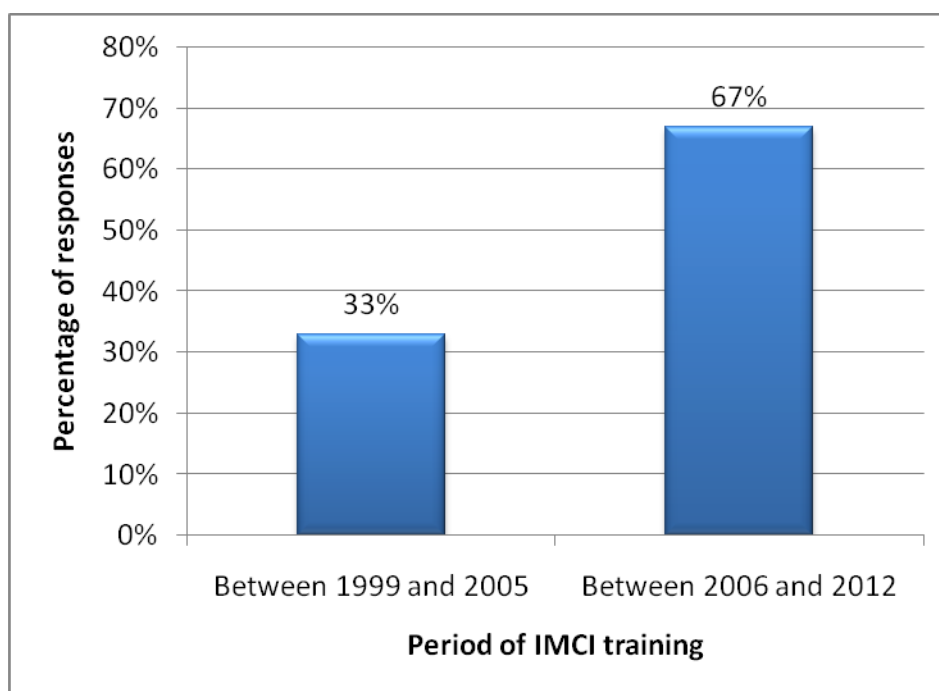
Figure 4.2: Participants' period of IMCI training

4.4.5 Type of IMCI-1 training

Of the 11 participants (33%) who trained in the IMCI strategy between 1999 and 2005, one (3%) underwent pre-service training, while 10 (30%) received in-service training. Of the 26 participants (67%) who trained between 2006 and 2012, 16 (49%) underwent in-service training, while the other six (18%) received pre-service training. Only seven of the 33 participants (21%) underwent IMCI training concurrently with their basic nursing training. Hence, the majority of IMCI-1-trained registered nurses who participated in this study acquired their IMCI training while they were already working, thus after they had completed their basic nursing training. The increase in the number of nurses trained in the IMCI strategy concurrently with their basic nursing training in recent years is an indication that Botswana has scaled up the pre-service training of IMCI. This is consistent with the finding of the WHO CAHAR Report of 2010 that Botswana is one of the countries that had received technical support for IMCI pre-service training from the WHO by June 2010. Figure 4.3 shows the relationship between period and type of IMCI training received by study participants.
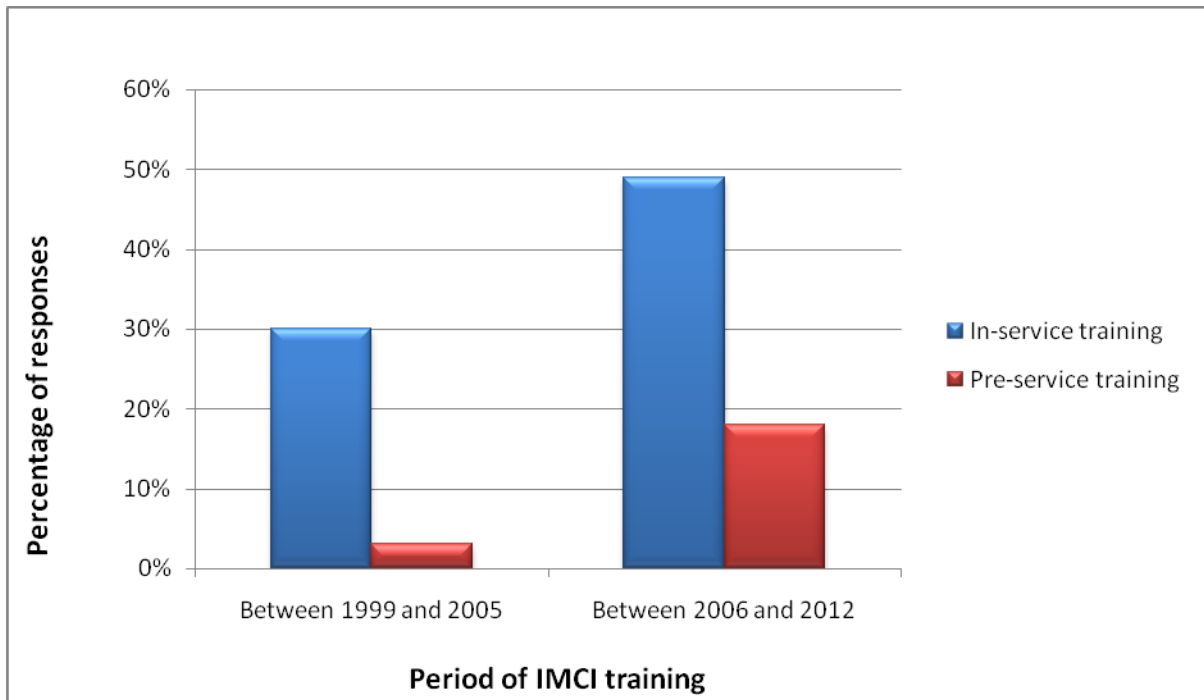
Figure 4.3: Period and type of IMCI-1 training

4.4.6 Duration of IMCI-1 training

The majority of the study participants (n=21; 64%) underwent their IMCI training in five days. This question was noteworthy in this study, because it intended to help the researcher assess whether the challenges encountered are in any way related to the length of time assigned to trainees to grasp the required skills. Significantly, the findings show that Botswana has already reduced the duration of IMCI training from 11 days to five days. This is a measure that has been adopted by the countries reviewed in subsection 2.2.2 to reduce the exorbitant costs of IMCI training, thereby increasing the number of registered nurses that are capacitated to deliver IMCI. Figure 4.4 below shows the distribution of the different durations of IMCI-1 training attended by the registered nurses who participated in this study.
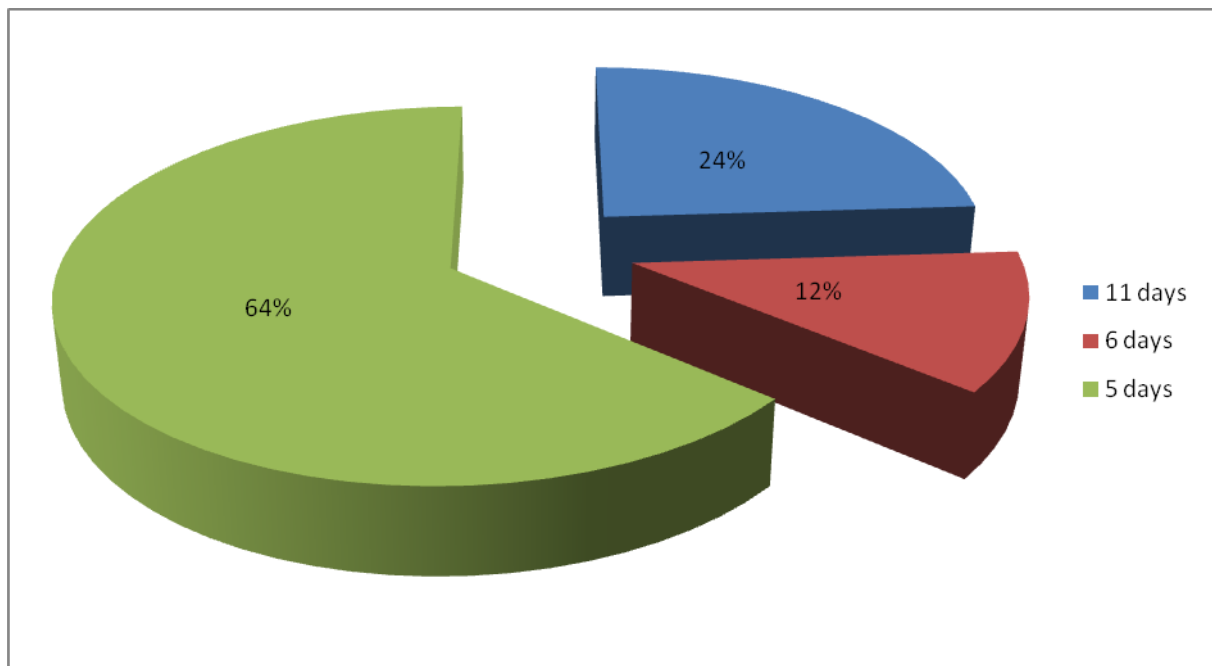
Figure 4.4: Duration of IMCI-1 training

4.4.7 IMCI follow-up training

Seventy-eight percent (n=25) of the IMCI-1-trained registered nurses who participated in this study had not received IMCI follow-up training, while 22% (n=7) indicated that they had received follow-up training. This question seem to suggest that that lack of IMCI follow-up training could be an obstacle to smooth implementation of the IMCI strategy in Botswana. Significantly, the same challenge of lack of IMCI follow-up training was cited as a challenge to IMCI implementation in other countries, as was explained in subsection 2.7.6.4. Figure 4.5 below provides a graphic representation of the number of participants who had received IMCI-1 follow-up training and those who had not yet received any additional or follow-up training at the time that the questionnaire was administered.
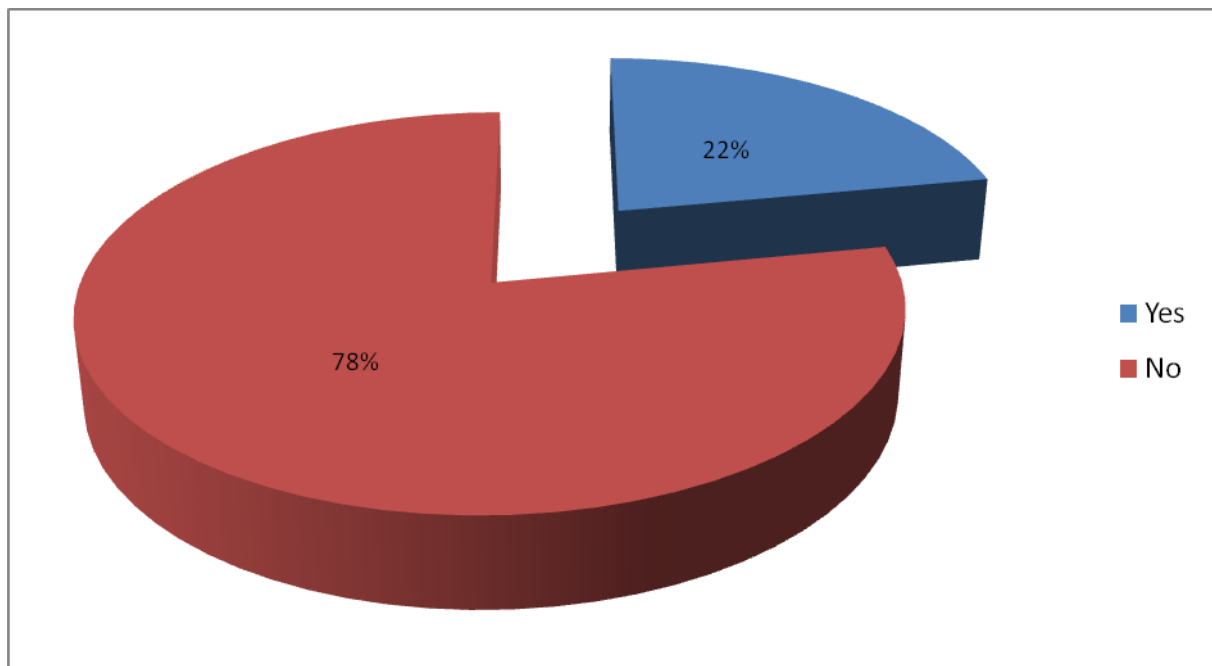
Figure 4.5: Distribution of IMCI-1 follow-up training recipients

4.5 SECTION B: IMCI-1-TRAINED REGISTERED NURSES' EXPERIENCE IN IMPLEMENTING THE IMCI STRATEGY

Section B of the questionnaire consisted of seven closed questions which inquired about the respondents' experiences in implementing IMCI at their respective health facilities in Gaborone Health District. The respondents were requested to indicate the degree to which they agreed or disagreed with the statements that identified possible challenges encountered in implementing the IMCI strategy.

4.5.1 Completion of IMCI-1 training as a criterion in the assignment of daily duties to registered nurses

This question sought to establish whether completion of IMCI training was used as a criterion in the assignment of daily duties to registered nurses. This question was important to the study, as the researcher intended to ascertain whether the health system acknowledges the place of IMCI skills in the care of patients under 5 years of age. The majority of the respondents (n=19; 60%) confirmed that completion of IMCI training is considered in the assignment of daily duties to registered nurses at their respective facilities. This response rate of 60% implies that Botswana has a strong political and health systems support for IMCI, which however was a challenge in

Uganda as cited by Goga and Muhe (2011:6). In Uganda, the researchers noted strategic differences among decision makers regarding the role of IMCI as a vertical programme rather than as a standard approach in managing under 5s in health facilities.

In Nigeria, Goga and Muhe (2011:8) documented lack of consensus among policy makers on whether IMCI was the most valuable strategy for child health interventions. As long as such differences exist with regards to IMCI among key decision makers, completion of IMCI training fails to qualify as criterion for allocation of daily duties and assignments to registered nurses.

Figure 4.6 illustrates the subjects' responses to the question of whether completion of IMCI-1 training is a criterion in the assignment of daily duties to registered nurses.
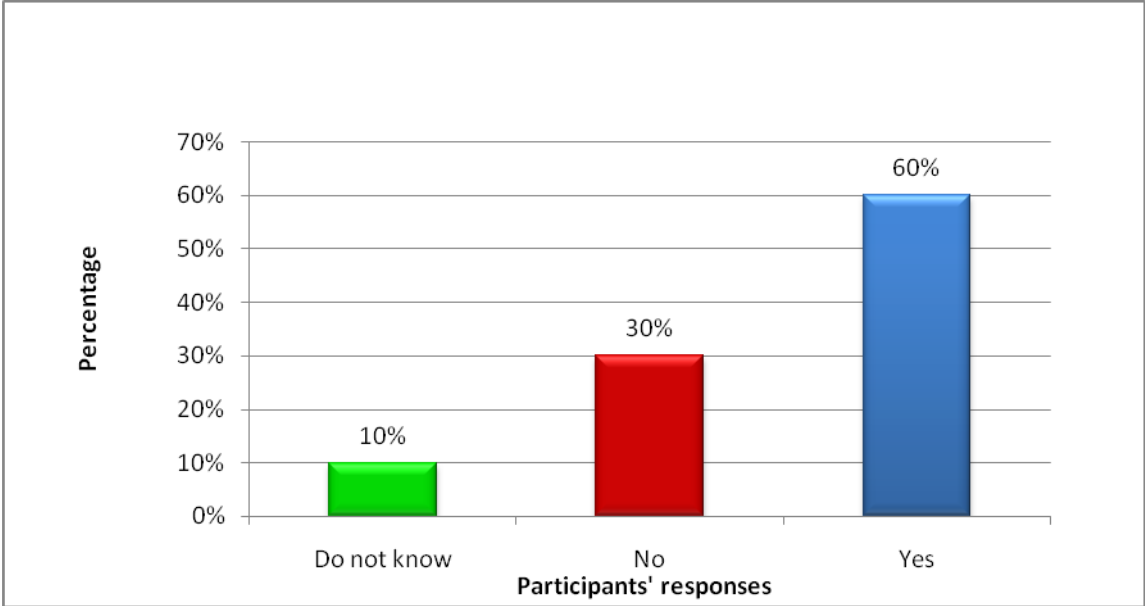
Figure 4.6: Completion of IMCI-1 training as a criterion in the assignment of daily duties to registered nurses

4.5.2 Steps in the case management protocol that were found difficult to apply

This section of the data-collection tool sought to determine whether there were any steps in the IMCI case management protocol that IMCI-1-trained registered nurses found difficult to apply, and thus to ascertain how these steps interfere with the implementation of the IMCI strategy at first-level facilities. This question was important

to the study in that it attempted to identify challenges related to the unique features of the IMCI strategy. The researcher posed statements, and the respondents were asked to indicate their responses by ticking 'yes', 'no' and 'sometimes'.

The majority of respondents who answered this question indicated that all the steps in the IMCI case management protocol were easy for them to apply. This suggests that IMCI implementers in Gaborone Health District face minimal challenges related to the uniqueness of the IMCI strategy. This is attested to by the fact that only 10% (n=3) of the respondents admitted that they found the steps "Assess the child's condition", "Identify treatment", and "Counsel the caregiver" difficult to apply. Only 13% (n=4) of the respondents found the steps "Classify the child's condition" and "Treat the child" difficult to apply, and only 7% (n=2) of the respondents revealed that the step "Provide follow-up care" was difficult for them to apply. Thirteen percent (n=4) and 18% (n=5) of respondents admitted that sometimes the steps "Classify the child's condition", "Identify treatment", "Treat the child", and "Counsel the caregiver" were difficult to apply. Ten percent (n=3) of the respondents revealed that sometimes the step "Assess the child's condition" was difficult to apply, and 21% of respondents responded that the step "Provide follow-up care" was difficult to apply. Figure 4.7 provides a graphic representation of the study participants' responses to questions regarding the extent to which they found the steps in the case management protocol difficult to apply.
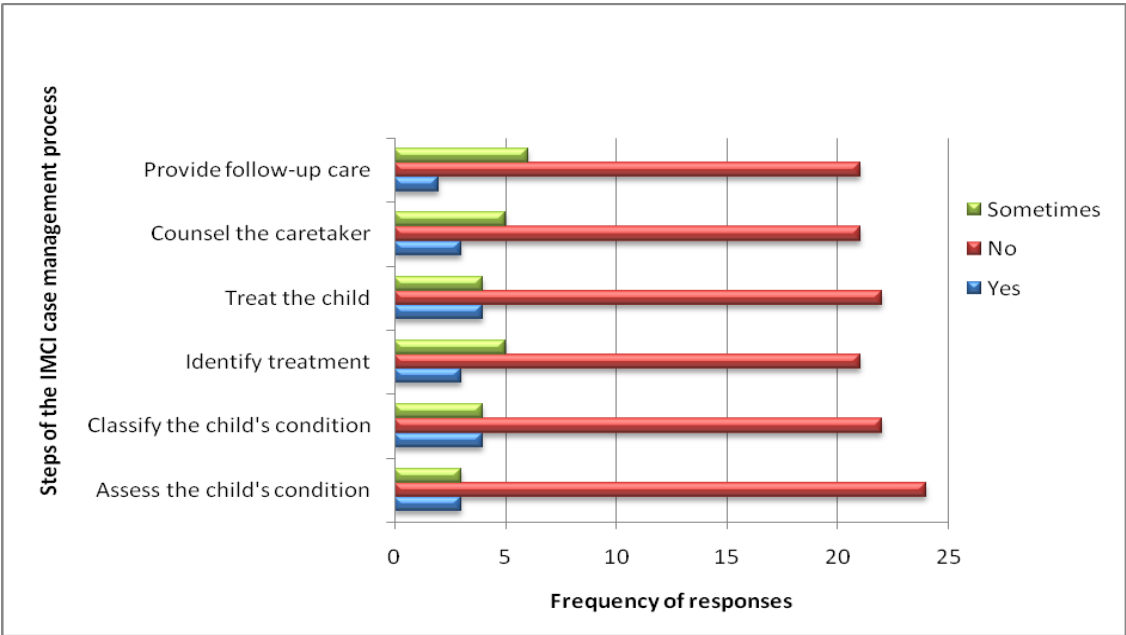
Figure 4.7: Steps in the case management protocol that were found difficult to apply

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4.5.3 Management of sick children using the IMCI case management protocol

This section of the questionnaire sought to establish the extent to which first-level-facility IMCI implementers apply the steps in the IMCI case management protocol. The researcher wanted to ascertain whether IMCI-1-trained nurses always apply all the steps, most of the steps, or any steps at all. The question was important to the study, because it aimed to establish the reasons why the steps were applied differently, and to solicit recommendations on how to achieve a 100% application of all the steps. This could assist in further reducing childhood morbidity and mortality.

Generally, there is no consistency in the way the IMCI-1-trained nurses apply the steps in the IMCI case management protocol. Thirteen respondents (40%) confirmed that they always apply all the steps in the IMCI case management protocol, the majority (n=18; 55%) apply most of the steps in the protocol, while a significant 45% (n=15) indicated that they do not apply any of the steps. This lack of consistency seems to suggest that IMCI implementers do not always apply all of the steps in the IMCI protocol. This highlights an area that warrants further study to establish the reasons why some IMCI-1-trained nurses do not adhere to the protocol. The challenge of poor adherence to IMCI protocol by health workers was also noted in South Africa. Health workers pointed out that IMCI was only partially implemented due to the fact that the time taken for IMCI did cause longer waiting ques. Hence non-IMCI trained health workers take over the management of other sick children waiting in queue (Horwood 2009:6). Figure 4.8 illustrates the participants' responses to how they apply the steps in the IMCI case management protocol when tending sick children under 5 years of age at their respective health facilities.
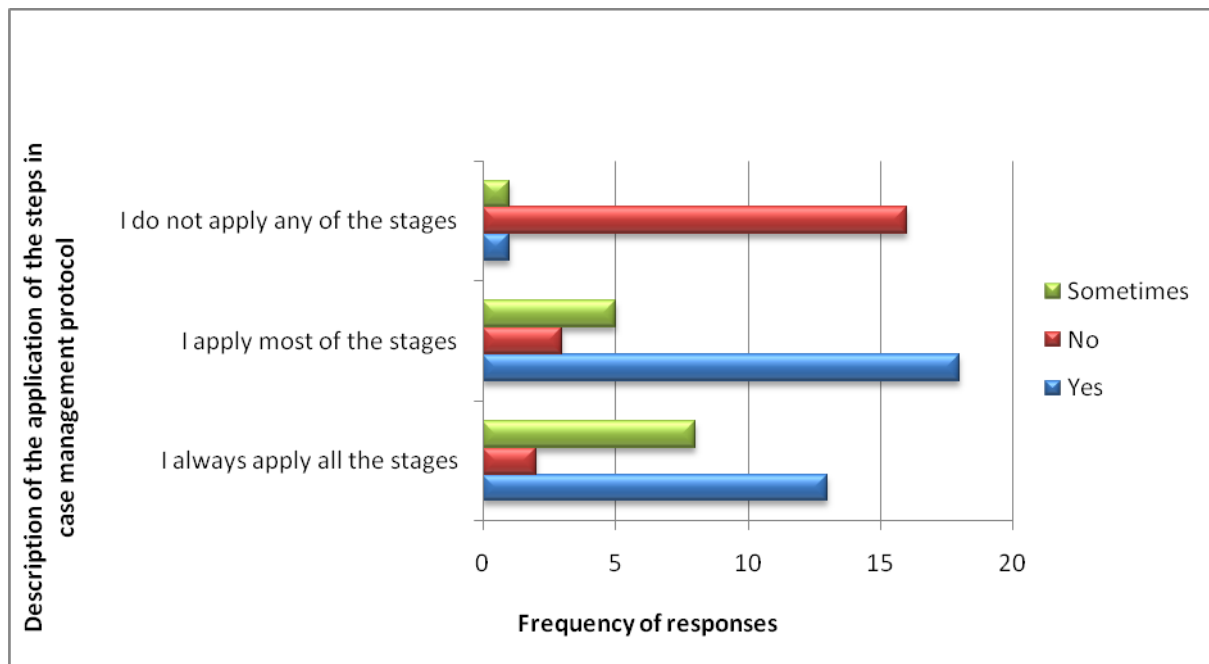
Figure 4.8: Application of the steps in the case management protocol

4.5.4 The effect of using the IMCI protocol on the patient-nurse ratio

In this section of the questionnaire, the researcher's intention was to establish how application of all the steps in the IMCI case management protocol affects the general patient-nurse ratio, as well as the under-5 patient-nurse ratio. By establishing this, the researcher will be in a position to conclude whether applying all the steps in the IMCI protocol is more time-consuming and more labour-intensive for IMCI implementers.

With regard to the effect of using the IMCI protocol on the patient-nurse ratio, the frequency distributions show general agreement with the statements that were posed to respondents. Twenty-one participants (67%) revealed that if they apply all the steps in the IMCI case management protocol to every under-5 patient that they tend, they will only be able to see a handful of the under-5 patients. They claimed that the time-consuming nature of the IMCI protocol makes it difficult for them to apply all the steps of the protocol. There are many more under-5 patients requiring nurses' attention than they can actually attend to using the IMCI strategy. Regarding the general patient-nurse ratio, 56% (n=17) of the respondents disclosed that if they apply all the stages of the IMCI case management protocol to all under-5 patients, they would not be able to attend to all the other patients who are not under-5s, because of the low general patient-nurse ratio. This could be one of the reasons why the IMCI-1-trained registered

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nurses do not apply all the steps in the IMCI case management protocol, as indicated in the previous question. This is a challenge created by the uniqueness of the IMCI strategy and is not unique to Botswana only. Goga and Muhe (2011:2), in the Tanzanian CREHS policy documented that, the IMCI protocol is perceived as unnecessarily time consuming, and that, health workers sometimes cut corners so that they can attend to other clients awaiting their attention.

The majority of the respondents (n=28; 91%) (65% strongly agreed, and 26% agreed) indicated that they provide health education to the caregivers of every child that they manage using the IMCI protocol. Figure 4.9 provides a graphic representation of the effect of using the IMCI protocol on the patient-nurse ratio at respondents' respective health facilities.
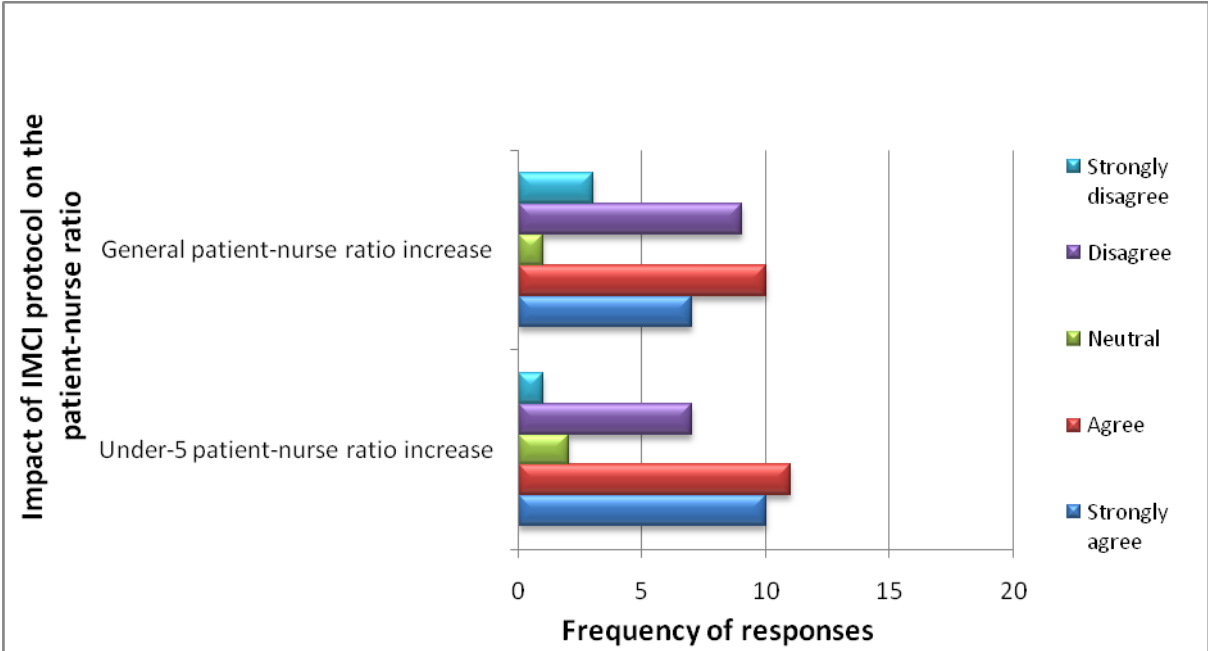
Figure 4.9: The effect of using the IMCI protocol on the patient-nurse ratio

4.5.5 Amount of time spent managing an under-5 patient when using the IMCI case management protocol

Questions B5.1 and B5.2 of the data-collection instrument were designed to compare the amount of time IMCI-1-trained registered nurses spend assessing and treating an under-5 patient when using the IMCI case management protocol and the amount of time spent when not using the protocol. The durations will then be compared to establish whether the IMCI protocol takes more time, to identify whether time is a constraint in the

implementation of the IMCI strategy. If it takes more time to manage an under-5 patient when using the IMCI protocol, measures such as increasing the number of health workers that are capacitated to deliver IMCI will need to be put in place, to make allowance for the extra time needed to implement IMCI skills. (See Chapter 5 for an elaboration of these recommendations.)

There was general consensus among the majority of participants (n=31) (a response of 96% to the question of "when using the IMCI protocol", and a response of 90% to the question of "when not using the IMCI protocol") that they do not spend more than one hour tending to an under-5 patient. The same trend was observed with regard to the 30-40-minute time estimate. The majority of the participants (a response of 72%, n=24, to the question of "when using the IMCI protocol", and a response of 75%, n=25 to the question of "when not using the IMCI protocol") disagreed with the notion that they spend 30-40 minutes tending an under-5 patient. Questions about the time estimates of 10-29 minutes and 1-9 minutes attracted differing responses from the study participants. Seventy-two percent indicated that they spend 10-29 minutes with an under-5 patient when using the IMCI protocol, and 84% (n=28) responded that they spend 1-9 minutes with an under-5 patient when not using the IMCI protocol. It is thus evident that study participants spend more time tending under-5 patients when they use the IMCI case management protocol than when they do not use the protocol. This question is important to this study, as it highlights a challenge created by the uniqueness of the IMCI strategy. In South Africa, Horwood et al (2009:5) cited that IMCI consultations take longer than the traditional consultations. They specifically pointed out that, the counselling sessions required by IMCI were time consuming for health workers to deliver. As a result some IMCI implementers in South Africa limited counselling messages to those most essential. Figures 4.10 and 4.11 provide graphic representations of estimates of the time spent by study participants in the case management of under-5 patients when using the IMCI protocol and when not using the IMCI protocol, respectively.
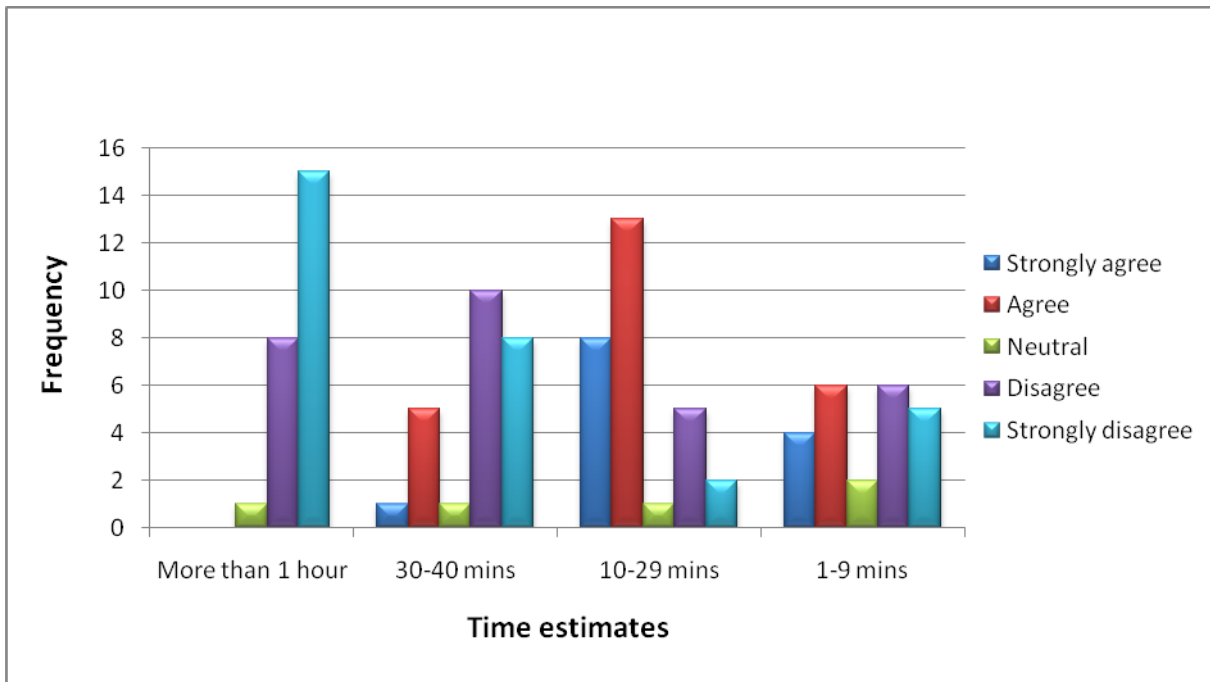
Figure 4.10: Time spent managing an under-5 patient when using the IMCI case management protocol
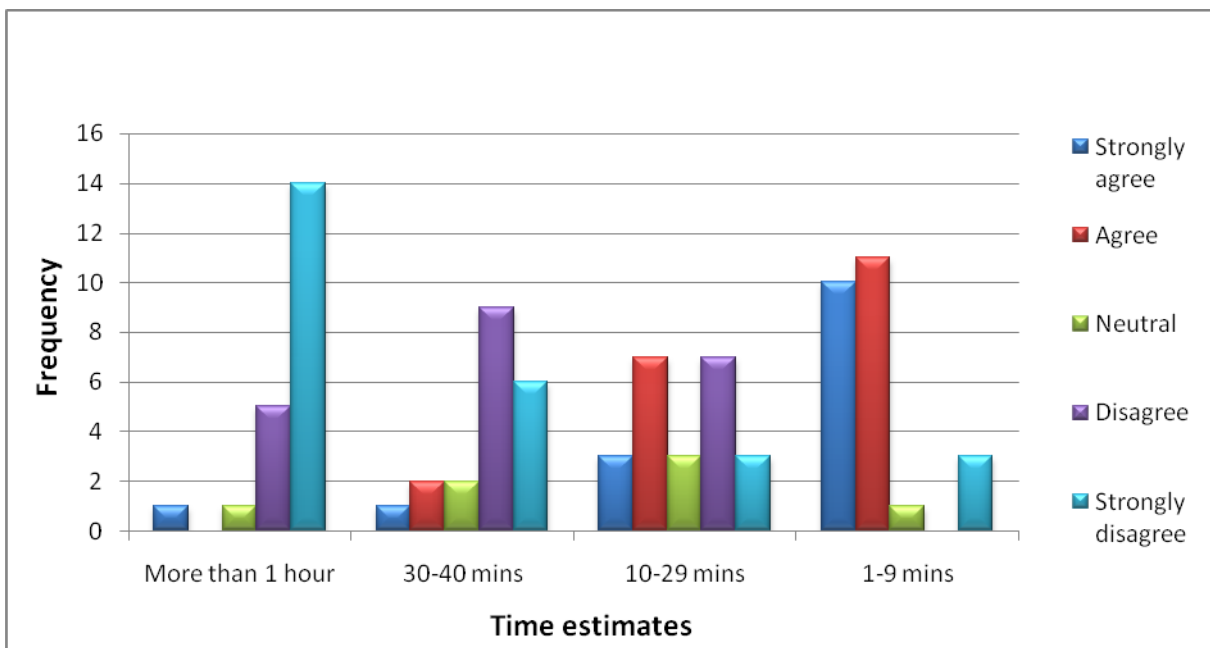
Figure 4.11: Time spent managing an under-5 patient when not using the IMCI case management protocol

4.5.6 The impact of the IMCI strategy at respective health facilities

This section of the questionnaire required study participants to identify statements that accurately describe both the positive effects and the negative effects that the IMCI strategy has had on their case management of under-5 patients. By this question, the researcher intended to identify the challenges that are created by the unique features of the IMCI strategy, and to solicit suggestions on how to resolve these challenges.

Thirty-one participants responded to this question. They all (55% strongly agreed, and 45% agreed) indicated that IMCI training had boosted their self-confidence and skills in managing patients under 5 years of age. With regard to whether IMCI had reduced the number of follow-up visits by under-5 patients, the researcher noted positive responses. Fifty percent of the respondents responded that IMCI had reduced the number of follow-up visits by under-5 patients, due to the thorough and accurate case management that implementation of the IMCI strategy had resulted in the initial visit. Nineteen percent (n=6) of the participants were non-committal in their response, while 22% (n=7) disagreed, and 9% (n=3) strongly disagreed.

There were mixed responses to the question about patient waiting queues as a result of the amount of time spent applying all the steps in the IMCI protocol. Sixty-eight percent (n=21) of the participants revealed that IMCI had led to longer waiting queues because more of IMCI implementers' time was spent in applying all the steps in the protocol. This confirmed the findings observed in Question B5, where 84% (n=28) of respondents indicated that they spend 1-9 minutes tending an under-5 patient when not using the IMCI protocol, and 72% (n=24) indicated that they spend 10-29 minutes when using the protocol. This is evidence that confirms the concern raised by some IMCI implementers that the IMCI protocol is time-consuming.

Mixed responses were also noted regarding the perception that IMCI is partially implemented because non-IMCI-trained nurses take over the care of other children waiting in queues if it is felt that the IMCI-trained nurses are taking too long to assess a patient. Although the majority of respondents (n=15; 45%) disagreed with this statement, a significant 35% (n=12) indicated that IMCI was being partially implemented in some health facilities within the district. This implies that some children are being tended by non-IMCI-trained registered nurses who do not use the integrated approach

to the case management of under-5 patients. This could have a negative effect on the achievement of Millennium Development Goal 4[1], which seeks to reduce child mortality by two-thirds by 2015.

There were mixed responses regarding the feasibility of always referring to the IMCI chart booklet during the case management of under-5 patients. Forty-two percent (n=15) of participants stated that it is always feasible to do so, 10% (n=3) were neutral in their response, 28% (n=8) disagreed, and 21% (n=6) strongly disagreed.

A significant proportion of the study participants (n=15; 47%) confirmed that the physical layout of their health facility did not make it easy for them to apply all the IMCI skills and procedures, such as witnessing of first-dose treatment, rehydration corners, etc. This challenge has also been observed in Kenya, where Mullei et al (2008:45) noted that "infrastructure and layout, health centres and dispensaries are generally made up of one or more buildings [...] which are rarely interconnected". As a result, it is difficult for nurses and clinical officers to apply all the IMCI skills and procedures in such a set-up.

Regarding the question about inconsistency of case management practices of IMCI-trained and non-IMCI trained nurses, the researcher observed much disagreement. Fifty-two percent (n=17) of the respondents (45% disagreed, and 7% strongly disagreed) disagreed with the notion that caregivers of under-5 patients prefer to been seen by nurses who are not IMCI-trained, because their case management practices are different. Twenty-six percent (n=32) of the respondents were neutral, while 6% (n=2) strongly agreed, and 13% (n=4) agreed.

In South Africa, Horwood et al (2009:10) noted that IMCI was partially implemented, in that non-IMCI-trained nurses took over care of some children if the IMCI consultations took too long. This indicates a lack of uniformity between IMCI-trained nurses and non-IMCI-trained nurses in their case management practices. Figure 4.12 below illustrates how the respondents perceived the impact of IMCI on the case management practices at their respective health facilities.

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[1] More information about the Millennium Development Goals can be found at www.un.org/millenniumgoals/childhealth.shtml
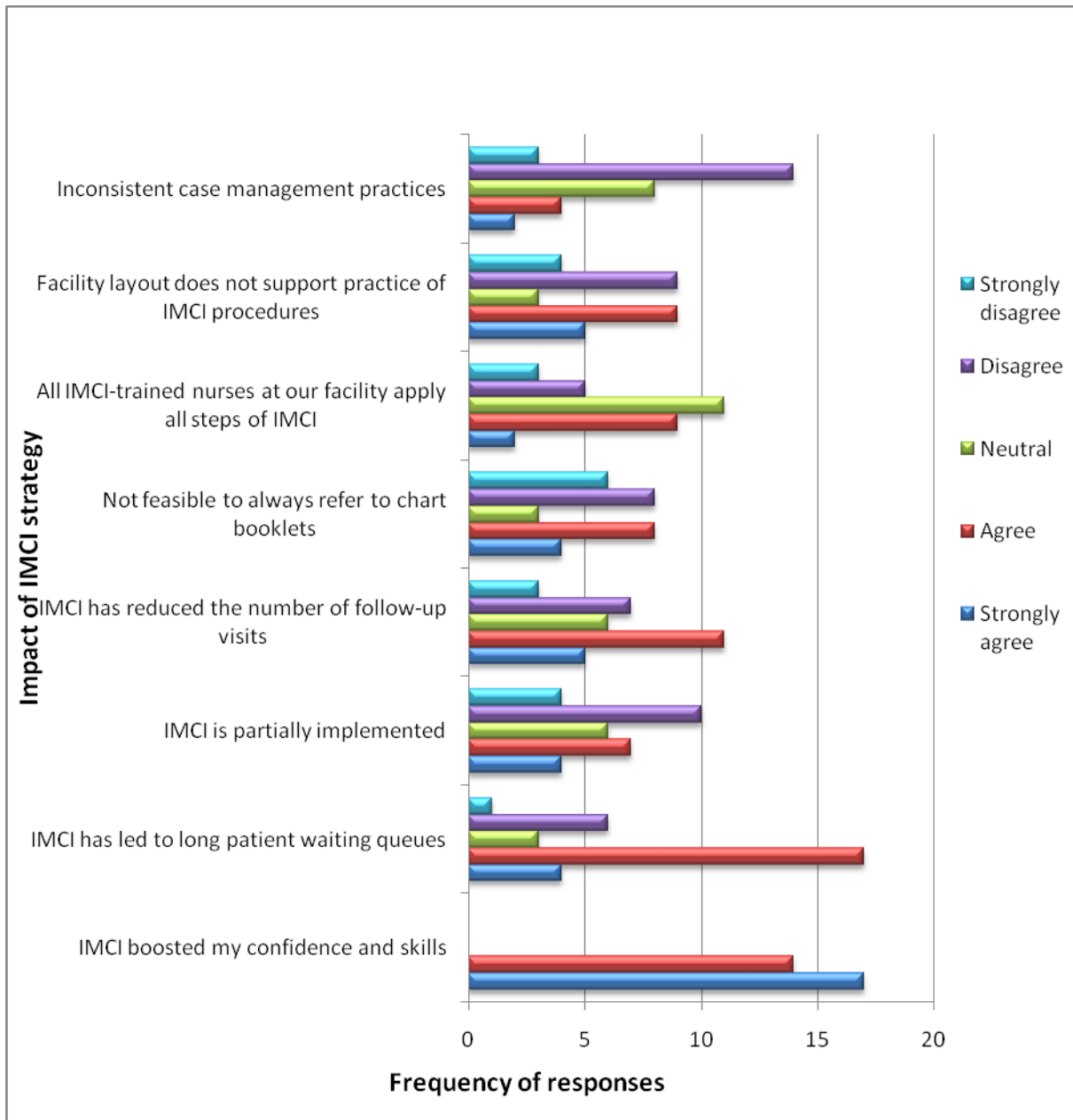
Figure 4.12: The impact of IMCI on case management skills

4.5.7 Experiences of the IMCI-trained registered nurses in implementing the guidelines and procedures of the IMCI strategy

This part of Section B of the questionnaire described the experiences of the IMCI-1-trained registered nurses in implementing the guidelines and procedures of the IMCI strategy. Both positive and negative experiences were captured. Through description of the experiences, the researcher aimed to determine the challenges identified by the IMCI-1-trained registered nurses in implementing the strategy.

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The positive experiences were phrased as positive statements to allow identification of the challenges. Among the positive experiences were the user-friendliness of the strategy to the health workers and the ease with which the strategy can be understood and applied. The majority of the respondents (n=29.; 94%) agreed with the notion that the IMCI strategy is user-friendly to health workers, 3% (n=1) of the respondents were neutral, while 3% disagreed. An enormous majority (n=28; 90%) agreed that the IMCI strategy is easy to understand and apply, while the remaining 10% (n=3) were neutral.

The converse statement, namely that the IMCI strategy is difficult to understand, did not sequentially follow the positive statement in the questionnaire (see Annexure E). However, for expository purposes, the researcher will discuss these two statements directly after each other to illustrate that the responses to the latter statement are consistent with the responses to the former statement. The majority of the respondents (n=30) disagreed with the statement (71% disagreed, and 19% strongly disagreed). This is the same percentage of respondents that agreed with the former positive statement that IMCI is easy to understand and apply. However, 10% (n=3) responded that IMCI is difficult to understand and apply.

Other negative experiences and perceptions that could suggest challenges include the following:

- The time-consuming nature of the protocol: Fifty-seven percent (n=15) of the study participants (16% strongly agreed, and 41% agreed) responded that the IMCI protocol is too long, 6% (n=2) were neutral, and 37% (n=12) disagreed (31% disagreed, and 6% strongly disagreed). This question again highlights the concern that the IMCI protocol is a time-consuming procedure to apply. The comparison of the time spent managing a child when using the IMCI protocol and when not using it (see section 4.5.5) substantiates the claim that IMCI consultations are time-consuming. This fact is supported in South Africa by Saloojee (2007:172), WHO recorded that "an average IMCI consultation takes 8-16 minutes, about 2-4 minutes longer than a traditional consultation".
- The protocol is tedious: Although 40% (n=10) of respondents indicated that IMCI is not tedious, a significant 32% (n=8) indicated that it is tedious. The above-

mentioned challenge of the time-consuming nature of IMCI consultations could be one of the reasons that some participants felt that the IMCI protocol is tedious.

- The feasibility of using the protocol: Nineteen percent (n=6) of respondents claimed that IMCI was not feasible to use at their health facilities, 6% (n=2) were neutral, while the majority of the respondents (n=23; 74%) disagreed with the claim. The few respondents who responded that it was not feasible to apply IMCI could be based at health facilities that have a layout that is not conducive for the application of the guidelines and procedures of IMCI (see Figure 4.17). Figure 4.13 below shows respondents' positive and negative perceptions regarding IMCI.
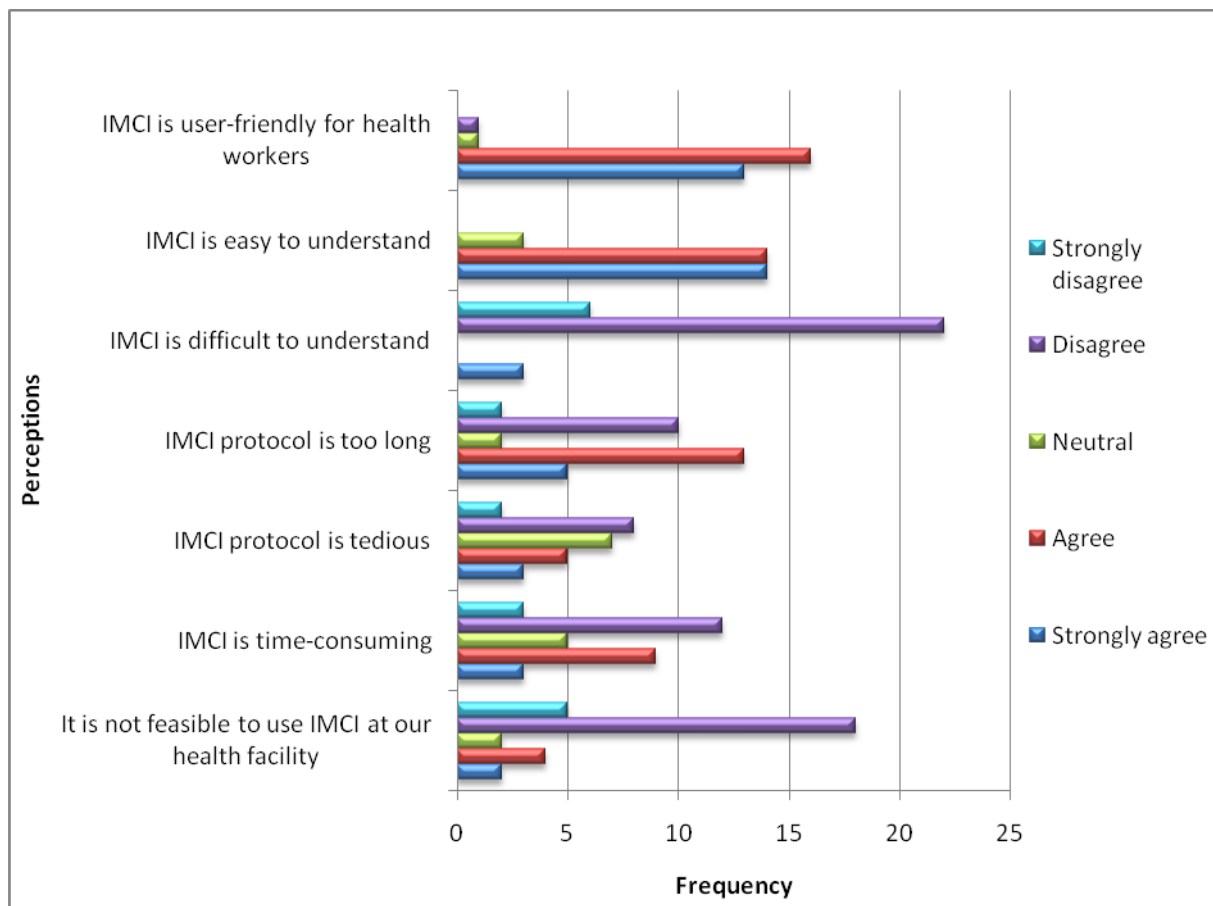
Figure 4.13: Positive and negative perceptions regarding IMCI

A minority of IMCI implementers were being supervised by non-IMCI-1-trained personnel. This is evidenced by the small proportion of participants (n=5.; 17%) who agreed with this statement. The majority of participants (n=23; 80%) claimed that their supervisors are IMCI-1-trained.

A follow-up question inquired whether IMCI implementers were being supervised at all. Widely varying responses were noted. A borderline majority of (n=16) 50% of the respondents identified lack of supervision by IMCI facilitators as a challenge to the implementation of IMCI. Three percent (n=1) of the respondents were neutral in their response, and 47% (n=12) claimed that lack of supervision by IMCI facilitators was not a challenge. The researcher can conclude that lack of supervision is a challenge encountered by some IMCI implementers in Gaborone Health District. It is important to note that the same challenge was observed in Kenya and Tanzania. In Kenya, Mullei et al (2008:50) recorded that "IMCI supervision was universally seen as inadequate". In Tanzania, Prosper and Borghi (2008:6) noted that "follow-up supervision is infrequent and does not always come within the recommended time".

Closely linked to the above notion was the perception that some supervisors of IMCI implementers do not appreciate the rationale for using the IMCI strategy. This perception was strongly disagreed with by the majority of the respondents (n=27; 87%), it was agreed with by a mere 9% (n=3), and a non-committal stance was shown by 3% (n=1) of the respondents. Hence, it can be concluded that IMCI supervisors in Gaborone Health District appreciate the rationale of having an integrated approach to child health care. Figure 4.14 below shows the participants' responses regarding supervision.
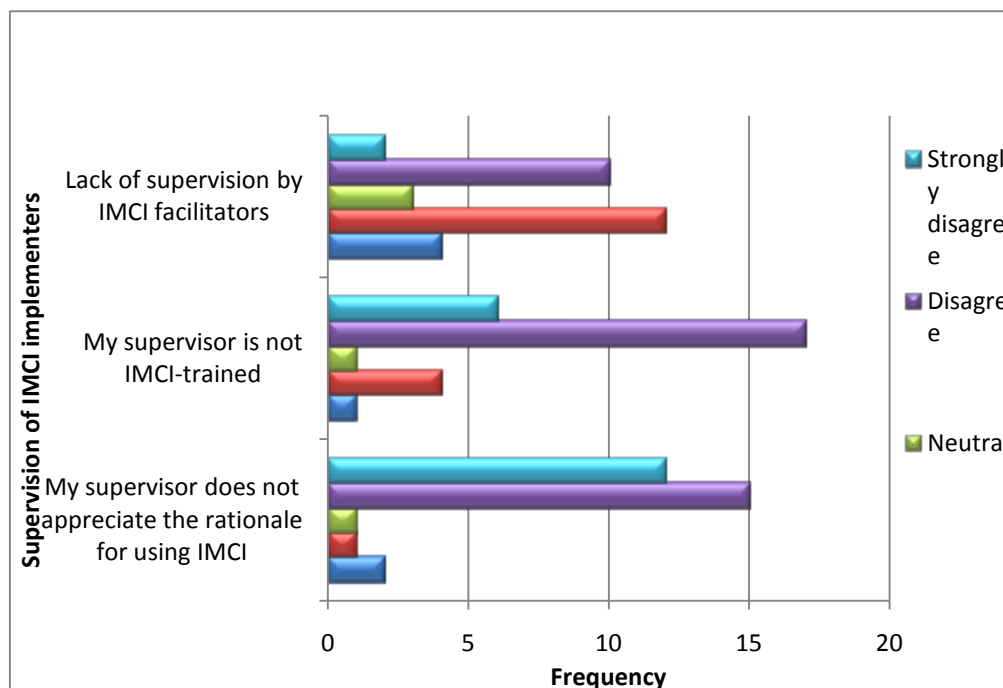
Figure 4.14: Supervision of IMCI implementers

The question that followed, on the current patient-nurse ratio, was posed to determine the workload of the first-level-facility IMCI-1 implementers. The question attracted mixed responses from the study participants. A marginal majority of 48% (n=15) of the study participants indicated that the current patient-nurse ratio did not allow for the use of the IMCI strategy, 43% (n=13) disagreed with the statement, while 9% (n=3) were neutral on the matter. The relevance of this observation lies in the fact that it indicates possible reasons why IMCI implementers do not always apply all the steps in the IMCI strategy. The same challenge was noted in Kenya. Mullei et al (2008:34) documented that "understaffing remains a barrier to IMCI implementation" in Kenya. Figure 4.15 below illustrates the participants' responses to the question of whether the current patient-nurse ratio does not allow for the use of the IMCI strategy.
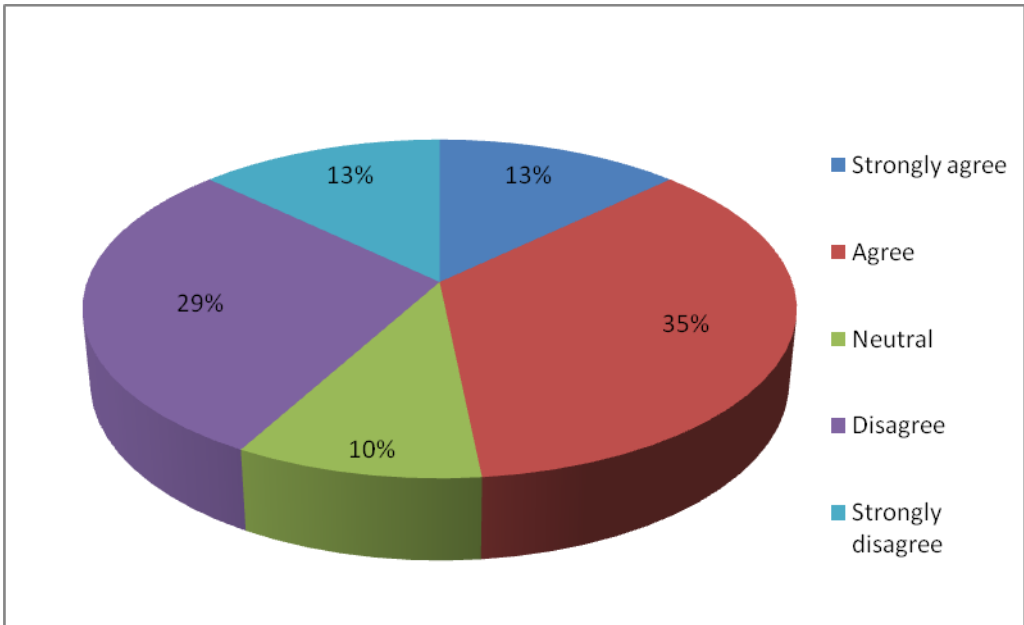
Figure 4.15: The effect of the patient-nurse ratio on the use of IMCI

The majority of the IMCI implementers in Gaborone Health District embrace the place of the IMCI strategy in the fight against under-5 morbidity and mortality. This is evident by the fact that 94% (n=28) of the respondents disagreed with the attitude that the simplistic nature of the IMCI guidelines undermined their clinical training.

Closely related to the above statement was the statement that some clinicians and doctors have a negative attitude towards the IMCI strategy. The statement attracted mixed responses from the registered nurses. Forty-two percent (n=12) indicated that some clinicians and doctors have a negative attitude towards IMCI, and 38% (n=11)

disagreed with the notion. This observation confirms that the attitude of some clinicians towards the IMCI strategy could have a negative effect on how IMCI implementers adhere to the use of the strategy. The observed attitude could be discouraging and could indicate why some IMCI implementers do not always apply all the steps in the protocol.

This negative attitude towards IMCI was also identified in other health workers in Kenya and South Africa. In Kenya, some doctors and clinical officers failed to accept the IMCI approach, as they felt that the guidelines are too simplistic and do not allow for full use of their clinical training (Mullei et al 2008:40). Saloojee (2007:174) reported that "more experienced practitioners in South Africa believed that the IMCI approach was too simple, as it does not require the use of instruments such as a stethoscope". Figure 4.16 below illustrates the attitudes of some doctors and other clinical officers towards the IMCI strategy.
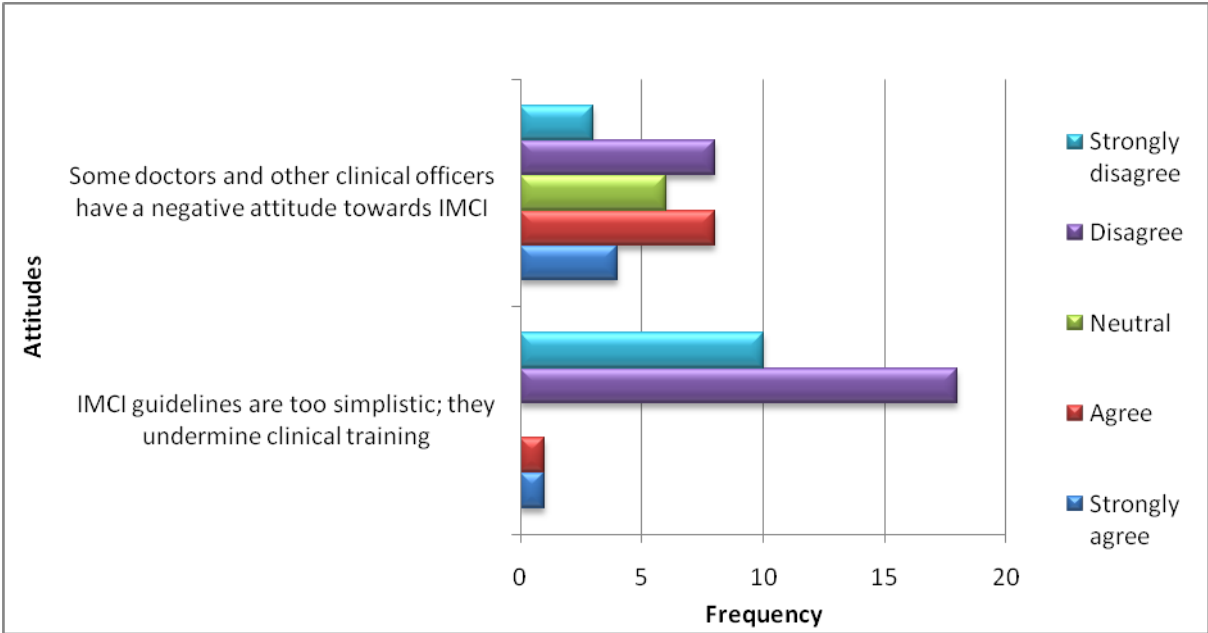
Figure 4.16: Attitudes of some clinicians and doctors towards IMCI

Three statements were posed to ascertain whether there are any challenges related to the availability of IMCI implementation resources. The resources included medication, reference materials, and handouts, as well as the physical layout of the respective health facility:

- Medication: The first statement inquired about the availability of IMCI-recommended medication. Ten percent (n=3) of respondents agreed that IMCI-recommended drugs are often out of stock, 10% (n=3) were neutral, and an overwhelming majority of 80% (n=25) disagreed with the statement. This suggests that IMCI-recommended drugs are often well stocked in the majority of the health facilities in Gaborone Health District. This implies that IMCI-recommended drugs are always available in Gaborone Health District facilities, and this is consistent with the observation made in the literature review, namely that the Government of Botswana has embraced IMCI as a key strategy in reducing child mortality. This is further supported by the fact that by 2004, IMCI was part of the national health delivery system in Botswana, with government commitment and funding, as well as the support of partners such as the WHO and UNICEF (IMCI HFS 2004:7). The overwhelming support from these key stakeholders explains why the level of availability of IMCI resources is deemed satisfactory by IMCI implementers.

- Reference materials and handouts: The researcher then solicited feedback on the availability of IMCI chart booklets and wall charts. The trend of responses to this statement was almost identical to the responses to the preceding statement. Fifteen percent of the respondents claimed that IMCI chart booklets and wall charts are often unavailable in their health facilities, and 78% (n=25) indicated that they are often available.

- Physical layout of the facility: Lastly, the researcher questioned respondents on whether the layout of the health facilities in the study sites allowed for the application of IMCI skills and the observation of IMCI procedures. Thirty-six percent (n=12) of the participants responded that their health facilities are not fully equipped to support the application of IMCI skills and procedures. Forty-six percent (n=15) indicated that their facilities are not conducive for applying IMCI skills and procedures. About half of the respondents (n=17) confirmed that their facilities are laid out for the smooth application of IMCI skills. It is important that the researcher stress that a significant 36% (n=12) of IMCI implementers are working in facilities that are not fully equipped. This is thus a challenge that needs to be addressed. Figure 4.17 below shows the participants' responses regarding the availability of resources for IMCI implementation.
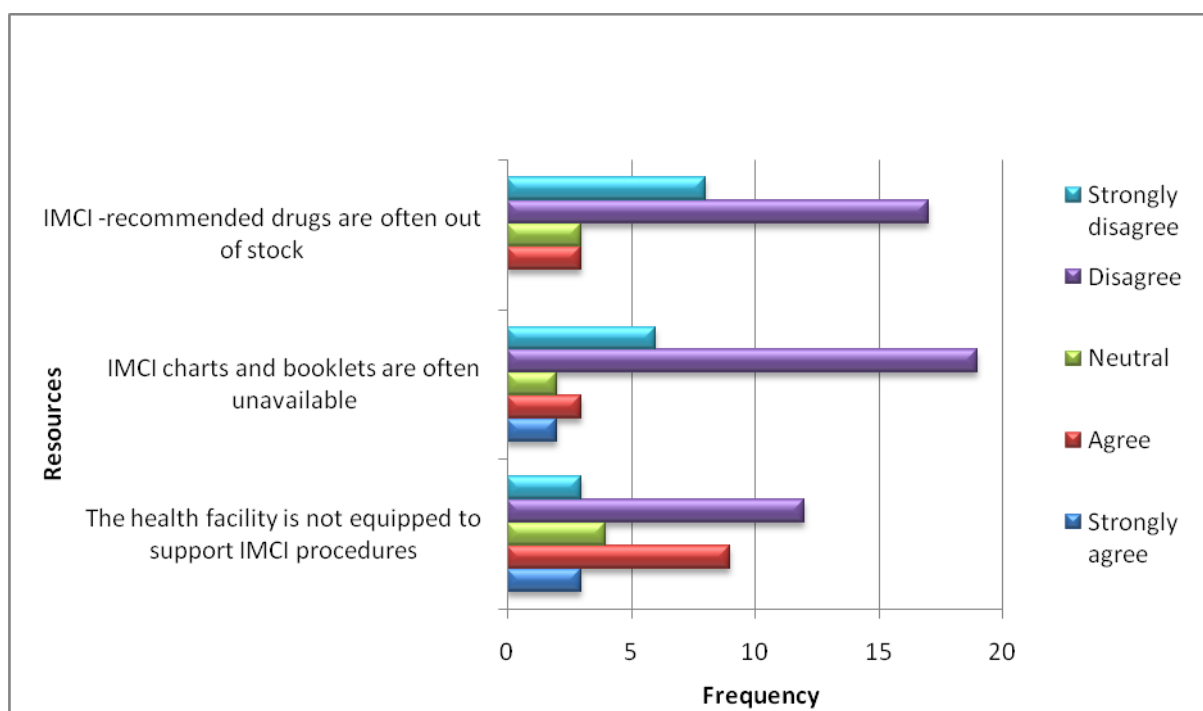
Figure 4.17: Availability of resources to implement the IMCI strategy

The researcher questioned the respondents on the place of follow-up training by IMCI facilitators. Sixty-four percent (n=19) (17% strongly agreed, and 47% agreed) confirmed that the lack of IMCI follow-up training by IMCI facilitators is a challenge to the implementation of IMCI. This is very significant to this study, in that it is consistent with the finding that 78% of respondents (n=26) indicated that they had not received IMCI follow-up training (see subsection 4.4.7). Hence, the researcher can confidently conclude that lack of IMCI follow-up training is a challenge confronting IMCI implementation in Gaborone Health District.

The above positive and negative experiences of IMCI implementers were used to infer the challenges faced by IMCI-1-trained registered nurses in Gaborone Health District. This is discussed in detail in Chapter 5.

4.6 SECTION C: RECOMMENDATIONS FOR IMPROVING IMCI IMPLEMEN-TATION

The researcher posed an extensive range of recommendations, as found in the literature (and elaborated on in section 2.8), to which respondents were required to indicate their support or otherwise of the respective recommendation. The researcher

asked the respondents to indicate their agreement to some proposed recommendations using a Likert scale ranging from 1 ("strongly agree") to 5 ("strongly disagree").

The proposed recommendation statements were meant to encourage the IMCI implementers at first-level facilities to suggest to health planners and policy makers approaches that could be followed to promote and improve the use of the IMCI strategy. The study participants responded to the recommendations for improving the IMCI strategy in various ways. To facilitate the process of data reporting, the researcher divided the recommendations into six groups, namely:

- Training and qualifications
- Supervision
- Resources
- Allocation of duties
- Patient-nurse ratio
- Legislation (policy)

Each of these six themes is discussed below.

4.6.1 Training and qualifications

The first recommendation that was deemed fit for improving the use of the IMCI strategy was integration of IMCI training in the pre-service training curriculum. This recommendation was supported by 97% (n=31) of the respondents (63% strongly agreed, and 34% agreed with the statement) and opposed by 3% (n=1) of the respondents. The researcher should point out that Botswana has already started pre-service training. This is evidenced by the fact that of the 33 participants that took part in this study, seven (21%) have undergone pre-service training, while the majority of the respondents (79%) have undergone in-service training (see Figure 4.2).

The second suggestion was scaling up of IMCI in-service training. Eighty percent (n=24) of the respondents supported this as a strategy fit to promote the use of IMCI, 16% (n=5) opposed the suggestion, and 3% (n=1) were neutral.

Yet another suggestion proposed was the extension of IMCI training to lower-level cadres, such as health care assistants, as a measure to boost the number of health workers capacitated to deliver IMCI. This would mean that if the IMCI-trained registered nurses are overwhelmed with patient numbers, IMCI-skilled health workers would help under-5 patients, so as to alleviate the workload. This proposal was supported by an overwhelming majority of 81% (n=26) of the participants, it was opposed by 6% (n=2) of the participants, and 13% (n=4) were neutral on the matter. However, care should be taken to ensure that the lower-level cadres assist within their scope of practice. That is, they can help with the non-clinical skills of IMCI, such as identifying feeding problems, monitoring growth, and counselling the caregiver, among other things.

Lastly, related to the shift in training focus is the recommendation to extend IMCI training to senior managers, as a way of boosting their expertise in supervising IMCI implementers (Mullei et al 2009:33). The notion was supported by the majority of participants (n=25; 78%), opposed by 9% (n=3) of the study participants, while 13% (n=4) showed no partiality.

Another proposition that was put forward was that, all registered nurses tending children under 5 years of age should be IMCI-trained. Ninety-seven percent (n=30) of the participants supported this proposition, while 3% (n=1) opposed it. Figure 4.18 illustrates participants' responses to the various recommendations for increasing training coverage.
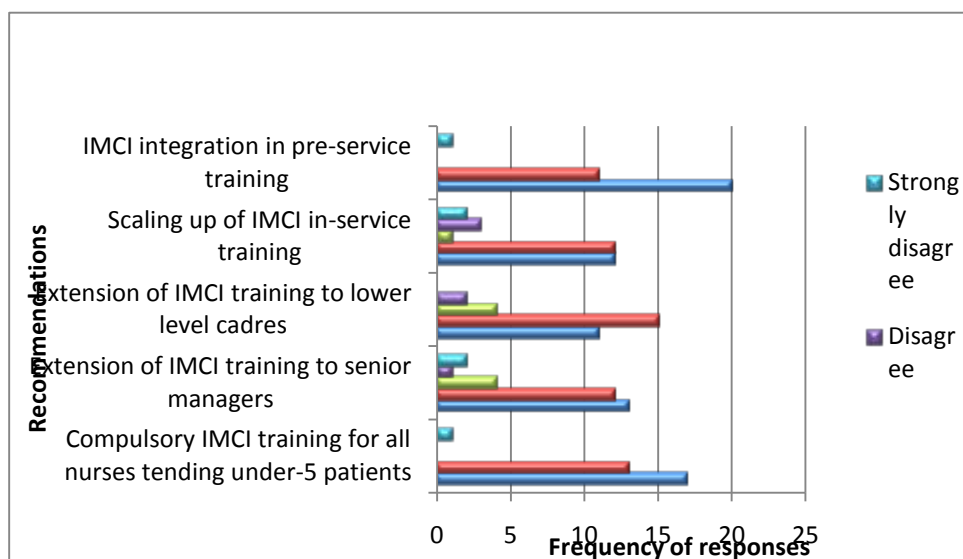
Figure 4.18: Recommendations for increasing training coverage

4.6.2 Supervision of IMCI implementers by IMCI facilitators

The suggestion that IMCI facilitators should provide IMCI follow-up training and supervision to IMCI-1-trained registered nurses was supported by 94% (n=31) of respondents, opposed by 3% (n=1), and responded to neutrally by 3% (n=1). This recommendation was also proposed in Kenya. Mullei et al (2008:33) report that follow-up supervision of health workers after the case management training is critical for the implementation of the IMCI strategy. If well implemented, the follow-up visits could help to strengthen IMCI case management skills, identify challenges faced by health workers when trying to apply IMCI guidelines, and gather information on facility support, such as the availability of resources and the layout of facilities (Mullei et al 2008:50). As a result, follow-up training should be incorporated into the integrated supervision visits, guided by an integrated supervision checklist.

4.6.3 The allocation of duties

Another important recommendation was that all IMCI-1-trained nurses should only focus on tending under-5 patients. This suggestion drew widely differing responses from the study participants. Sixteen percent (n=5) of the respondents strongly agreed, 19% (n=6) agreed, 6% (n=2) were neutral, while 32% (n=10) disagreed, and 26% (n=8) strongly disagreed.

Another recommendation that attracted differing responses from the study participants was that IMCI training should be a criterion for the daily allocation of duties and the deployment of nurses to stations of duty. Thirty-five percent (n=9) of the respondents opposed the recommendation, 24% (n=7) were neutral, while 28% (n=8) strongly agreed, and 17% (n=5) agreed. Closely related to this recommendation is the proposition to use IMCI training as a basis for the deployment of registered nurses to stations of duty. Figure 4.19 shows how IMCI can be used as a criterion in the allocation of duties.
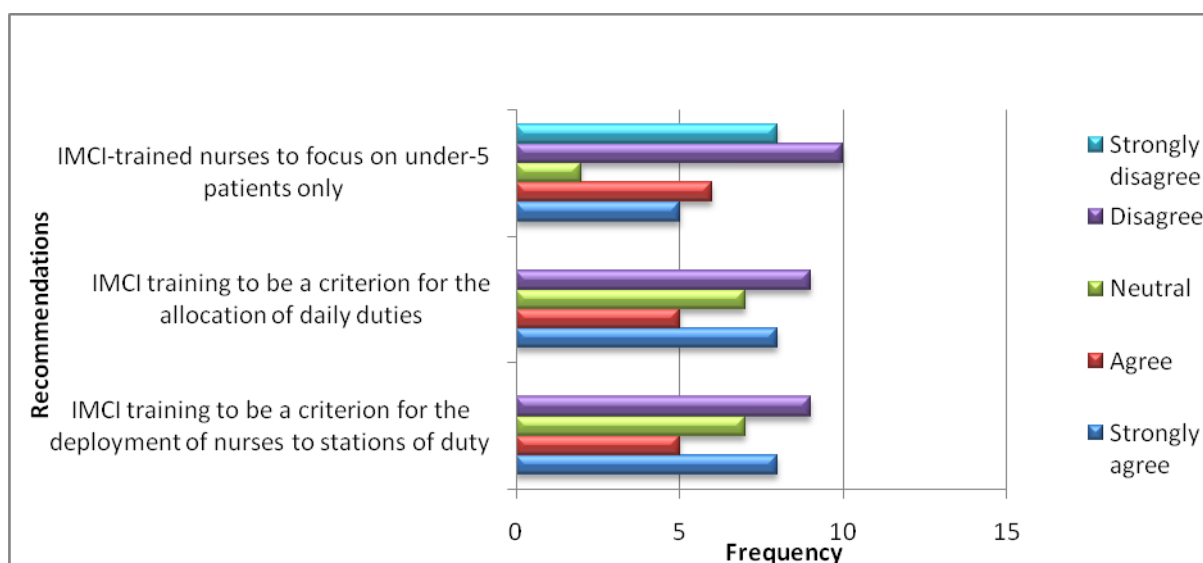
Figure 4.19: IMCI as a criterion in the allocation of duties

4.6.4 Resources

Regarding the resources needed for IMCI implementation, the following recommendations were proposed:

- Physical layout of the facility: Ninety-one percent of the respondents agreed with the suggestion that the layout of the health facilities should be such that it allows for the application of all IMCI skills and the observation of IMCI procedures, such as first-dose treatment and rehydration corners. No one opposed with this suggestion, although 9% (n=3) of the respondents were neutral.

- Medication, reference materials, and handouts: The suggestion to ensure availability of IMCI resources, such as recommended drugs, wall charts, and chart booklets, at all times was the most commonly supported suggestion. All participants (n=33; 100%) agreed with this recommendation. Figure 4.20 shows participants' responses to questions about the resources needed for IMCI implementation.
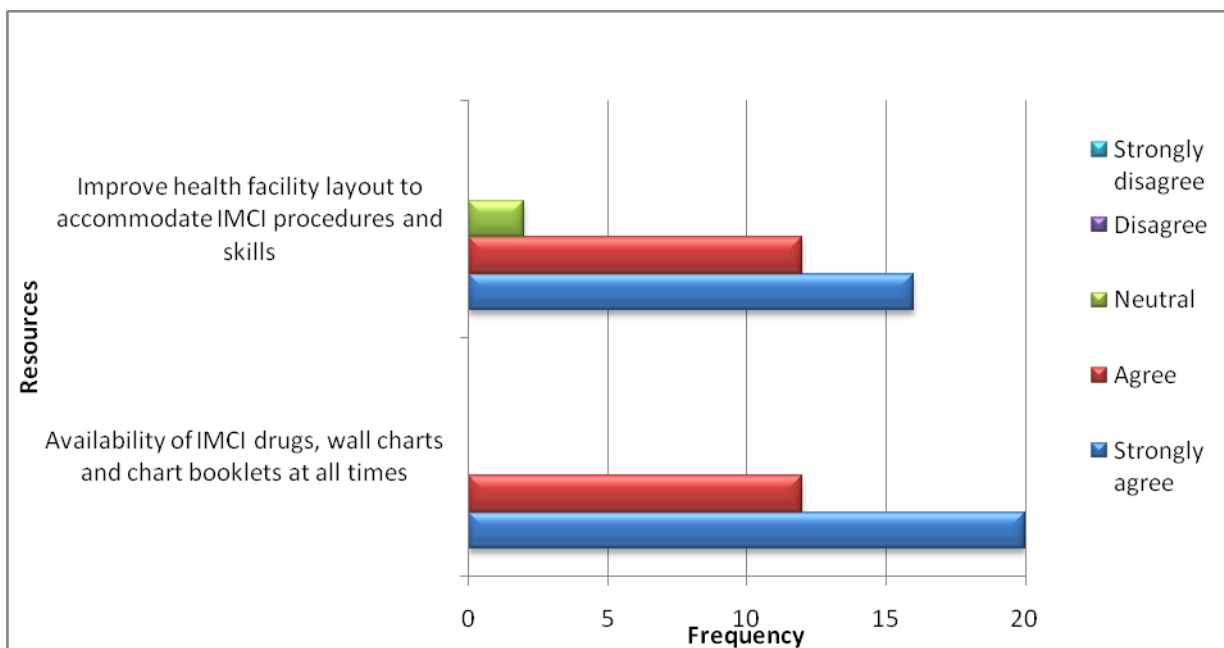
Figure 4.20: Resources needed for IMCI implementation

4.6.5 Patient-nurse ratio

Another recommendation which was commonly supported was improving the patient-nurse ratio as a strategy to promote the implementation of IMCI. Eighty-four percent (n=27) of the respondents strongly agreed, 13% (n=4) agreed, and 3% (n=1) were neutral. This proposition was also put forward by IMCI implementers in Kenya (Mullei et al 2008:81).

4.6.6 Legislation (policy)

The last recommendation proposed was the need for IMCI focal persons to advocate for government policy support from health policy makers. The proposal was supported by 85% (n=27) of the respondents, opposed by 3% (n=1), 6% (n=2) were neutral and 6% (n=2) did not answer the question. Related to the above proposal was the suggestion that IMCI national focal persons should advocate for more IMCI resources from health planners and resource allocators. Eighty-seven percent of the respondents supported this suggestion, 3% (n=1) opposed the suggestion, and 10% (n=3) were neutral. Figure 4.21 shows the respondents' responses to the recommendations with regard to legislation.
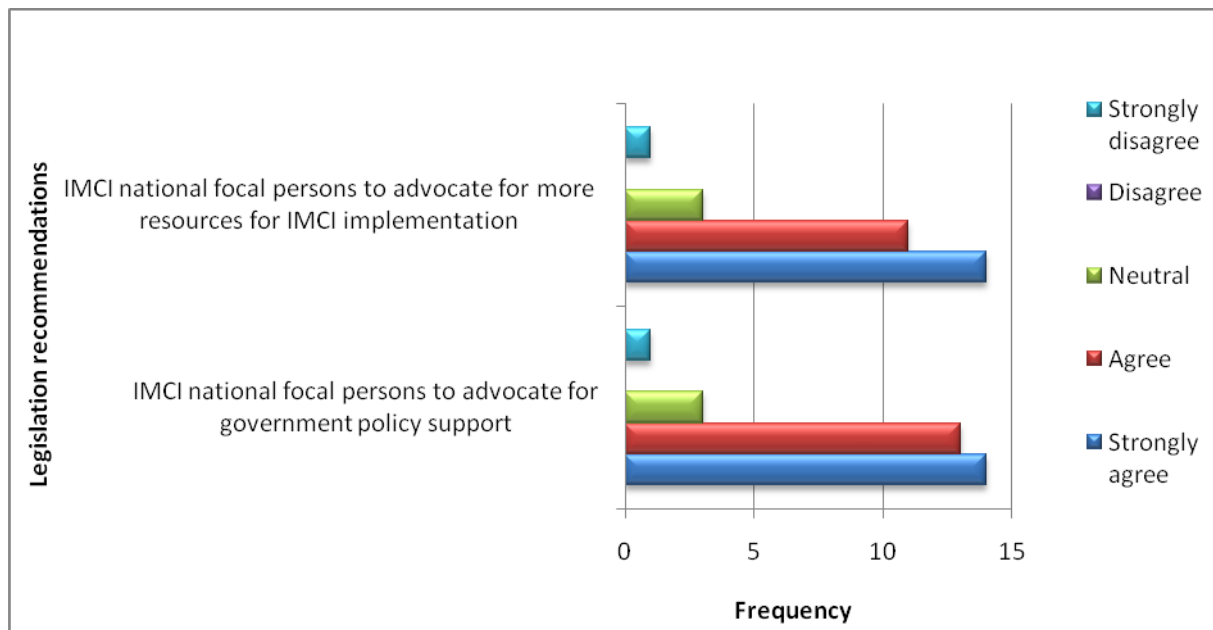
Figure 4.21: Legislation recommendations

4.7   CONCLUSION

This chapter contained the data collected from the questionnaires distributed to IMCI-1-trained registered nurses in the Gaborone Health District of Botswana. The data were analysed, interpreted, and presented using frequency tables, frequency distributions and percentages, descriptions, and modes. The findings of the study confirmed that the challenges experienced by IMCI-1-trained registered nurses in implementing the IMCI strategy in Gaborone Health District are similar to the challenges identified by IMCI implementers in other countries, as discussed in section 2.7. Recommendations were proposed to resolve the identified challenges and to promote the use of the IMCI strategy.

The following chapter focuses on the findings of the study and its limitations, and offers recommendations for improving the use of the IMCI strategy, as well as suggestions for education and further research.

CHAPTER 5

FINDINGS, LIMITATIONS AND RECOMMENDATIONS

5.1   INTRODUCTION

In the previous chapter, the researcher elaborated on the findings of the questionnaire that focused on identifying the challenges faced by IMCI-1-trained registered nurses in implementing the IMCI strategy in the Gaborone Health District of Botswana. The researcher described how the data were analysed. The results were then interpreted, shared, and linked to findings and recommendations made by IMCI implementers in other selected countries.

This fifth and final chapter discusses the findings, limitations, and recommendations of the study. It answers the following two research questions:

(1)   What are the challenges experienced by IMCI-1-trained registered nurses in implementing the guidelines and procedures stipulated by the IMCI strategy in caring for children under the age of 5?

(2)   How can the implementation of the guidelines and procedures of the IMCI strategy be improved?

5.2   OBJECTIVES OF THE STUDY

The aim of this limited-scope study was to identify challenges faced by IMCI implementers in Gaborone Health District in implementing the IMCI strategy, as well as to solicit recommendations on how to improve the implementation of this strategy. The two objectives of this study were as follows:

- To identify challenges experienced by IMCI-1-trained registered nurses in implementing the procedures stipulated by the IMCI strategy in caring for children under the age of 5.

- To make relevant recommendations to the Department of Public Health in Gaborone Health District to promote and improve the application of the procedures of the IMCI strategy by IMCI-1-trained registered nurses.

5.3   SUMMARY OF THE FINDINGS

The results from the questionnaire suggest that IMCI-1-trained registered nurses in Botswana are facing many of the same challenges that are faced by IMCI implementers in other countries. The study also confirmed that the same recommendations that have been put forward by other countries could be applied to address some of these challenges.

5.3.1   Biological and professional data

Although age and gender had no significant effect in the study, the majority of the study participants were female and fell within the age range of 35-44 years.

The findings of the study indicate that the majority of participants attended a 5-day IMCI training course. This is significant to the study, in that it shows that Botswana has already adopted shorter-duration (condensed) IMCI courses as a measure to reduce IMCI training costs and to increase IMCI training coverage. The majority of the study participants (78%) had not received IMCI follow-up training. This is confirmed by the fact that 64% of the study participants confirmed that the lack of IMCI follow-up training is a barrier to smooth implementation of the IMCI strategy, and by the fact that 94% of respondents recommended IMCI follow-up training as an approach to improve the use of the IMCI strategy among implementers.

5.3.2   Challenges identified, and recommendations for resolving them

The first objective of this study was to identify the main challenges confronting IMCI-1-trained registered nurses in implementing the IMCI strategy in Gaborone Health District. Five major themes emerged. The study also made relevant recommendations that could be applied to promote and improve the use of the IMCI strategy. In so doing, the study addressed the second objective, which, if the proposed recommendations are adopted,

has the potential to further decrease the U5MR in Gaborone Health District. Table 5.1 below shows the five themes that emerged from this study.

Table 5.1: The five themes that emerged from this study

Theme	Sub-theme	Recommendations
Political support		• Build political support • Influence policy changes

Cost of training		• Cut the costs of IMCI training by:
		  o Adopting shorter training courses
		  o Including IMCI training in basic nursing courses
		  o Increasing in-service training
		  o Reducing the facilitator-participant ratio

Features of the IMCI strategy	• IMCI consultations are time-consuming
	• IMCI leads to longer waiting queues
	• Lack of IMCI implementation resources
		• Increase the number of IMCI-trained implementers by:
		  o Addressing the problem of understaffing
		  o Improving the patient-nurse ratio
		  o Advocating for more resources

Training coverage		• Increase the number of health workers capacitated to deliver IMCI services by:
		  o Scaling up both pre-service and in-service IMCI training
		  o Extending IMCI training to lower-level cadres
		  o Providing compulsory training for all nurses tending children under 5 years of age

Health system	Physical layout of facilities	• Provide a facility layout that allows for space and time to apply IMCI skills and procedures
	Supervisor support	• Train senior managers in the IMCI strategy to boost their confidence in supervising IMCI protocol implementers • Increase the number of IMCI facilitators
	Follow-up training and visits	• IMCI facilitators should embark on IMCI follow-up training and visits to IMCI implementers
	Clients' expectations	• Standardisation of case management practices of all registered nurses tending children under 5

5.3.2.1 *Challenges related to political support*

Although lack of political support has been cited as a major obstacle to IMCI implementation in countries such as Uganda and Nigeria (Goga & Muhe 2011:6), this

has not been found to be a challenge in Botswana. Lack of political support is characterised, among other things, by lack of commitment from governments and ministries of health and strategic differences regarding the place of IMCI as a key strategy for addressing childhood mortality. On the contrary, this study discovered that IMCI implementers in Botswana enjoy support from government and other key health stakeholders, such as the WHO and UNICEF. This support from government is evidenced by the fact that the overwhelming majority of the respondents (81%) indicated frequent availability of all the IMCI resources, including medication, wall charts, and chart booklets, among other things. Government support is also evident from the fact that more than half of the respondents revealed that the layout of their respective health facility supports the application of IMCI skills and procedures.

While IMCI implementers in Gaborone Health District enjoy political support, the majority of the respondents (85%) recommended that IMCI national focal persons should still advocate for government policy support from policy makers. Seventy-eight percent of the respondents also recommended that IMCI focal persons should still advocate for more resources from health planners and resource allocators. These two measures are important in promoting and improving the continued use of the IMCI strategy among implementers.

5.3.2.2   Challenges related to the cost of training

The high cost of IMCI training was identified in this study as one of the major challenges confronting IMCI implementers. As was cited in the literature review (see subsection 2.6.2), the high cost of IMCI training is attributed to the long duration of the standard IMCI training (11 days) and the WHO's expected facilitator ratio of 1:4 (Goga & Muhe 2011:50). Recommendations put forward by the study participants to resolve this challenge include the adoption of alternative lower-cost training courses, such as pre-service training and shorter-duration IMCI courses, to replace the 11-day courses. The researcher should point out that these are measures that Botswana has already adopted. This is evidenced by the fact that 64% of participants in this study had attended an IMCI training course that was only five days in duration (see subsection 4.4.6). In addition, the percentage of participants who had undergone IMCI training increased from 3% between 1999 and 2005 to 18% between 2006 and 2012.

5.3.2.3 Challenges related to the uniqueness of the IMCI strategy

The study identified some challenges related to unique features of the IMCI strategy. The majority of the participants (57%) confirmed that the IMCI procedure is too long, and a significant 45% of the respondents revealed that IMCI is time-consuming. This fact is supported by the fact that 68% of participants confirmed that IMCI has led to longer waiting queues due to the time spent to apply all of the steps in the protocol. Sixty-seven percent of study participants further supported these facts by revealing that if they apply all the steps in the IMCI protocol with every under-5 patient, they will not be able to attend to other patients waiting to be attended to in the queue.

A comparison of the time spent tending under-5 patients when using the IMCI protocol and when not using it indicates that IMCI consultations take a long time to apply. This is evidenced by the fact that 72% of the respondents spent a whole 10-29 minutes with an under-5 patient when using the IMCI protocol, while 84% spent only 1-9 minutes when not using the IMCI protocol.

The above evidence leads to the conclusion that application of all the steps in the IMCI protocol has a negative effect on the patient-nurse ratio. Horwood et al (2009:5) and Prosper and Borghi (2008:2) identified this same challenge in South Africa and Tanzania, respectively.

The study participants suggested that this challenge could be addressed by increasing the number of health workers trained in the IMCI strategy, that is, scaling up of both in-service and pre-service IMCI training. Ninety-seven percent of the participants supported the recommendation that addressing the problem of understaffing will help to improve the patient-nurse ratio. A second recommendation was that IMCI training should be extended to lower-level cadres, such as health care assistants, so as to increase the number of health workers capacitated to deliver IMCI services. However, the lower-level cadres can only assist with non-clinical aspects of the IMCI protocol, such as counselling the caregiver.

5.3.2.4 Challenges related to low training coverage

This study confirmed low training coverage as a challenge that IMCI implementers are facing in Gaborone Health District. This challenge is attributed to inadequate funding and pre-service training. This challenge has also been cited in Kenya (Mullei et al 2008:9) and South Africa (Horwood et al 2008:9). Two recommendations were proposed to resolve this challenge. The first recommendation, namely that IMCI in-service training be scaled up, was supported by 80% of the respondents. The second recommendation, namely that IMCI be integrated into pre-service training, was supported by 97% of the participants. In the case of Botswana, it will be a matter of scaling up the pre-service training, as the study has established that Botswana has for a long time already been integrating IMCI into the basic nursing training curriculum. This is attested to by the fact that 21% of respondents in this study revealed that they had undergone IMCI pre-service training. In this regard, the WHO (2010b:8) reported that by June 2010 Botswana had received technical support for IMCI pre-service training from the WHO.

5.3.2.5 Challenges related to the health system

Several challenges related to the health system were identified in this study. They are discussed below.

5.3.2.5.1 Physical layout of the health facility

Thirty-five percent of study participants indicated that the layout of the health facility where they are based is not conducive and fully equipped to support the practice of IMCI procedures. This challenge has been cited in Tanzania (Prosper & Borghi 2008:8). They recorded that "patients receive their drugs at the pharmacy, which does not allow for observation of first dose".

The study solicited recommendations on how to resolve this challenge. Ninety-one percent of the respondents indicated that the health system should provide a facility layout that allows for space and time to apply IMCI skills and procedures, such as observation of first-dose treatment, and rehydration corners, etc.

5.3.2.5.2 Lack of support from supervisors and colleagues

Another challenge related to the health system is lack of support from supervisors and colleagues. Although the majority of respondents indicated that their supervisors are IMCI-trained, a significant 42% revealed that some clinical officers and doctors who are not IMCI-trained have a negative attitude towards IMCI. In South Africa, Horwood et al (2009:7) documented lack of support from supervisors and work colleagues as a major negative factor among IMCI implementers.

Regarding recommendations on how to confront this challenge, 78% of the study participants put forward the proposal that IMCI training should be extended to senior managers, to boost their confidence in supervising IMCI implementers.

5.3.2.5.3 Lack of follow-up training and visits

Lack of follow-up training and visits by IMCI facilitators was identified as one of the challenges faced by IMCI implementers in Gaborone Health District. In this study, 78% of the respondents revealed that they had not received follow-up training. Horwood et al (2009:7) state that this challenge has also been encountered by IMCI implementers in Bangladesh, Peru, Tanzania, and Uganda. They assert that follow-up visits are important, as they will help the newly trained practitioners to transfer their new skills into practice.

Regarding recommendations on how to resolve this challenge, 64% of respondents agreed that the health system should ensure follow-up training and supervision of IMCI implementers by IMCI facilitators. This measure could further promote and improve the use of the IMCI strategy.

5.3.2.5.4 Clients' expectations

The challenge of clients' expectations has been attributed to lack of uniformity between the IMCI-trained health workers and the non-IMCI-trained health workers in their practices. A significant 32% confirmed that IMCI is partially implemented because non-IMCI-trained nurses take over the care of other children waiting in the queue if the IMCI-trained nurses take long with one under-5 patient. Non-IMCI-trained nurses take less

time because they use single-diagnosis approaches, which do not consider health problems other than the reason for the visit. As a result, caregivers of under-5 patients prefer to be seen by them. This defeats the whole purpose of introducing the integrated approach.

In this study, two recommendations were proposed to standardise the practices of all registered nurses tending under-5 patients. The first recommendation was that all nurses tending under-5 patients should be IMCI-trained. Ninety-seven percent of the respondents supported the recommendation. The second recommendation was that IMCI training should be the main criterion for the allocation of daily duties and the deployment of nurses to duty stations. This will help to ensure that only IMCI-trained nurses tend patients under the age of 5 years.

5.4   SCOPE AND LIMITATIONS OF THE STUDY

Although the researcher adhered to all the principles of research, certain limitations were inevitable.

5.4.1 Generalisability of results

This study was conducted in the 15 clinics that make up the Gaborone Health District. Therefore, the study findings can be generalised to the remaining 23 health districts of Botswana. However, the study results cannot be generalised to the rest of the African continent. The target population consisted of IMCI-trained registered nurses based at clinics in the Gaborone Health District. This excluded all the other IMCI-trained registered nurses based at Princess Marina Hospital (a referral hospital) and Gaborone Private Hospital, where they do not consult under-5 patients, because consultation there is done exclusively by doctors.

5.4.2 Questionnaire

One of the limitations of the study was the use of a close-ended questionnaire to gather information on the challenges faced by health workers in the implementation of IMCI guidelines. Study participants were forced to respond to a set of fixed answers that the

researcher provided. The use of open ended questions might have increased the quality of the data gathered from the participants.

5.4.3 Response rate

Of the 45 questionnaires distributed by the researcher, only 33 were completed and returned. Most of the registered nurses cited overwhelming workload as the reason for not completing the questionnaire. Firstly, globally there is a shortage of health care givers, particularly nurses. Secondly, some nurses in Botswana are migrating to First World countries. This mass exodus has left the remaining health care workers overwhelmed, with many responsibilities. Hence, it was difficult for them to find the time and space to complete the questionnaires, despite repeated visits by the researcher to the clinics to ensure a high response turnover.

5.4.4 Attributes of the researcher

Although the questionnaire was in the medium of English and was administered to respondents who are literate in English, the researcher still faced some degree of scepticism. Some study participants were not comfortable to disclose information regarding their practices to a researcher who is of foreign origin, and therefore could have withheld information that is important to the study.

5.4.5 Resources

The final limitation was that the researcher was working with limited time and funding, as she was funding her own study. If more time was allowed, she could have kept on following on the registered nurses who did not respond to the questionnaires, so as to increase the response rate. With more funding, the researcher could have extended the study to other health districts in Botswana.

Despite the above limitations, the researcher is convinced that the study adhered to all the ethical principles that guide research. The researcher is also of the opinion that, although this was only a limited-scope dissertation with certain limitations, important aspects of the IMCI strategy were addressed.

5.5   POSSIBLE FURTHER RESEARCH

This study laid the foundation for several future studies. Possibilities include topics such as the following:

- Challenges faced by IMCI-1-trained registered nurses in the other 23 health districts of Botswana.
- An investigation into the extent to which IMCI-1-trained registered nurses in Botswana implement the guidelines and procedures of the IMCI strategy.
- A comparative study of the health districts of Botswana to identify the low-performing districts and the high-performing districts with regard to IMCI implementation.

5.6   DISSEMINATION OF RESULTS

It is the intention of the researcher to honour her obligation to submit three bound hard copies of the results of this study to the Ministry of Health, Botswana (as was stipulated in the terms and conditions of the research permit).

The researcher will further share the results of this study by publishing at least one article in an accredited journal. If funding can be secured, the researcher will also present her research findings at a nursing conference.

5.7   CONCLUSION

This study identified the challenges confronting IMCI-trained registered nurses in implementing the IMCI strategy in the Gaborone Health District of Botswana. The study also proposed relevant recommendations on how to resolve the identified challenges. If implemented, the proposed measures could lead to the promotion and improvement of the use of the IMCI strategy. This could, in turn, lead to a decrease in the current morbidity and mortality rates in children under the age of 5 in Botswana, which will, in turn contribute to the realisation of the goals articulated in the third pillar of Botswana's Vision 2016, as well as in Millennium Development Goal 4.

"She didn't need to understand the meaning of life; it was enough to find someone who did, and then fall asleep in his arms and sleep as a child sleeps, knowing that someone stronger than you is protecting you from all evil and all danger"

Paulo Coelho, Brida

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GABORONE

BOTSWANA

04 July 2012

The Research Director

Department of Health Research

Ministry of Health

Gaborone

Botswana

Dear Sir/ Madam

REQUEST FOR PERMISSION TO CONDUCT RESEARCH

I am a student of the University of South Africa, and hereby request permission to collect data for my Master's degree in Public Health dissertation titled:-

"Challenges identified by experienced IMCI-1-trained registered nurses in implementing the Integrated Management of Childhood Illnesses strategy in Gaborone, Botswana".

The purpose of this study is to identify the challenges encountered by registered nurses who have been trained in the IMCI-1 strategy when implementing the guidelines and procedures established by the strategy when tending children under 5 years of age in their respective health facilities. The findings could assist in the making of recommendations to policy makers and health planners to solve possible problems identified.

Methodological information related to this study is the following:

- A quantitative research design will be used.

- The study setting will be all the health facilities in Gaborone Health District where IMCI-1 trained registered nurses are based and tending children under 5 years of age.

- The sample will consist of 10% of all the target population.

- A systematic probability sampling method will be applied, and the researcher will deliver the questionnaires in person to the respondents.

As is stipulated in the application form for health research, an electronic copy and a hard copy of the report will be submitted to the Health Research Unit, Ministry of Health within three months of a bound report being produced.

In this research, the ethical principles of respect for persons, confidentiality, beneficence, and justice will be observed in the following ways:-

- The right to determination will be ensured by informing all prospective research subjects that they have the freedom to decide whether to participate in the research, without the risk of penalty or prejudicial treatment.

- The ethical principles of voluntary participation and protection of the participants from harm will be observed through the obtaining of informed and signed consent forms from each subject before they proceed to answer the questionnaire.

- To ensure anonymity, no names or personal addresses will be solicited in the data-collection tools.

- Data collected will be treated with confidentiality and will not be used for any other purpose outside of this research.

- Study participants will be informed of their right to withdraw from the study at any time, without having to provide any reason and without experiencing any disadvantages.

Yours faithfully

Lucia Mungapeyi Mupara

UNISA | university of south africa

UNIVERSITY OF SOUTH AFRICA
Health Studies Higher Degrees Committee
College of Human Sciences
ETHICAL CLEARANCE CERTIFICATE

HSHDC/67/2012

Date of meeting: 19 June 2012   Student No: 3533-118-6

Project Title: Challenges identified by experienced IMCI-1-trained registered nurses in implementing the integrated management of childhood illnesses strategy in Gaborone, Botswana.

Researcher: Lucia Mungapeyi Mupara

Degree: Masters in Public Health (MPH)   Code: DIS4986

Supervisor: Mrs JC Lubbe
Qualification: M.Soc.Sc (Critical Care Nursing)
Joint Supervisor: Mrs MM van der Merwe

DECISION OF COMMITTEE

Approved   √   **Conditionally Approved**   ☐

Prof D van der Wal
CHAIRPERSON: HEALTH STUDIES HIGHER DEGREES COMMITTEE

Dr MM Moleki
ACTING ACADEMIC CHAIRPERSON: DEPARTMENT OF HEALTH STUDIES

PLEASE QUOTE THE PROJECT NUMBER IN ALL ENQUIRES

TELEPHONE: 363 2766
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TELEX: 2818 CARE BD

Republic of Botswana

MINISTRY OF HEALTH
PRIVATE BAG 0038
GABORONE

REFERENCE NO: PPME 13/18/1 PS V (233)   24 July 2012

Health Research and Development Division

Notification of IRB Review: New application

Lucia Mungapeyi Mupara
P.O.Box 202932
Gaborone

Protocol Title: **Challenges Identified By Experienced IMCI-
                               Trained Registered Nurses In Implementing The
                               Intergrated Management Of Childhood Illness
                               Strategy In Gaborone**

HRU Protocol Number: HRU 00776
HRU Approval Date: 24 July 2012
HRU Expiration Date: 24 July 2013
HRU Review Type: HRUreviewed
HRU Review Determination: Approved
Risk Determination: Minimal risk

Dear Ms Mupara

Thank you for submitting new application for the above referenced protocol.
This approval includes the following:-
1. Application form
2. Protocol
3. Data collection tools

This permit does not however give you authority to collect data from the selected site
without prior approval from the management. Consent from the identified individuals
should be obtained at all times.

The research should be conducted as outlined in the approved proposal. Any changes to the
approved proposal must be submitted to the Health Research and Development Division in the
Ministry of Health for consideration and approval.

1

*Permission granted
Nurses in charge please
assist accordingly.
[signature]/ DHMT Carduata
31/7/12*

Furthermore, you are requested to submit at least one hardcopy and an electronic copy of the report to the Health Research, Ministry of Health within 3 months of completion of the study. Approval is for academic fulfillment only. Copies should also be submitted to all other relevant authorities.

Continuing Review
In order to continue work on this study (including data analysis) beyond the expiry date, submit a Continuing Review Form for Approval at least three (3) months prior to the protocol's expiration date. The Continuing Review Form can be obtained from the Health Research Division Office (HRDD), Office No. 9A 11 or Ministry of Health website: www.moh.gov.bw or can be requested via e-mail from Mr. Kgomotso Motlhanka, e-mail address: kgmmotlhanka@gov.bw As a courtesy, the HRDD will send you a reminder email about eight (8) weeks before the lapse date, but failure to receive it does not affect your responsibility to submit a timely Continuing Report form

Amendments
During the approval period, if you propose any change to the protocol such as its funding source, recruiting materials, or consent documents, you must seek HRDC approval before implementing it. Please summarize the proposed change and the rationale for it in the amendment form available from the Health Research Division Office (HRDD), Office No. 9A 11 or Ministry of Health website: www.moh.gov.bw or can be requested via e- mail from Mr. Kgomotso Motlhanka, e-mail address: kmotlhanka@gov.bw . In addition submit three copies of an updated version of your original protocol application showing all proposed changes in bold or "track changes".

Reporting
Other events which must be reported promptly in writing to the HRDC include:
• Suspension or termination of the protocol by you or the grantor
• Unexpected problems involving risk to subjects or others
• Adverse events, including unanticipated or anticipated but severe physical harm to
  subjects.

If you have any questions please do not hesitate to contact Mr. P. Khulumani at pkhulumani@gov.bw, Tel +267-3914467 or Lemphi Moremi at lamoremi@gov.bw or Tel: +267-3632464. Thank you for your cooperation and your commitment to the protection of human subjects in research.

Yours sincerely

P. Khulumani
For Permanent Secretary

MINISTRY OF HEALTH
DEPT. OF POLICY PLANNING, MONITORING AND EVALUATION
2 4 JUL 2012
P/BAG 0038
GABORONE
REPUBLIC OF BOTSWANA

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ANNEXURE D

LETTER TO RESPONDENTS

- I am **Lucia M. Mupara**, a student of the **University of South Africa** doing research for my **Master's degree in Public Health**.

- I need to collect data for my research, and you are invited to participate.

- The objectives of my study are to identify the challenges faced by IMCI-1-trained registered nurses in implementing the guidelines and procedures stipulated by the IMCI strategy when tending children under 5 years of age, as well as to make relevant recommendations for the promotion and improvement of the use of the strategy.

- Data will be collected by means of questionnaires which will be distributed to the IMCI-1-trained registered nurses who indicate that they are willing to participate in the research.

- It should not take more than 30 minutes to complete the questionnaire.

- You are requested to answer the questions as honestly and truthfully as possible.

- The results of the research will be printed in the researcher's Master's dissertation and will be examined by examiners to establish whether the researcher is able to conduct research on her own. This research is therefore only for the researcher's own development and studies.

- The findings of this research will be confidential, as no names will be mentioned, and in no way will it be possible to identify the respondents.

- Your participation is voluntary, and you may withdraw from the study at any time if you feel threatened.

- No harm will be done to you, and no information you share with the researcher will be used to harm you.

- The information collected could benefit patients under 5 years of age, the children's caretakers, and health workers should it be possible to make suggestions to improve the implementation of the guidelines and procedures set by the IMCI strategy.

- Your privacy will be ensured during the completion of the questionnaire.

- Should you feel uncomfortable during the data-collection process, please discuss this with the researcher.

- Should you have any questions at any time, please direct them to the researcher.

- The Research Director of the Ministry of Health has granted me permission to conduct this research.

Consent form for study participants

TITLE OF THE STUDY: CHALLENGES IDENTIFIED BY EXPERIENCED IMCI-1-TRAINED REGISTERED NURSES IN IMPLEMENTING THE INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESSES (IMCI) STRATEGY IN GABORONE, BOTSWANA

RESEARCHER: MRS LUCIA M. MUPARA

Please mark your answer by circling the choices provided.

I hereby consent to participate in this research study by completing a questionnaire.

I agree   I disagree

I have read and understood the attached information sheet.

I agree   I disagree

I understand the benefits and risks involved in participating in this research.

I agree   I disagree

I have had the opportunity to ask questions and discuss the study with the researcher.   I agree   I disagree

I understand that I am free to withdraw from the study at any time.

I agree   I disagree

I understand who will have access to this information. I agree   I disagree

This study was explained to me by: …………………………………………………..

I agree to participate in this study. I agree to be interviewed for the purposes described in the information letter. I understand that my name will not be connected with the collected information and that any identifying information will be removed.

…………………………..   ……………………

Signature of participant   Date

I believe that the person signing this form understands what is involved in the study and voluntarily agrees to participate.

…………………………..   ………………

Signature of researcher   Date

QUESTIONNAIRE FOR IMCI-1-TRAINED REGISTERED NURSES

Instructions: Tick your answers in the boxes provided.

Number of respondent (For office use only)

SECTION A: BIOGRAPHICAL AND PROFESSIONAL DATA

A.1	**How old are you?**							
20-24 years	25-29 years	30-34 years	35-39 years	40-44 years	45-49 years	50-54 years	55-59 years	Above 60 years

A.2	**What is your gender?**
Male	Female

A.3	**What is your nationality?**						
Motswana	Kenyan	South African	Namibian	Tanzanian	Zambian	Zimbabwean	Other(please specify)

A.4	**Which nursing qualifications do you hold?**
Diploma	Degree

A.5	State your areas of nursing speciality.						
General nurse	Midwifery	Community health nurse	Psychiatry	Nursing education	Nursing management	Other(Please specify)	

A.6	During which time period did you receive your IMCI training?
Between 1999 and 2005	Between 2006 and 2012

A.7	Which IMCI training did you receive?
In-service training	Pre-service training

A.8	What was the duration of your IMCI training?	
11 days	5 days	Other (Please specify)

A.9	How long have you been tending children under 5 years of age after your IMCI training?	
0-5 years	6-10 years	More than 10 years

A.10	Have you received IMCI follow-up training?
Yes	No

SECTION B: IMCI-1-TRAINED REGISTERED NURSES' EXPERIENCE IN IMPLEMENTING THE IMCI STRATEGY

B.1 Is IMCI training considered during the assignment of daily duties to registered nurses at this health facility?		
Yes	No	Do not know

B.2 Which of the following case management steps or skills of the IMCI case management process do you find especially difficult to practise?			
	Yes	**No**	**Sometimes**
B2.1 Assess the child's condition			
B2.2 Classify the child's illness			
B2.3 Identify treatment			
B2.4 Treat the child			
B2.5 Counsel the caretaker			
B2.6 Provide follow-up care			

B.3 Which of the following statements best describes your management of a sick child at your facility?	
B3.1 I **always** apply **all** the stages of the integrated case management process	
B3.2 I apply **most** of the stages of the integrated case management process	
B3.3 I **do not** apply **any** of the stages of the integrated case management process	

B.4 To what extent do you agree with the following statements?					
	Strongly agree	**Agree**	**Neutral**	**Disagree**	**Strongly disagree**
B4.1 I provide health education to the parent/guardian/caretaker of every child I manage					
B4.2 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.					
B4.3 If I apply all the stages of the IMCI case management process to all under 5 patients, I would not be able to attend to all other patients who are not under 5s due to the patient-nurse ratio.					

B.5.1 Provide an estimate of time spent on the assessment and treatment of a child using the IMCI case management protocol.					
	Strongly agree	**Agree**	**Neutral**	**Disagree**	**Strongly disagree**
B5.1.1 I spend more than one hour per patient					
B5.1.2 I spend 30-40 minutes per patient					
B5.1.3 I spend 10-29 minutes per patient					
B5.1.4 I spend 1-9 minutes per patient					

B.5.2 Provide an estimate of time spent on the assessment and treatment of a child without using the IMCI case management protocol.					
	Strongly agree	**Agree**	**Neutral**	**Disagree**	**Strongly disagree**
B5.2.1 I spend more than one hour per patient					
B5.2.2 I spend 30-40 minutes per patient					
B5.2.3 I spend 10-29 minutes per patient					
B5.2.4 I spend 1-9 minutes per patient					

B.6 To what extent do you agree with the following statements about IMCI strategy at your health facility?					
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
B6.1 IMCI has boosted my confidence and skills in under 5 patient case management.					
B6.2 It has led to longer patient waiting queues because of the time spent to apply all the stages of the IMCI case management protocol per under 5 patient.					
B6.3 IMCI is partially implemented because, if the IMCI-1- trained nurses take too long assessing the under 5 patients, non-IMCI trained nurses take over care of other children waiting in the queue.					
B6.4 IMCI has reduced the number of follow-up visits by under 5 patients because of the thorough and accurate case management during initial visit.					
B6.5 It is not practical to always refer to the IMCI chart booklet in the clinic during case management of every presentation.					
B6.6 All IMCI-1-trained registered nurses at our health facility apply all the stages of the IMCI protocol during case management of children under 5 years.					
B6.7 Our health facility lay-out does not make it easy for us practise all the IMCI skills like witnessing first dose treatment, rehydration corners etc.					
B6.8 The case management practises of IMCI-1-trained nurses and non-IMCI-1-trained nurses are inconsistent; hence caretakers of under 5s prefer to be seen by nurses who are not IMCI trained.					

B.7 Which statement describes your experience in implementing the guidelines and procedures of the IMCI-1 strategy?

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
B7.1 IMCI is a user-friendly strategy for health workers					
B7.2 IMCI is easy to understand and apply					
B7.3 IMCI protocol is too long					
B7.4 IMCI protocol is tedious					
B7.5 IMCI is time-consuming					
B7.6 IMCI is not practical to use at our health facility					
B7.7 IMCI is difficult to understand and apply					
B7.8 My supervisor does not appreciate rationale for IMCI					
B7.8 My supervisor is not IMCI-trained					
B7.9 Patient-nurse ratio does not allow for the use of IMCI strategy					
B7.10 IMCI guidelines are too simplistic, it undermines my clinical training					
B7.11 IMCI drugs are frequently out of stock					
B7.12 Some clinical officers and doctors have negative attitudes towards IMCI					
B7.13 IMCI wall charts and chart booklets are frequently unavailable					
B7.14 Lack of IMCI follow-up training by IMCI facilitators					
B7.15 Lack of supervision by IMCI trainers					
B7.16 Our health facility is not fully equipped to support the use of be IMCI-strategy procedures					
B7.17 Other (please specify :-)					

SECTION C: RECOMMENDATIONS FOR IMPROVING IMCI IMPLEMENTATION

C.1   Which of the following statements describe the best approaches for improving the implementation of the IMCI strategy?

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
C.1 Integration of IMCI into pre-service training					
C.2 Scaling up of IMCI in in-service training					
C.3 IMCI training should be extended to lower level cadres like health care assistance so as to boost the number of health workers capacitated to deliver IMCI.					
C.4 IMCI training should be extended to senior managers so as to boost their confidence in supervising IMCI protocol implementers					
C.5 Ensuring that all nurses tending children under 5 years of age should be IMCI-trained					
C.6 All IMCI-1-trained nurses should only focus on tending under 5 patients.					
C.7 IMCI training should be a criterion for the allocation of daily duties and the deployment of nurses to duty stations					
C.8 Provide facility lay-out that allows for practise of all IMCI skills and procedures like observation of first dose treatment, rehydration corners etc					
C.9 Ensure availability of IMCI drugs, wall charts, chart booklets at all times					
C.10 Address the problem of under-staffing (improving the patient-nurse ratio)					
C.11 Follow-up and supervision of IMCI-1-trained nurses by IMCI facilitators					
C.12 IMCI national focal persons should advocate for government policy support from policy makers.					
C.13 IMCI national focal persons should advocate for more resources from health planners and resources allocators in the field.					

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29 November 2012

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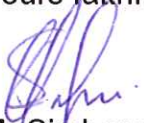
To Whom It May Concern

Ref: Confirmation of verification of data analysis

I write to confirm that I verified the data analysis of this dissertation title: **CHALLENGES IDENTIFIED BY EXPERIENCED IMCI-1-TRAINED REGISTERED NURSES IN IMPLEMENTING THE INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESSES (IMCI) STRATEGY IN GABORONE, BOTSWANA.**

The dissertation was submitted to University of South Africa for examination by Lucia Mungapeyi Mupara, Student Number: 35331186.

Thank you

Yours faithfully,

Mr Simbarashe T. Marufu

BSc. Mathematics and Statistics (University of Zimbabwe)