EVALUATION OF THE KNOWLEDGE AND SKILLS OF PROFESSIONAL NURSES REGARDING IMCI SERVICE DELIVERY, INCLUDING HIV/AIDS CASE MANAGEMENT IN PRIMARY HEALTH CARE FACILITIES IN BUFFALO CITY SUB-DISTRICT, EASTERN CAPE PROVINCE, SOUTH AFRICA

BY

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MINI DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS OF THE DEGREE OF MASTERS IN NURSING SCIENCE (MAGISTER CURATIONIS) (COMMUNITY HEALTH NURSING)

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DEPARTMENT OF NURSING SCIENCES

2013
DECLARATION

I, Noluvo Leonelle Gosangaye, declare that this mini-dissertation is my own work. It is submitted for the Masters Degree in Nursing at the University of Fort Hare, South Africa. It has not been submitted before for any degree or examination in any other university.

Candidate: N.L. Gosangaye
Date:

The work presented in this mini-dissertation was undertaken in the School of Health Sciences, Department of Nursing Sciences, and University of Fort Hare, South Africa.
DEDICATION

I dedicate this study with love to:

My husband, Masakhane Greatest and my children, Ngcalikazi, Zusakhe and Lisakhanya Qhawe.
ACKNOWLEDGEMENTS

I thank God for giving me the strength and perseverance to pursue this study. It was His Mighty power that made me to complete it, as it was a rough road all the way. I also thank my colleagues and friends especially Ms Pathela Giyose who supported me.

Many thanks to my families, my husband, my children, my sister Anne Matafeni, my parents Ms Nojujura Gosangaye and Ms Biziwe Matafeni, for their support, love, encouragement and their countless ways in which they have sacrificed to make it possible for me to complete this study.

My sincere appreciation goes to the following people and organizations that made this research possible:

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The following institutions for their assistance during the study:

- University of Fort Hare
- The Epidemiological Research & Surveillance Management Directorate, Eastern Cape, Department of Health, for giving me permission to conduct the study.
- Buffalo City Local Service Area Sub-district
- East-London Hospital complex Ethics Committee.
- Govan Mbeki Research and development centre.
ABSTRACT

**Background:** An increase in diarrhoea and upper respiratory tract infection has been noted for the past five years and this is associated with the prevalence of Human Immune-deficiency Virus and Acquired Immune Deficiency Syndrome. HIV infection is an increasingly common cause of childhood morbidity and mortality in South Africa. In some areas of the country, like the Eastern Cape, more than 30% of the women attending antenatal clinics are HIV infected. Without intervention, approximately one third of the babies born to these HIV infected mothers will get infection from their mothers (WHO, 2003).

**Aim and Objectives of the study:** The study was meant to assess the specific knowledge and skills of professional nurses at the primary health facilities regarding management and integration of childhood illnesses, evaluate the quality of training of professional nurses on aspects of IMCI including integration of HIV within IMCI programme for children under five years in Primary Health Care facilities in Mdantsane Township.

**Methods:** A quantitative descriptive method was used for this study. The questionnaire developed by the researcher was used for data collection. The items on the questionnaire were divided into four (4) subsections. The questionnaire was administered to all professional nurses on duty and those available at the time of data collection. A checklist for IMCI was used to collect data from Road to Health files of children who were HIV positive admitted in the pediatric ward at Cecilia Makhiwane Hospital.

**Results:** The results of this study for all the variables examined showed that the highest score was 56% and the lowest was 18%. These results indicated that the knowledge and skills of professional nurses were inadequate.
Conclusion: The study concluded that the quality of service delivery for IMCI needs to be improved through further training of all the professional nurses. This will serve to improve their knowledge and skills in the management of childhood conditions.

Recommendations: The study recommended that to be able to meet the Millennium Development Goals of reduction of the under five year’s mortality and morbidity rate by two-thirds by 2015 more effort must be made regarding quality service delivery of IMCI.
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CHAPTER 1: INTRODUCTION

1.1. BACKGROUND OF THE STUDY

An increase in diarrhoea and upper respiratory tract infection has been noted for the past five years and this is associated with the prevalence of Human Immune-deficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS). HIV infection is an increasingly common cause of childhood morbidity and mortality in South Africa. In some areas of the country like Eastern Cape, more than 30% of the women attending antenatal clinics are HIV infected. Without intervention, approximately one third of the babies born to these HIV infected mothers will get infection from their mothers (WHO and UNICEF, 2003). HIV transmission from the mother to the baby occurs either before birth, at the time of delivery or during breastfeeding. Babies with symptomatic HIV infection usually come to the clinic with illnesses like diarrhoea, upper respiratory tract infection, chronic ear infection and malnutrition, sometimes having more than one problem. Diarrhoea, upper respiratory tract infection, malaria, measles and malnutrition cause more than 70% of deaths in children under five years of age, particularly in developing countries (WHO, 2003:1).

There are feasible and effective ways that health workers in clinics can care for children with these illnesses and prevent most of these deaths. WHO and UNICEF (2005) used updated technical findings to describe the management of these illnesses in a set of integrated (combined) guidelines, instead of separate guidelines for each illness. There are important relationships between the illnesses e.g. repeated diarrhoeal episodes often lead to malnutrition, diarrhoea, which often accompanies or follows measles is particularly severe, therefore effective case management needs to consider all of a child’s symptoms (WHO and UNICEF, 2003).

The purpose of the implementation of IMCI was to reduce the mortality rate by 50%, and also to reach the 4th Millennium Development Goal of reducing these deaths by two-thirds by 2015. Although IMCI was implemented, there is still an increase in child mortality rate. Nevertheless, one of the many consequences of the HIV and AIDS
pandemic may be to halt the impressive decline in childhood diarrhoeal mortality seen over the past four decades. The Global Burden of Disease estimate for the number of deaths in children under 5 years of age was 12.8 million in 1990. Estimate of 2.5 million deaths in children under 5 years of age accounts for 19.5% of these deaths, a proportion that correlates well with the median of 21% of all deaths among children aged under 5 years that were caused by diarrhoea as determined by active surveillance. This is reassuring, given the different methodologies used in arriving at these estimates. Analysis of 10.5 million deaths in 1999 attributed 1.6 million of deaths to diarrhoea only; many other diarrhoeal deaths in children who also had malaria or pneumonia were attributed to these conditions (Lozano 2001). Diarrhoea thus still accounts for 1.6–2.5 million deaths annually, and each child in the developing world experiences an average of three episodes of diarrhoea per year. Clearly, despite the decline in diarrhoeal mortality, diarrhoea remains one of the principal causes of morbidity and mortality in children (WHO, 2003:81).

It is therefore essential that professional nurses should receive appropriate intensive training on aspects of the management of childhood illnesses, paying special attention to the integration of HIV and AIDS. The Integrated Management of Childhood Illness (IMCI) project was presented by the World Health Organization (WHO) and the United Nations Children’s Fund (UNICEF) in 1996 as the principal strategy to improve child health, especially in poor communities. IMCI addresses the comprehensive health and development needs of children under the age of five years in an integrated way and concentrates on the accurate identification and management, in outpatient and home settings, of the medical conditions that most frequently cause morbidity and mortality. It also focuses on the preventive measures, immunization, good nutrition and health promotion by improving the performance of health workers and community care practices, as well as the provision of careful counselling services by the caregivers and appropriate referral of seriously ill children. Recently IMCI has been expanded to include the care of newborn and young infants and the children infected with HIV.
The IMCI philosophy has also been used in the Integrated Management of Adult and Adolescent Illness (IMAI) project. IMCI has been implemented in Primary Health Care facilities in more than 100 countries and has improved the case management skills of first-level health professionals and the quality of services they provide. The major challenge has been to scale up IMCI implementation to tackle the millions of preventable under five deaths that occur each year in poor countries and thereby reach the 4th Millennium Development Goal of reducing these deaths by two-thirds by 2015 (Gombe, Mabaera and Tshimanga, 2006:4-10).

1.2. PROBLEM STATEMENT

Though IMCI services for children under five years was initiated in 2005 in the Eastern Cape Province, infants and children mortality rate is increasing on yearly basis. Ineffective implementation of the IMCI programme at primary health facilities has resulted in the present increase in child mortality rate. Adequate specific knowledge and skills of professional nurses in management of IMCI are essential. Integration of HIV and AIDS assessment of a child is essential as it has been stated that most of the prevalence of high mortality rates in children is due to HIV and AIDS co-infection. According to WHO's Division of Child Health and Development and UNICEF statistics 2008, about 12 million children in developing countries die before they reach their fifth birthday, many during the first year of life. Few studies have been conducted regarding evaluation of effectiveness of IMCI and integration of HIV assessment skills within primary health care settings. Therefore there is a need to investigate the knowledge and skills of professional nurses regarding service delivery of IMCI in Primary Health Care facilities.

1.3. PURPOSE

The purpose of this study was to assess the effectiveness of the IMCI service delivery, by describing the knowledge and skills of professional nurses regarding IMCI implementation at the primary health care facilities at Buffalo City sub-district, Mdantsane Township of the Eastern Cape Province.
1.4. OBJECTIVES OF THE STUDY

- To describe the disease progression of the children who are HIV positive and admitted in hospital during the time of data collection by using their Road to Health files of children under five years.
- To assess the specific knowledge and skills of professional nurses at the primary health facilities regarding integrated management of childhood illnesses.
- To evaluate the quality of training of professional nurses on aspects of IMCI including the integration of HIV within the IMCI programme.

1.5. RESEARCH QUESTIONS

- Do professional nurses have adequate knowledge and skills regarding IMCI guidelines and its interventions for children under five years?
- Is the integration of HIV and AIDS strategy within the IMCI programme implemented appropriately and effectively for the children under five years?
- To evaluate or monitor the disease progression of children who are HIV positive admitted in the hospital.

1.6. SIGNIFICANCE OF STUDY

The results of this study could assist in the identification of gaps and the improvement of training of professional nurses in the IMCI programme. Recommendations from this study could contribute towards the improvement of IMCI quality of service delivery resulting in the reduction of child mortality and morbidity rates. The findings from this study could also influence policy makers on issues regarding improvement of IMCI guidelines.
1.7. DEFINITION OF TERMS:

- **Professional Nurse**
  
  An individual who is qualified and competent to independently practice comprehensive nursing, that is, general nursing, community nursing, midwifery and psychiatric nursing, in a prescribed manner. One who is capable of assuming responsibility and accountability for his/her actions (Nursing Act No. 33: 2005). In this study the professional nurse should have knowledge and skills in the management of childhood illnesses including HIV. In this study a professional nurse is a health practitioner who is involved with rendering IMCI in a primary health care facility.

- **Integrated Management of Childhood Illnesses (IMCI)**
  
  A health-care strategy introduced to treat illnesses of children under five. IMCI training was introduced in South Africa in 1996 by WHO and UNICEF. Since then 8695 health workers have been trained in IMCI – mainly primary health care nurses. This study seeks to determine the knowledge and skills of professional nurses in the implementation of IMCI. In this study IMCI strategy is an approach targeting children from zero to five years residing at Mdantsane Township and attending primary health facilities.

- **Primary Health Care Services**
  
  Is the essential health care made universally accessible to individuals and families in the community by means acceptable to them, through their full participation and at a cost that the community and the country can afford (Dennil, King and Swanepoel 2008:2). In this study these are services rendered to the children at a community level.
- Human Immune Virus and Acquired Immune Deficiency Syndrome (HIV/AIDS).

In this study HIV/AIDS is described as a causal factor to an increase of diarrhoea and upper respiratory tract infection amongst children under five years and is associated with the prevalence of Human Immune-deficiency Virus(HIV) and Acquired Immune Deficiency Syndrome(AIDS)(UNICEF,2007:4-19).

1.8. DELINEATION OF CHAPTERS

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1.9. SUMMARY.

In this chapter an introduction to the evaluation of the effectiveness of integrated management of childhood illnesses (IMCI) service delivery, including HIV in Primary health care facilities in Buffalo city sub-district in East London, has been described and its aim is to identify gaps between the training of nurses and implementation of IMCI including HIV service delivery.
2.1. INTRODUCTION
In this chapter the researcher reviewed the literature in relation to: Evaluation of the knowledge and skills of professional nurses regarding IMCI service delivery including HIV in Primary Health Care facilities. The following headings will be dealt with:

1. Epidemiology-Mortality and morbidity of children under five years.
2. Millennium Development Goals
3. HIV/AIDS in relation to childhood illnesses
4. Prevention mother to child transmission
5. Training of professional nurses

2.1.1. Epidemiology: Mortality and Morbidity of children under five years
In developing countries, about half of all childhood deaths, 4.9 million, are caused by not more than five conditions: pneumonia, diarrhoeal diseases, malnutrition, measles and malaria. Everyday, almost 13 500 children die from them. In Mexico, diarrhoeal diseases are a major cause of death among children under five – accounting for about 1.5 million deaths every year. Children die because their bodies are weakened through rapid loss of fluids and are undernourished through lack of food. And parents often fail to recognize the danger signals before it is too late. Yet most of these child deaths could be prevented. Up to 90% of diarrhoeal deaths can be prevented through the use of low-cost oral rehydration therapy (ORT) and continued feeding.

Some of the factors widely believed to have contributed to Mexico’s success in reducing diarrhoeal deaths are the increase in education levels among women, strong political commitment, adequate resources, and the existence of well trained health professionals in the diarrhoeal control programme with extensive experience of the case management strategy. The Mexican Government is now building on the success of the ORT treatment
to make use of the broader IMCI strategy to further reduce deaths among children under five. The more recent data showed that childhood mortality rates from diarrhoea in Africa remained high, the rates were similar to those found in South Asian studies and were consistently higher than in Latin America. Persistent diarrhoea (duration more than 14 days) is also responsible for significant childhood mortality in Sub-Saharan Africa, where rates of 6.6 to 43 deaths per 1000 children a year have been observed (Hamer, Simon, Thea, Keusch, 1998:4). South Africa is undergoing demographic and epidemiological changes. The country is also facing a triple burden of diseases associated with the epidemiological transition, namely, communicable diseases associated with poverty e.g. TB, malaria, sexually transmitted infections including HIV and AIDS, non-communicable diseases associated with lifestyles, and trauma and violence.

- **Some mortality trends**
The overall number of registered deaths increased consistently from 316 507 in 1997 to 591 213 in 2005. The increase from one year to another may be due to the improvement in death registration and population growth. The highest number of deaths in 2005 was observed in the age group zero to four years, as indicated in the table below.

**Table 2.2: Distribution of registered deaths by year of death, 1997-2005**

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<td>Number of deaths</td>
<td>16 507</td>
<td>65 053</td>
<td>80 982</td>
<td>14 530</td>
<td>53 404</td>
<td>99 925</td>
<td>53 718</td>
<td>72 350</td>
<td>91 213</td>
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In 2005 the MDG report stated that under five mortality increased marginally from 59/1000 live births in 1998 to 60/1000 in 2002. This was the preliminary figure and South African Demographic and Health Survey (SADHS) in 2003 confirmed that the most recently available figure for under five mortality is 57.6/1000 live births. There is however a big gap considering the target of 20/1000 live births by 2015. IMCI focuses on illnesses that cause the majority of deaths in children under six years, many of which
are preventable or readily treatable using simple interventions: These are pneumonia, diarrhoea, meningitis, malaria, malnutrition, anemia and HIV and AIDS. This is called a “child survival” approach. Other important aspects of child health are also addressed such as ear infections, the sick young infant (under two months), breast-feeding and feeding assessment (Kerry, 2005: 47).

Adequate nutrition during infancy and childhood is critical to child health and development. Globally under nutrition is a leading cause of childhood mortality. Under nutrition has been associated with impairment of intellectual performance, work capacity and overall health and nutritional status during adolescence and adulthood. Overweight (obesity) and underweight (malnourishment) in children are also a serious concern. The infant and young child feeding policy was developed in the context of the national policies, strategies and programmes and numerous global initiatives which are as follows:


The adoption of the Innocenti Declaration in August 1990. This declaration called for governments to take concrete action by 1995 to protect, promote and support breastfeeding. This Declaration was reaffirmed and broadened by the 2005 Innocenti Declaration, The Convention on the Rights of the Child that was adopted in 1989 by the General Assembly of the United Nations. This convention obligates to take measures to ensure that all the segments of the society, in particular parents and children, is informed, have access to education and is supported in the use of basic knowledge on the advantages of breastfeeding. The Baby-friendly Hospital Initiative (BFHI) was launched globally in 1991 in recognition of the special role of maternity services in early support and protection of breastfeeding.
The Global Strategy for Infant and Young Child Feeding was unanimously adopted by all the World Health Organization (WHO) member states at the 55th WHA in May 2002. A joint policy statement on HIV and Infant feeding was issued by WHO, UNICEF and the Joint United Nations Programme on HIV and AIDS (UNAIDS) in 1997, leading to the development of guidelines on HIV and Infant feeding for decision-makers, programme managers and supervisors. This was supported by an Infant Feeding Framework for Priority Action, published in 2003 by WHO, UNICEF and other United Nations agencies. It recommends key actions related to infant and young child feeding, that cover the special circumstances associated with HIV and AIDS. In 2006 the WHO’s HIV and Infant Feeding Technical Consultation group released a consensus statement to refine the policy statements on HIV and infant feeding. Early cessation of breastfeeding before six months was associated with an increased risk of infant morbidity and mortality especially diarrhoea, in HIV-exposed children in completed Malawi (Kenya, Uganda and Zambia). According to preliminary data presented from Botswana and Zambia, breastfeeding of HIV-infected infants beyond six months was associated with improved survival compared to stopping breastfeeding (WHO, 2006:11).

2.1.2. Millennium Development Goals

In September 2000, 189 countries adopted the Millennium Declaration that was translated into the Millennium Development Goals to be achieved by 2015. Eight goals were set of which goal four is aimed at the reduction of child mortality. This includes the reduction of the under five year’s mortality rate and the infant mortality rate by two-thirds between 1990 and 2015. Goal one, which is eradication of extreme poverty and hunger, has as an indicator of prevalence indicating the proportion of children under five years of age who are underweight. Since 2000, South Africa has engaged in various processes to discuss infant feeding in the context of HIV. These consultations intensified from 2001 with the advent of the national Prevention of Mother To Child Transmission programme (PMTCT).
The PMTCT programme provides free commercial formula for six months for HIV infected mothers opting for replacement feeding for their infants. The integrated Management of Childhood Illnesses is a systematic approach to children's health which focuses on the whole child. This means not only focusing on curative care but also on prevention of disease. The approach was developed by the United Nations Children's Fund and the World Health Organization. The Integrated Management of Childhood Illnesses (IMCI) strategy is the primary child-care approach of choice for South Africa mainly targeting children under five years. The major challenge has been to scale up IMCI implementation to tackle the millions of preventable under five deaths that occur each year in poor countries and thereby reach the fourth Millennium Development Goal of reducing these deaths by two-thirds by 2015 (Gombe, Mabaera, Tshimanga, 2006). There are several factors that contribute to the attainment of this goal including good immunization coverage, access to water and sanitation as well as good nutrition and maternal education.

Immunization coverage
The MDG report in 2005 showed that overall immunization coverage of 78% was based on 2002 estimates but in 2006 the national immunization coverage increased to 83%. In spite of this achievement, there are still districts and sub districts with low immunization coverage which require focused intervention. In identification of these the public health sector begun to implement the WHO strategy known as Reach Every District (RED), aimed at improving coverage and protecting South Africa’s children against vaccine preventable diseases (WHO, 2006b: 1).

2.1.3. HIV and AIDS in relation to childhood illnesses

HIV infection is very common amongst children in South Africa; it is estimated to account for almost half of all deaths in children below five years of age. Preventing HIV infection in children is therefore the best way to reduce child mortality rates in South Africa. This can be done through prevention of primary infection (in adults) and through prevention of mother to child transmission of HIV infection. Early diagnosis of HIV, and initiation of Antiretroviral Therapy (ART) and other treatments, can also prevent many deaths from
HIV in children. Children less than one year of age are mostly at risk of developing serious complications and dying from HIV infection, therefore it is most important that these children are identified, and placed on treatment. South Africa was one of the first countries to include assessment and classification of HIV infection in the IMCI case management process and chart booklet. The possibility of HIV exposure or infection is frequently ignored in children presenting to Primary Health Care settings in South Africa for both well-baby care and sick visits. Using IMCI guidelines does not guarantee that every HIV infected child will be identified (the current South African IMCI criteria have a 23 - 73% sensitivity during infancy), but the guidelines’ insisted that the possibility of HIV be considered in every child increases the chances of making the diagnosis, starting appropriate Cotrimoxazole prophylaxis and commencing antiretroviral therapy earlier all potentially life-saving measures (Saloojee, 2007:173).

The 2009 version of IMCI required that consideration be given to the HIV status of every sick child who is seen at a Primary Health Care (PHC) facility. It included follow-up of children who were HIV-exposed, and children who tested positive for HIV infection. However, it did not include ART, as at that stage ARTs was only provided at Comprehensive Care, Management, Treatment and Support (CCMTS) sites. Children who required ART were therefore referred to these centres. However, important changes to the HIV programme were introduced in April 2010.

These included:
The eligibility criteria for starting ARTs were changed. Most importantly, all HIV infected infants (children less than one year of age) should be started on ART. ART should be provided at all health facilities in South Africa, including PHC facilities. This means that professional nurses will need to play an important role in the initiation and follow-up of children and adults on ART. The treatment regimens have changed – Stavudine will be phased out due to its side-effects. There have also been important changes to the PMTCT guidelines. From an IMCI perspective the most important change is that all HIV-exposed infants will receive Nevirapine for at least six weeks. This has implications for infant feeding counseling, and more emphasis should be placed on
supporting mothers to practice exclusive breastfeeding. According to the latest statistics of the global HIV and AIDS epidemic published by UNAIDS in November 2009, the estimated number of people living with HIV and AIDS in 2008 were 33.4 million, with adults constituting the largest number at 31.3 million and children 2.1 million. At the end of 2008 women accounted for 50% of all adults living with HIV worldwide.

Out of the 33.4 million people affected, 22.4 are estimated to come from the Sub-Saharan Africa in the same period. In South Africa it is estimated that 5.7 million people were living with HIV and AIDS in 2009, more than any other country in the world. Almost one in three women aged 25-29 and over a quarter of men aged 30-34 are living with HIV (STATSSA, 2009). Within the infected population, 90 000 are babies born with HIV, and 85% of infections occur through heterosexual sex in the general population (HIV and AIDS Policy, 2010).

HIV prevalence among those aged two and older varies by province with the Western Cape (3.8%) and Northern Cape (5.9%) being the least affected and Mpumalanga (15.4%) and Kwa-Zulu Natal (15.8%) at the upper end of the scale. The Aids epidemic has the potential to cause profound negative social, economic and individual effects, and has placed a particularly heavy toll on existing health care system, particularly to those of poorer nations. Loewenson and Whiteside (2001) estimate that the HIV and AIDS epidemic has increased the burden disease up to seven fold in highly affected African countries, increasing the demand for and costs of public health care.

2.1.4. Prevention of Mother To Child Transmission

Table 2.3: Summary of PMTCT process

<table>
<thead>
<tr>
<th>ANTENATAL CARE</th>
<th>LABOUR &amp; DELIVERY</th>
<th>POSTNATAL CARE</th>
</tr>
</thead>
</table>
The National PMTCT programme aims to ensure:

Primary prevention of HIV, especially among women of child-bearing age, integration of PMTCT interventions with basic antenatal care (BANC), sexual and reproductive health, (SRH), Child and Adolescent Health, comprehensive care, management and treatment for HIV (CCMT) and tuberculosis (TB) services, strengthen postnatal care for the mother-baby pair, provision of an expanded package of PMTCT services, including:

Routine offer of HIV counselling and testing for all pregnant women attending antenatal care, provision of provider-initiated counselling and testing services in the context of PMTCT, in facilities offering routine antenatal care, involvement of the partner and the family in order to ensure a comprehensive approach, provision of appropriate regimens to prevent mother-to-child transmission of HIV according to the risk profile based on the HIV test, CD4 cell count, and clinical staging (PMTCT 2011 guidelines).

Provision of other appropriate treatments, such as those for opportunistic infections (OI) management and nutritional support, provision of psychosocial support to HIV-positive pregnant women, provision of quality, objective, and individualized counselling on safe infant feeding practices for HIV-positive women in health facilities offering routine ANC services, through trained lay counsellors and health care professionals. Strengthened obstetric practices which reduce Mother To Child Transmission (MTCT), provision of antiretroviral prophylaxis to infants, integrated follow-up of infants born to HIV-positive women through routine child health services and the Integrated Management of Childhood Illness (IMCI) strategy, infant HIV testing using HIV DNA-PCR at six weeks of age for all infants born to HIV-positive women (integrated with the expanded programme on immunization (EPI) six weeks visit), irrespective of feeding option, strengthening of community-based household and door-to-door activities to educate and enhance the utilization rates and effectiveness of health programs (PMTCT guidelines 2011).
On World AIDS Day, 2009, the Honorable President Jacob Zuma announced new interventions to improve antiretroviral therapy access for priority groups in order to decrease the disease burden, to address maternal and child mortality, and to improve life expectancy. Based on the presidential announcements, all HIV-infected pregnant women with a CD4 count 350/mm3 will commence lifelong ART earlier. Furthermore, prophylaxis ART treatment will be started earlier, at 14 weeks pregnancy, for women who are not eligible for lifelong ART. For the first time, HIV-positive-infected women can safely breastfeed their children provided the child is taking ARV’s during the breastfeeding period (Daily Dispatch newspaper.2009. East London).

(a) **Pregnancy: Antenatal Care**

Goals of interventions:

Improve the quality of the mother’s health and prevent mortality, identify women who are HIV-positive, ensure HIV-positive women enter the PMTCT programme, prevent mother-to-child transmission; and provide zidovudine (AZT) from 14 weeks of pregnancy or lifelong ART as soon as possible, depending on a mother’s clinical indications.

In 2009, the Eastern Cape provincial HIV prevalence amongst 15 - 49 antenatal women was 28.1% (95% CI: 26.1% – 30.1%). The overall HIV provincial prevalence in the Eastern Cape province has increased from 27.6% in 2008 to 28.1% in 2009 (PMTCT guidelines 2011).
Table 2.4 and Figure 2.1: The recent trends in district prevalence rates are presented below.

Table 6: HIV prevalence among antenatal women by district in the Eastern Cape, 2007 to 2009.

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th></th>
<th>2008</th>
<th></th>
<th>2009</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>%</td>
<td>95% CI</td>
<td>N</td>
<td>%</td>
<td>95% CI</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>N</td>
<td></td>
<td></td>
<td>N</td>
</tr>
<tr>
<td>Provincial</td>
<td>4118</td>
<td>28.8</td>
<td>26.9 - 30.7</td>
<td>4216</td>
<td>27.6</td>
<td>25.6 - 29.6</td>
</tr>
<tr>
<td>Alfred Nzo</td>
<td>189</td>
<td>24.8</td>
<td>20.9 - 29.3</td>
<td>201</td>
<td>29.8</td>
<td>22.3 - 38.6</td>
</tr>
<tr>
<td>Amatole</td>
<td>1058</td>
<td>29.2</td>
<td>26.5 - 32.0</td>
<td>1128</td>
<td>26.5</td>
<td>23.0 - 30.3</td>
</tr>
<tr>
<td>Cacadu</td>
<td>269</td>
<td>20.0</td>
<td>15.7 - 26.0</td>
<td>281</td>
<td>23.8</td>
<td>17.7 - 31.2</td>
</tr>
<tr>
<td>Chris Hani</td>
<td>572</td>
<td>30.2</td>
<td>26.2 - 34.5</td>
<td>529</td>
<td>27.0</td>
<td>22.9 - 31.5</td>
</tr>
<tr>
<td>N.M.M.</td>
<td>770</td>
<td>28.5</td>
<td>22.8 - 35.9</td>
<td>795</td>
<td>29.0</td>
<td>23.4 - 35.4</td>
</tr>
<tr>
<td>O.R. Tambo</td>
<td>1036</td>
<td>30.3</td>
<td>26.6 - 34.2</td>
<td>1063</td>
<td>29.6</td>
<td>26.2 - 33.2</td>
</tr>
<tr>
<td>Ukhahlamba</td>
<td>224</td>
<td>29.4</td>
<td>24.3 - 35.1</td>
<td>219</td>
<td>21.9</td>
<td>16.3 - 30.5</td>
</tr>
</tbody>
</table>

N = Realised sample size; N2 = Number of HIV positive women in the sample; CI= Confidence Interval.

As might be expected substantial year on year changes are observed in the districts with smaller sample sizes (Alfred Nzo, Cacadu, and Ukhahlamba).

Figure 10: HIV prevalence trends among antenatal women by district, Eastern Cape, 2007 to 2009.

Alfred Nzo district prevalence has decreased from 29.8% in 2008 to 23.7 % in 2009 (Table 6 and Figure 10). Ukhahlamba district showed an increase from 21.9% in 2008 to 23.5% in 2009. In 2009, Nelson Mandela Metropole was the only district to record a prevalence above 30% in 2009 (Figure 11).

(b) **Labour and delivery**

**Goals of interventions:**
Identify HIV-positive women, provide adequate PMTCT coverage, provide continuity of care of prophylactic and treatment antiretroviral regimens, reduce maternal Nevirapine (NVP) resistance; and initiate neonates born to HIV-positive mothers with antiretroviral prophylaxis immediately at birth.

(c) **Postnatal care**

**Goals of interventions:**

Infants who are breastfed and whose mothers are on lifelong ART, all women of unknown HIV status should be offered HIV testing and counseling before discharge, preferably prior to, or immediately after, delivery to ensure that the baby gets antiretroviral prophylaxis if the test is HIV positive, all abandoned infants judged to be in their first 72 hours of life should be given NVP as soon as possible and then daily for six weeks, or until PCR rapid testing of the mother or infant confirms the absence of HIV exposure, breastfed infants whose mothers are not on lifelong ART should continue NVP beyond six weeks of age until all cessation of breastfeeding.

(d) **Follow up care and support**

**Goals of interventions:**

Provide follow-up post-partum care including a postnatal visit within three days, improve the quality of the mother’s health and reduce mortality by including family planning counseling and cervical cancer screening where applicable, provide post-exposure prophylaxis for infants, reduce postnatal HIV transmission through breastfeeding, identify all HIV-exposed infants, reduce mortality in HIV-exposed infants; and identify all HIV-positive infants and start ART early.
(e) Treatment

Specific Objectives for HIV treatment

To prioritize ARVs for; patients with CD4 counts < 350 cells/mm³ or with severe HIV disease irrespective of CD4, patients co-infected with TB/HIV and pregnant women. To ensure access to ART within 2 weeks in pregnant women, those with low CD4 counts, very ill patients, and those with MDR-TB or extensively drug resistant TB (XDR-TB); to standardize first- and second-line therapy for children, adolescents, and adults in the public and private sector; to reduce the use of Stavudine; to expand the use of fixed-dose and co-packaged formulations; to enable nurses to initiate ARVs for treatment and prevention; and to enable PHC facilities to initiate, manage, monitor and refer patients.

Standardized National Art and ARV

Regimens for HIV-positive pregnant women and their infants

Table 2.5: Maternal regimens

<table>
<thead>
<tr>
<th>Woman</th>
<th>Regimen</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eligible for lifelong ART (i.e. CD4 &lt; 350 or WHO clinical stage 3 or 4)</td>
<td>TDF + 3TC/FTC + NVP</td>
<td>Start lifelong ART within 2 weeks</td>
</tr>
<tr>
<td>Currently on lifelong ART</td>
<td>Continue ART</td>
<td>Substitute EFV with NVP if in first 12 weeks of pregnancy</td>
</tr>
<tr>
<td>Contraindication to TDF (renal disease)</td>
<td>AZT + 3TC + NVP</td>
<td></td>
</tr>
<tr>
<td>Not eligible for ART i.e. CD4 &gt; 350 and WHO stage 1 or 2</td>
<td>AZT from 14 weeks sdNVP + AZT 3 hourly in labour</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TDF + FTC single dose stat) post delivery</td>
<td></td>
</tr>
<tr>
<td>Unbooked and presents in labour</td>
<td>sdNVP + AZT 3 hrly in labour</td>
<td>Assess maternal ART eligibility. Before discharge</td>
</tr>
<tr>
<td></td>
<td>TDF + FTC single dose post-delivery</td>
<td></td>
</tr>
</tbody>
</table>
See the PMTCT 2011 Guidelines for full diagnosis and treatment of mother and infant, including breastfeeding options.

Table 2.6: Infant Regimen

<table>
<thead>
<tr>
<th>Infant</th>
<th>Regimen</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother on lifelong ART</td>
<td>NVP at birth and then daily for 6 weeks irrespective of infant feeding choice</td>
<td></td>
</tr>
<tr>
<td>Mother on PMTCT regimen</td>
<td>NVP at birth and then daily for 6 weeks continued as long as any breastfeeding</td>
<td>If formula fed, baby can stop NVP at 6 weeks</td>
</tr>
<tr>
<td>Mother did not get any ARV before or during Delivery</td>
<td>NVP as soon as possible and daily for at least 6 weeks continued as long as any breastfeeding</td>
<td>Assess ART eligibility for the mother within 2 weeks</td>
</tr>
<tr>
<td>Unknown maternal status because orphaned or abandoned</td>
<td>Give NVP immediately* Test infant with rapid HIV test. If positive continue NVP for 6 weeks. If negative discontinue NVP</td>
<td>Follow-up 6 week HIV DNA PCR</td>
</tr>
</tbody>
</table>

If rapid HIV test can be done within 2 hours, then wait for HIV result before commencing Nevirapine (NVP).

(f) **Special considerations**

Tuberculosis as it is a stage iii disease, any pregnant woman with TB qualifies for ART, Rifampicin may affect the dose of some ARVs and dose adjustment may be required, and Isoniazid prophylaxis (IPT) should be continued during pregnancy if it has already been started.
2.1.5. Training of professional nurses

The Integrated Management of Childhood Illness strategy is the primary child-care approach of choice for South Africa. IMCI training was introduced in South Africa in 1996 by the WHO and UNICEF. Since then 8695 health workers have been trained in IMCI – mainly primary health care nurse practitioners, but also primary care doctors and pediatricians. The basic 11-day course comprises classroom activities, assessing children both in an outpatient setting and pediatric ward. A compact 4 day course has been developed for doctors and is being taught in some medical schools. IMCI has been very well received by nurse practitioner and doctors alike in empowering them to make easy, evidence-based decisions in the management of sick children at first contact level. However many doctors continue to work with children without knowledge of IMCI (Kerry 2005:47).

Introducing and implementing the IMCI strategy in both pre-service and continuing in-service training has often been problematic, preventing the large-scale coverage hoped for. Major obstacles in reaching a critical mass of trained health care workers include the cost of a model reliant on centralized, tutor-based training, a shortage of experienced trainers, an inadequate supply of training materials, poor follow-up support, and frequent attrition of trained staff. Attempts to address these deficits have included shortened IMCI courses and the use of Internet learning or interactive programs such as the IMCI computerized adaptation and training tool (ICATT). A recent article on the poor performance of nurses following IMCI training in Bulawayo quoted a number of studies in Brazil, Tanzania, Uganda and South Africa that documented important gaps in the assessment and management of children by health workers trained in IMCI. Poor performance was thought to be related to inadequate health system support and supervision (Gombe et.al, 2006:4-10).
In a recent study, 21 nurses in 21 Cape Town clinics were observed before and after the IMCI intervention. There was a marked improvement in assessment of danger signs in sick children 72% identified after IMCI training versus 7% before training, assessment of co-morbidity, rational prescribing (84% versus 62%), and starting treatment in the clinic (70% versus 40%). However, there was no change in the treatment of anemia or the prescribing of vitamin A or counseling of caregivers. Neither was there any change in the knowledge of caregivers regarding medication or when to return to the health institution. Doctors also can play a key role in the training and support of IMCI nurse practitioners (Saloojee, 2007:174).

2.6. SUMMARY
This chapter outlined prevalence of childhood illnesses and strategies to prevent mortality and morbidity rates and several studies that have been conducted on the integrated management of childhood illnesses including HIV. The debate on the studies shows that there is importance of prevention mother to child transmission during these stages: antenatal, labour and delivery so as to reduce HIV in children under five years. The chapter also focused on the training programme for professional nurses in IMCI which may have gaps due to the shortness of the course.
CHAPTER 3: RESEARCH METHODS

3.1. INTRODUCTION
This chapter describes the study approach and design utilized in this research. The study population, study sample, instrument for collecting data, data collection procedure, data analysis and ethical considerations were also described.

3.2. RESEARCH DESIGN
The study used the quantitative, cross-sectional approach.

3.3. STUDY SETTING
This study was based on the population of professional nurses working in 10 clinics, one Community Health Centre (CHC) and one pediatric ward in Cecilia Makhiwane Hospital at Mdantsane Township in Buffalo city sub-district, Eastern Cape Province, South Africa. The Eastern Cape has a population of 6,527,746 people (Statistics S.A, 2007). The Province of the Eastern Cape is further divided into 7 District Municipalities of which Amathole District Municipality is the most diverse of all of them. The Buffalo city, a sub-district of Amathole District Municipality consists of 99 clinics and three Community Health Centres. Mdantsane Township which is the sub-district of Buffalo City Municipality has 10 clinics and one Community Health Centre (CHC) where IMCI is conducted. The researcher utilized all the above mentioned clinics and CHC for data collection. The Mdantsane Township is the most densely populated area in Buffalo city sub-district of the Amathole district and the Mdantsane Township setting of these 10 clinics are located in each area of Mdantsane Township called Native units (N.U), starting from N.U 1 up to N.U 17 and the one CHC which is located at the centre of Mdantsane Township in a central businesses area. Each clinic is staffed by 10 professional nurses and each clinic attends to an average of 21 under five years children per day. For any of the primary health programmes, the clinics operate five days per week, serving all age groups, including children under five years in Integrated Management of Childhood Illnesses programme including HIV. The same consulting rooms and the clinics close at 15H30 every afternoon. One CHC (known as Nontyatyambo Health Centre) operates 24 hours and during weekends.
Cecilia Makhiwane hospital was also included as a study site using Road to health files of admitted ten children from the age of two months to two years who are HIV positive during the data collection period.

3.4. STUDY POPULATION

The study population was all the professional nurses allocated in all the ten Primary Health clinics in Mdantsane Township, one CHC and children who were admitted in a pediatric ward in Cecilia Makhiwane hospital.

3.5. STUDY SAMPLE AND SAMPLING PROCEDURE

Sampling involves selecting a group of people, events, behaviors, or other elements with which to conduct a study (Burns & Grove, 2005:341). Sampling refers to the researcher’s process of selecting the sample from the population in order to obtain information regarding a phenomenon in a way that represents the population of interest (Brink, 2010:124).

A convenient purposive sample of professional nurses who were available during the data collection period were taken for this study. In each clinic there were five professional nurses recruited for the study resulting in a total of 55 participants to be utilized. According to Brink (2010:124) a sample is a subset of the population that is selected to represent the population. Convenience sampling is also referred to as ‘accidental or ‘availability sampling’ and it involves the choice of readily available subjects or objects for the study (Brink 2010:132). Purposive sampling which is also referred to as judgmental or selective sampling, is where the researcher consciously selects certain subjects, elements, events, or incidents to include in the study (Burns and Grove 2005:252).
3.5.1. Inclusion Criteria

Participants were the professional nurses who were registered with the South African Nursing Council, who were permanently working in 10 Primary Health Care clinics and CHC in Mdantsane Township. The Road to health files of HIV positive children who were admitted in pediatric ward in Cecilia Makhiwane hospital was included.

3.5.2. Exclusion Criteria

All participants who were not professional nurses, working in 10 Primary Health Care clinics and one CHC professional nurses who were on leave were excluded. Road to health files of children who were HIV negative admitted in pediatric ward in Cecilia Makhiwane hospital were excluded.

3.6. RESEARCH INSTRUMENT

The questionnaires developed by the researcher were used for data collection. The items on the questionnaires were divided into four sub-sections. Sub-section A was about the knowledge and skill regarding management of the childhood conditions listed, Sub-section B. oral drug prescription, Sub-section C. counseling of the mother of a sick child, Sub-section D was about training experience and exposure. Likert scale was used for sub-sections A, B and C and consists of six columns ranging from excellent to poor. Excellent was identified as a positive response while poor was identified as a negative response. The questionnaires were easy to use and required minimal assistance. The questionnaires were administered to all the professional nurses on duty and those available at the time of data collection. A checklist for IMCI was used to collect data from Road to Health files of HIV positive children who were admitted in pediatric ward at Cecilia Makhiwane hospital.
3.7. PILOT STUDY

Pilot study which is sometimes referred to as a preliminary study, that was a small scale study conducted prior to the main study on a limited number of subjects from the population at hand. Its purpose was to investigate the feasibility of the proposed study and to detect possible flaws in data collection instruments such as ambiguous instructions or wording (Brink 2007:166). The questionnaires were pretested on seven professional nurses who were not part of the study at Gateway clinic Frere hospital in East London.

3.8. VALIDITY AND RELIABILITY

3.8.1. Validity

According to Kumar (2005:153), Validity is the ability of an instrument to measure what it is designed to measure. The important thing is to make sure that the instrument is measuring what it is intended to measure for the particular people in a particular context and that the interpretations we make on the basis of the test scores are correct. All items used in the questionnaires had gone through some validation by checking the questionnaires for correct interpretation. The questionnaires were pretested among different professional nurses at Gateway clinic Frere hospital, East London who were not participating in the study. Content validity is an assessment of how well the instrument represents all the different components of the variable to be measured (Brink 2010:160).

In this study the questionnaires were designed for professional nurses to assess their knowledge and skills on the implementation of IMCI, including HIV to children under five years. The data collected from the Road to health files of children who are HIV positive admitted in pediatric ward in Cecilia Makhawane hospital were compared to the data collected from the professional nurses on their knowledge and skill regarding the effectiveness of IMCI in their service delivery to those children under five years.
3.8.2. Reliability

Reliability is concerned with consistency, stability and repeatability of the information’s accounts as well as the investigator’s ability to collect and record information accurately (Burns & Grove, 2005:374). The questionnaires used repeatedly must give constant similar results. Reliability was ensured by applying the following:

A relationship of trust between the researcher, management and the participant existed. The proposal was peer-reviewed and presented an in-depth description of how the research would be conducted.

3.9. ETHICAL CONSIDERATION

Before the study commenced, a clearance certificate to conduct the study was obtained from the University of Fort Hare Research Ethics Committee. Permission to conduct the study was obtained from Eastern Cape Department of Health Research Ethics Committee, from the manager of Buffalo city sub-district office and from East London hospital Ethics Committee and Cecilia Makhriwane hospital management. The purpose of the study was explained to the participants in a simple language. Those willing to participate in the study signed a written consent form. There were no risks anticipated in this study. The researcher informed the participants fully about the proposed study and allowed them to voluntarily choose to participate in the study.

The right to self-determination which was based on the ethical principle of respect for persons were upheld. Participants were informed that they have a right to participate or withdraw from the study at any point and that their choices would not affect their employment, their care and that of their families. Confidentiality ensured the researcher's management of private information shared by a participant that should not be shared with others without the authorization of the participant (Burns and Grove 2009:196). Anonymity ensured that no names appeared on the questionnaires. The information provided by participants was available to the researcher and the supervisor only.
3.10. DATA COLLECTION

Data collection methods are ways in which the data are actually obtained (Burns & Grove 2005:42). The data collection for the study commenced on 22 August and terminated on 12 September 2012 at the 11 primary health care clinics of Mdantsane Township. The researcher had to submit a permission of approval before conducting data collection, to the clinics supervisors. Data was collected in two phases:

Phase 1. The questionnaires were administered to professional nurses regarding their knowledge and skills on management of IMCI conditions, oral drug prescription, counseling of the mother of the sick child, their training and duration of their training of IMCI. The questionnaires were in a form of Likert scale method whereby the professional nurse had to tick (√) next to the correct category. The questionnaires were administered and answered within 20 minutes.

Phase 2. The data regarding disease progression was collected from 10 Road to health files of HIV positive children under five years who were admitted in pediatric wards of Cecilia Makhiwane Hospital in Mdantsane Township. The researcher had to request for permission from the hospital complex ethics committee to collect data from the files of the children in the pediatric wards in Cecilia Makhiwane hospital. The approval letter had to be submitted to the hospital management then to the operational manager on duty during the period of data collection in those pediatric wards. This was done to validate the information given by professional nurses who were participating in the study.
3.11. DATA ANALYSIS

According to Burns and Grove (2005:43) data analysis is conducted to reduce, organize, and give meaning to the data. It involves the use of descriptive procedures, to describe study variables and sample, statistical techniques to test proposed relationships. Data from the nurses was analyzed by a statistician using the Statistical Package for Social Science (SPSS) software version 19. The data was coded and entered into the computer for analysis. Frequency tables were generated, followed by drawing of tables and charts to present the results.

3.12. LIMITATION OF THE STUDY

The limitations of the study were related to the following factors: Unavailability of professional nurses who were attending workshops during the data collection period. Contact time was limited because the professional nurses had to use their working hours for participation in the study. Most items on the questionnaires required excellent to poor and failed to identify in-depth presence of information and knowledge about IMCI including HIV in the programme. Only quantitative convenient study was used and therefore the results of the study cannot be generalized to the broader community of professional nurses.

3.13. Summary

This chapter outlined the research design of the study. The methodology used was quantitative approach. The instrument was designed and administered according to necessary guidelines. Ethical issues were considered. Data collection and instrument were explained fully. The interpretation of research results are presented in chapter four (4).
CHAPTER 4: RESULTS

4.1. INTRODUCTION

The results are presented in two phases as follows:

4.2. Phase 1: The study of professional nurses

4.3. Phase 2: The study on children.

4.2. PHASE 1: STUDY ON THE PROFESSIONAL NURSES

4.2.1. KNOWLEDGE AND SKILLS IN MANAGEMENT OF CHILDHOOD ILLNESSES.

Table 4.7: Knowledge and skills of Childhood conditions

<table>
<thead>
<tr>
<th>Childhood conditions</th>
<th>Very Good</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Danger Signs</td>
<td>46%</td>
<td>34%</td>
</tr>
<tr>
<td>Cough</td>
<td>42%</td>
<td>38%</td>
</tr>
<tr>
<td>Wheezing</td>
<td>46%</td>
<td>34%</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>42%</td>
<td>36%</td>
</tr>
<tr>
<td>Fever</td>
<td>46%</td>
<td>32%</td>
</tr>
<tr>
<td>Measles</td>
<td>42%</td>
<td>30%</td>
</tr>
<tr>
<td>Ear Problem</td>
<td>36%</td>
<td>34%</td>
</tr>
<tr>
<td>Malnutrition &amp; Anemia</td>
<td>40%</td>
<td>24%</td>
</tr>
<tr>
<td>HIV infection</td>
<td>30%</td>
<td>28%</td>
</tr>
<tr>
<td>TB</td>
<td>30%</td>
<td>30%</td>
</tr>
<tr>
<td>Immunization status</td>
<td>30%</td>
<td>46%</td>
</tr>
</tbody>
</table>

Table 4.7: above shows the scores in the forms of percentages obtained by the professional nurses in terms of knowledge and skills regarding Childhood illnesses. The scores are ranging between excellent and very good with the maximum score of 46% on both excellent and very good. The minimum score was 24% under malnutrition and anemia condition within excellent and 30% for very good.
Figure 4.2: below shows scores in relation to knowledge and skills of professional nurses regarding conditions of children under five years. Out of 100% maximum scores of 46% and minimum scores of 24% were obtained, for example under excellent, immunization status yielded the highest score of 46%.

Figure 4.2: Knowledge and skills of professional nurses regarding IMCI

Figure 4.2: Knowledge and skills of professional nurses regarding IMCI
4.2.2. ORAL DRUG PRESCRIPTION

Table 4.8: Oral drug prescription.

<table>
<thead>
<tr>
<th>Drugs</th>
<th>Very Good</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amoxicillin</td>
<td>36%</td>
<td>40%</td>
</tr>
<tr>
<td>Ciprofloxacin</td>
<td>38%</td>
<td>32%</td>
</tr>
<tr>
<td>Cotrimoxazole</td>
<td>36%</td>
<td>36%</td>
</tr>
<tr>
<td>Erythromycin</td>
<td>36%</td>
<td>36%</td>
</tr>
<tr>
<td>Salbutamol for wheeze</td>
<td>44%</td>
<td>24%</td>
</tr>
<tr>
<td>INH Prevention therapy</td>
<td>34%</td>
<td>26%</td>
</tr>
<tr>
<td>Treat TB</td>
<td>26%</td>
<td>34%</td>
</tr>
<tr>
<td>Antiretroviral Drugs</td>
<td>18%</td>
<td>26%</td>
</tr>
<tr>
<td>Zinc</td>
<td>26%</td>
<td>30%</td>
</tr>
<tr>
<td>Iron</td>
<td>38%</td>
<td>26%</td>
</tr>
<tr>
<td>Paracetamol</td>
<td>42%</td>
<td>38%</td>
</tr>
<tr>
<td>Mabendazole</td>
<td>40%</td>
<td>42%</td>
</tr>
<tr>
<td>Vitamin A</td>
<td>40%</td>
<td>40%</td>
</tr>
</tbody>
</table>

The scores appearing on the table above were obtained from the participants responding to the question on oral drug prescription. The results showed that under very good the maximum score on prescription of drugs was salbutamol for wheeze and it shows the highest score of 44% while there is a minimum score of 18%, which was related to prescription of antiviral drugs. Under excellent, Mabendazole yielded the highest score of 40% while prescribing Salbutamol under excellent yielded the lowest score (24%).
4.2.3. COUNSELLING OF THE MOTHER OF THE SICK CHILD.

Table 4.9: Counselling of the mother of the sick child.

<table>
<thead>
<tr>
<th>Counseling</th>
<th>Very Good</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>About feeding options</td>
<td>40%</td>
<td>44%</td>
</tr>
<tr>
<td>Giving of replacement feeds</td>
<td>42%</td>
<td>32%</td>
</tr>
<tr>
<td>About feeding problems</td>
<td>48%</td>
<td>32%</td>
</tr>
<tr>
<td>Home care for the young infant</td>
<td>44%</td>
<td>32%</td>
</tr>
<tr>
<td>About her own health</td>
<td>40%</td>
<td>38%</td>
</tr>
</tbody>
</table>

The table above shows that under very good, the highest score was 48% which was related to feeding problems while the minimal score was 40% for feeding options and counselling about her own health respectively. Under excellent, the highest score of 44% was related to counselling about feeding options while giving of replacement feeds, counselling of the mother about feeding problems and home care for the young infant yielded the minimum score of 32% respectively.
Figure 4.4: Counselling the mother of the sick child

4.2.4. IMCI TRAINING AND THE DURATION.

Table 4.10: Training of professional nurses in IMCI

<table>
<thead>
<tr>
<th>Valid</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>22</td>
<td>44.0</td>
<td>44.0</td>
<td>44.0</td>
</tr>
<tr>
<td>No</td>
<td>28</td>
<td>56.0</td>
<td>56.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
4.2.5. If yes was it within the last year?

Table 4.11: Duration of training

<table>
<thead>
<tr>
<th>Valid</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 year</td>
<td>5</td>
<td>10.0</td>
<td>10.0</td>
<td>10.0</td>
</tr>
<tr>
<td>2 years</td>
<td>3</td>
<td>6.0</td>
<td>6.0</td>
<td>16.0</td>
</tr>
<tr>
<td>3 years</td>
<td>6</td>
<td>12.0</td>
<td>12.0</td>
<td>28.0</td>
</tr>
<tr>
<td>5 years</td>
<td>5</td>
<td>10.0</td>
<td>10.0</td>
<td>38.0</td>
</tr>
<tr>
<td>More than 5 years</td>
<td>3</td>
<td>6.0</td>
<td>6.0</td>
<td>44.0</td>
</tr>
<tr>
<td>None of the above</td>
<td>28</td>
<td>56.0</td>
<td>56.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The table above shows that 10% of the participants (n=5) were trained on IMCI under one year, 6% (n=3) received training two years back, twelve percent received training (n=6) received training three years back while 10 percent (n=5) received training five years back. Six percent (n=3) received training more than five years back and 56% n=28 had never received any training on IMCI.
4.3. Phase 2: The study on the children

Ten children’s files admitted in hospital were reviewed using a checklist form found in their road to health files. The aim of using the checklist was to identify and describe disease progression of children under five years suffering from HIV admitted in the ward. The results showed that out of ten children, six children (60%) showed signs of upper respiratory infection (pneumonia and TB) and 40% (n=4) out of ten had gastro enteritis (diarrhoea). These results indicated that children who are HIV positive are likely to suffer from pneumonia and diarrhoea which are the main cause of deaths amongst children under five years.

Table 4.12: HIV positive children under 5 years admitted in Cecilia Makhiwane Hospital pediatric ward

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Total number of children</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Respiratory tract infection</td>
<td>6</td>
<td>60%</td>
</tr>
<tr>
<td>Diarrhoea</td>
<td>4</td>
<td>40%</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>100%</td>
</tr>
</tbody>
</table>

4.7. Summary

This chapter presents results of data collected from participants. Questionnaires were the source of information to evaluate the knowledge and skills of the professional nurses regarding IMCI service delivery including HIV. Tables were used to display the data collected. Findings were made out of the data collected and analyzed. In the next chapter findings will be discussed and recommendations will be suggested to improve IMCI quality service delivery.
CHAPTER 5: DISCUSSION

5.1. INTRODUCTION

In this chapter, the results were discussed under the following headings: knowledge and skills regarding management of the childhood conditions, oral drug prescription, counseling of the mother of the sick child and training of professional nurses on IMCI.

5.2. DISCUSSION

5.2.1. Knowledge and skill regarding management of the childhood conditions listed below.

A total of 11 clinics were visited in this study. Most of professional nurses had knowledge about IMCI implementation although there were few professional nurses who are IMCI trained. There were only two professional nurses who were IMCI trained for two weeks in each of the 11 clinics. The results for the study were not excellent as the highest score was only 46% in all sections. This is an indication that there is a need for more professional nurses to be trained for two weeks or more and this is consistent with what Saloojee (2007: 173) indicated that there is a need for improvement of health providers' skills, communication skills and involvement in 11 days of additional training. The lowest score in this section was 24% which is unacceptable in service delivery standards for professional nurses.

5.2.2. Oral drug prescription

In the prescribing of oral drugs the highest score was 44% and 40% respectively, seemingly the professional nurses are not adequately equipped in this skill. Therefore there is a need for in-service training regarding prescription of drugs for children under five years.
5.2.3. Counselling of the mother of the sick child

With regard to the counselling of the mother of the sick child, the highest score was 48% and 44% respectively, the lowest score was 32% under excellent which means there should be more training of professional nurses on counseling of mothers with sick children about feeding options and nutrition of children under five years according to the infant and young child feeding policy 2007 (UNICEF, 2007:4).

5.2.4. Training of professional nurses on IMCI

This section of the questionnaire used YES or NO responses and the highest score obtained from the duration of training for professional nurses section was 56% indicating professional nurses who never received any form of IMCI training. These results show that training of professional nurses on IMCI is grossly inadequate. These results are consistent with those reported by Gombe, et al, (2006). This includes the reduction of the under five year's mortality rate and the infant mortality rate by two-thirds between 1990 and 2015.

Only two professional nurses were IMCI trained with the duration of two weeks training in each of the 11 clinics at Mdantsane Township. Ten percent of professional nurses had received their training within a period of one year and had up to dated information about IMCI and most of the participants were last trained five years and over in the IMCI programme.
5.3. IMPLICATIONS FOR RESEARCH

The results from this study indicate that there is a need for further training for all professional nurses regarding IMCI. The policy makers and strategic health planners must ensure that IMCI guidelines are updated and implemented accordingly. To be able to meet Millennium development Goals of reduction of the under five year's mortality rate and the infant mortality rate by two-thirds between 1990 and 2015 more effort must be directed towards quality service delivery of IMCI.

- More research should be conducted to identify other areas of concern regarding child health issues.

All the sampled professional nurses claimed to have attended workshops and in-service training on childhood illnesses especially on HIV. Of the 10 clinics and one CHC used by the researcher, only two professional nurses trained on IMCI programme with the duration of two weeks, whereas most of the professional nurses provide services to the children under five years regardless of whether they were training or not. However, the study found that professional nurses are keen to perform their duties if provided with relevant training so as to reduce mortality and morbidity of children under five years.

5.4. SUMMARY

In this study evaluation of the level of knowledge and skills of professional nurses with regard to IMCI service delivery including HIV in terms of reducing child mortality and morbidity rate to children under five years in primary health care facilities in Mdantsane Township was conducted. According to the results of this study the professional nurses had inadequate training in IMCI service delivery including HIV, judging from the high scores (56%) of professional nurses who did not get training. A conclusion can be reached that the quality of service delivery for IMCI needs to be improved through further training of all professional nurses to improve their knowledge and skills in the management of childhood conditions in question.
5.5. RECOMMENDATIONS

This study makes the following recommendations:

- The service providers, who are the professional nurses, should be provided with proper training on IMCI to improve their standard of service delivery and to capacitate them with knowledge and skills. Integration of HIV related health aspects during assessment and treatment of children under five years should be strengthened, as the purpose of implementation of IMCI was to reduce mortality rate by 50%, and also to reach the 4th Millennium Development Goal of reducing these deaths by two-thirds by 2015.

- Policies and guidelines should address the need for more professional nurses to be exposed to IMCI training so as to reduce child mortality and morbidity rate in South Africa especially Eastern Cape.

- To avoid issues of courtesy bias, the need to conduct a similar survey in different settings, like rural and urban comparison on the implementation of IMCI is necessary.

- There should also be a monitoring and evaluation mechanism that will determine the impact and effectiveness of IMCI training as well as quality service delivery.
REFERENCES

Brink, H revised by Van der Walt & Van Rensburg, G 2010: Fundamentals of research methodology for health care professionals. Cape Town: Juta and company Ltd.


APPENDIX A: Permission letter from Department of Health King William’s Town.
Dear Mrs NL Gosangaye

Re: Evaluation of the effectiveness of integrated Management of Childhood Illnesses Programme including HIV in Primary Health Care facilities in Buffalo City Sub-district, East London

The Department of Health would like to inform you that your application for conducting a research on the abovementioned topic has been approved based on the following conditions:

1. During your study, you will follow the submitted protocol with ethical approval and can only deviate from it after having a written approval from the Department of Health in writing.

2. You are advised to ensure, observe and respect the rights and culture of your research participants and maintain confidentiality of their identities and shall remove or not collect any information which can be used to link the participants.

3. The Department of Health expects you to provide a progress on your study every 3 months (from date you received this letter) in writing.

4. At the end of your study, you will be expected to send a full written report with your findings and implementable recommendations to the Epidemiological Research & Surveillance Management. You may be invited to the department to come and present your research findings with your implementable recommendations.

5. Your results on the Eastern Cape will not be presented anywhere unless you have shared them with the Department of Health as indicated above.

Your compliance in this regard will be highly appreciated.

DEPUTY DIRECTOR: EPIDEMIOLOGICAL RESEARCH & SURVEILLANCE MANAGEMENT
APPENDIX B: Permission letter from University of Fort Hare Ethics Committee.

OFFICE OF THE DEPUTY VICE-CHANCELLOR:
ACADEMIC AFFAIRS AND RESEARCH
Private Bag X1314, Alice 5700
Tel: 04060 22403
Fax: 0866282944
tenvders@ufh.ac.za

UFH/UREC, 18 - REC-270710-028

Application for clearance from the University of Fort Hare’s Ethics Committee

Project title: Evaluation of the effectiveness of Integrated Management of Childhood Illnesses Programme including HIV in primary health care facilities in Buffalo City Sub-district, East London

Chief Researcher: Noluvo Gosangayi

Supervisor/Co-supervisor: Mrs B Mayeye
Dr E Yako

Date of application: 29 March 2012

Having consulted the Dean of Research, I hereby grant permission to conduct the research.

[Signature]

Professor G de Wet
Deputy Vice-Chancellor
Chairperson of the interim Ethics Committee

10 April 2012
APPENDIX C: Permission letter from Buffalo City Municipality

---

**Province of the**
**EASTERN CAPE**
**HEALTH**

**Amathole District**

Buffalo City Sub-district:

9 Vincent Road, Vincent, East London, 5200, Eastern Cape
Private Bag X 9015, Main Post Office, East London, 5200, Eastern Cape
Tel No. +27 (0)43 711 1100  Fax No. +27 (0)43 721 1972
Website www.ecdoh.gov.za

<table>
<thead>
<tr>
<th>To:</th>
<th>Mrs.N.L.Gosangaye</th>
</tr>
</thead>
<tbody>
<tr>
<td>From:</td>
<td>Buffalo City Sub-District Manager</td>
</tr>
<tr>
<td>Subject:</td>
<td>Agreement for research study to be conducted in Buffalo city Sub District</td>
</tr>
<tr>
<td>Date:</td>
<td>16/08/2012</td>
</tr>
</tbody>
</table>

**Dear Mrs. N.L.Gosangaye**

Approval is herewith granted to you to conduct research in Buffalo City Sub District as requested. Kindly familiarize yourself with the conditions below before commencing with your study.

1. The researcher will conduct the study without compromising client’s confidentiality and the smooth running of the service.

2. The researcher will not provide/publish any reports/statements without prior discussion with and permission of the sub district.

3. A copy of a letter of approval by the ethics committee will be submitted to the sub district office before commencing the study.

I accept the conditions as stated in the abbreviated version of Department of Health`Agreement Clause for researchers.

\[NOLUVO L.
GO
SANGAYE\]

Full Name & Surname

\[\text{Signature}\]

\[22/08/2012\]

Date

\[M.
M.
OS
ES\]

Witness Name & Surname

\[\text{Signature}\]

\[22-08-2012\]

Date
APPENDIX D: Permission letter from East London Hospital Complex Ethics Committee

Ethics Committee: E. L HOSPITAL COMPLEX
Postal Address: C/o East London Health Resource Centre
PO Box 12882
Amalinda
5252
Telephone: 043 - 709 2032

Physical Address: Cheltenham Road
East London
5201 South Africa
Fax no.: 043 – 7092386

20th August 2012

N L Gosangaye
Director Nursing Service
East London Hospital Complex
East London

Dear

RE: Evaluation of the Effectiveness of Integrated Management of Childhood illnesses Programme including HIV in Primary Health Care facilities in Buffalo City Sub-district, East London

We acknowledge receipt of the above mentioned proposal.

Having gone through your proposal, the committee has no ethical problems noted.

Please be advised that the committee has granted you the consent to do the research.

Yours sincerely

[Signature]

Dr P Alexander – Chairman Region C Ethics Committee
Ophthalmologist EL Hospital Complex
2 Kingston Crescent
Amalinda
East London

Request for your consent to participate in a research study

Dear participant

My name is Noluvo Gosangaye and I am interested in your opinions about evaluation of the effectiveness of integrated management of childhood illnesses programme including HIV in Primary health care facilities.

Purpose of the study

The purpose of this study will be to evaluate the effectiveness of the IMCI service delivery and to provide recommendations for the improvement of management of childhood illnesses. The results from this study will assist healthcare workers to improve quality of child care service delivery.

Procedure

You will be interviewed in a form of answering questions. An answer will be written in answering questionnaire form. Explanation will be needed when there is a suggestion to do so.

Duration

It will take 15 minutes to answer the questions.

Logistical detail

You will be interviewed as an individual. The researcher will take 15 minutes of your time. The interview will be conducted in a separate consulting room. You don’t need to come back again.
Electronic recording

No tape recording will be used.

Potential risks and discomfort

You will not experience any discomfort and the research has no risks to your health or image.

Study activities that exceed the definition of minimal risks

None

Potential benefits to subjects and/or society

The participants will not benefit directly from participating.

Payment for participation

No payment will be done for participating.

Confidentiality

Your participation will be confidential and will only be disclosed with your approval or required by law. Your name and the data will be kept completely separated. The data will be locked in a safe cupboard and only the researcher has access to it.

Participation and withdrawal from the study

You may refuse to answer any question that you choose not to answer. There will be no penalties from withdrawal from the study.

Contact details

If you have any question relating to this study, you should contact, Noluvo Gosangaye at 043-7092137 or 0833510050.
Consent form

I have read the content of this form, understand, and agree to participate in this study

I understand that I am free to refuse to answer any questions and that I can end my participation at any time without this affecting my care now or in future.

Participant’s signature.................................... Date..............................................

Witness’ signature.................................................. Date...................................................

I have explained this study to the above participant and have sought his/her understanding for informed consent.

Researcher’s signature.................................. Date..............................................
### APPENDIX F: QUESTIONNAIRES

#### INSTRUCTIONS

Indicate with a tick √ in the relevant space

Assess, Classify and Identify Treatment

A. Tell us about your knowledge and skill regarding management of the childhood conditions listed below

<table>
<thead>
<tr>
<th>No</th>
<th>Illnesses</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Excellent</td>
<td>Very good</td>
<td>Good</td>
<td>Don’t know</td>
<td>Fair</td>
<td>Poor</td>
</tr>
<tr>
<td>1</td>
<td>General danger signs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Cough or difficult breathing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Wheezing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Diarrhea</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Fever</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Measles</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Ear problem</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Malnutrition and Anemia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>HIV infection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>TB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Immunization status</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
### B. ORAL DRUG PRESCRIPTION

<table>
<thead>
<tr>
<th>No.</th>
<th>Medication</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Amoxicillin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Ciprofloxacin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Cotrimoxazole</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Erythromycin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Salbutamol for wheeze</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>INH Prevention therapy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Treat TB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Antiretroviral Drugs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Zinc</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Iron</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Paracetamol</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Mebendazole</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Vitamin A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### C: COUNSELLING OF THE MOTHER OF SICK CHILD

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>About feeding options.</td>
</tr>
<tr>
<td>26</td>
<td>Giving of replacement feeds.</td>
</tr>
<tr>
<td>27</td>
<td>About feeding problems</td>
</tr>
<tr>
<td>28</td>
<td>Home care for the young infant</td>
</tr>
<tr>
<td>29</td>
<td>About her own health</td>
</tr>
</tbody>
</table>
D. Have you been trained in IMCI?

30. TICK the relevant Box

YES  NO

31. If YES was it within the last:

One year--------  1
Two years--------  2
Three years-------  3
Five years--------  4
More than five years---  5
None of the above------  6

32. What was the duration of your training?

1 WEEK--------  1
2 WEEKS--------  2
None of the above---  3