AN EVALUATION OF THE USE OF THE HUMAN IMMUNO-DEFICIENCY VIRUS PORTION OF THE INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS ALGORITHM BY NURSES IN SELECTED PRIMARY HEALTH CARE CLINICS IN KWAZULU NATAL.

By

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Dissertation submitted in partial compliance with the requirements for the

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I, Joan Lynette Mary Haskins do hereby declare that this dissertation is representative of my own work.

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Submitted in partial fulfillment of the requirements for the Masters Degree of Technology: Nursing in the Department of Nursing, Technikon Natal.

In memory of Mary Martha Marshall

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ABSTRACT

The Integrated Management of Childhood Illness (IMCI) is an approach that aims to reduce the mortality and morbidity in children under the age of five years. When this programme was initiated, the conditions targeted were acute respiratory infections, diarrhoea, fevers associated with malaria and measles and malnutrition. As a result of the HIV pandemic in South Africa, the identification of children who are symptomatic of HIV infection was included.

This study evaluates the use of the HIV portion of the IMCI algorithm by nurses in selected, public sector, primary health clinics in KwaZulu Natal. IMCI nurses were observed as they used the IMCI approach while consulting with sick children. Data was collected in relation to the accuracy with which the nurses used the algorithm and the extent to which the HIV portion of the algorithm was used to guide their management decisions when consulting with the children. Seventy-two observations were undertaken. In-depth interview were conducted with 13 IMCI nurses to establish factors that influenced the use of the HIV portion of the algorithm.

The study showed a poor level of accuracy when using the HIV portion of the algorithm. In addition, as a result of poor accuracy when using the algorithm to assess and classify for symptomatic HIV infection, it appeared that nurses were not using the HIV portion of the algorithm to guide management decisions regarding children who were possibly symptomatic of HIV infection.

A general poor level of knowledge about HIV infection was identified which the researcher felt could be one of the factors influencing the use of the HIV portion of the algorithm. Death anxiety, low level of counselling skills and burnout also seemed to play some role in the use of the HIV portion of the algorithm.

Recommendations were made to adapt future training of IMCI nurses and include an HIV training course and a course on growth monitoring of children in this age group. Further recommendations to continually evaluate the practice of nurses were made. Future areas for research were suggested.

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CHAPTER ONE

THE PROBLEM AND ITS SETTING

1.1 INTRODUCTION

In the developing world approximately 12 million children under the age of 5 years die of common diseases. These deaths can easily be prevented by the early recognition of the diseases and then the timeous administration of appropriate treatment. The diseases and conditions that are predominantly responsible for these deaths are acute respiratory infections, diarrhoeal disease, malaria, measles and malnutrition. (Gove, 1997.) The World Bank has determined that successfully managing these diseases and malnutrition will have a large impact in reducing the global burden of disease. In addition, the successful management of these conditions is the most cost-effective intervention available. (The World Bank, 1993; WHO, 2000.)

Following the acceptance of primary health care principles as a foundational element of health care (WHO, 1978), the United Nations International Children's Fund (UNICEF) responded to the issue of childhood morbidity and mortality by presenting a strategy that has become known by the acronym "GOBI FFF". The strategy advocated the concentration on the following:

- growth monitoring of children under the age of 5 years;
- oral rehydration for children presenting with diarrhoea;
- breastfeeding of all children for the first 2 years of life;
- immunization of all children under the age of 5 years;
- family planning available to all women in their childbearing years;

- food supplementation for under nourished children; and
- female literacy levels to be improved. (Dennill, King & Swanepoel, 1995.)

However, although this approach encompassed many principles within the primary health care philosophy, GOBIFFF involved the selective and vertical application of health care activities, thus negating much of its potential impact on health care (Dennill et al, 1995). In addition, the primary health care approach has been shown to be so broad that countries have been unable to afford to give all care to all people. Countries have needed to concentrate on the provision of interventions that are known to work (WHO, 2000). To counteract this and to address the continuing burden of disease in developing countries it became clear that a more comprehensive approach was needed. As a result, the World Health Organisation (WHO) in conjunction with UNICEF, developed the Integrated Management of Childhood Illness (IMCI) strategy in 1995.

The focus of the IMCI strategy involves the consideration of the following aspects of health care for children:

- the improvement in the case management skills of health workers dealing with children through training;
- the improvement in the health system required for the effective management of childhood illness; and
- an improvement in family and community practices which have a direct impact on the health of children. (WHO, 2001a.)

In order to address and improve the case management skills of health workers an algorithm was developed, which health workers should follow. An algorithm is "an explicit protocol with well defined rules to be followed in solving a health care problem". (Mosby Dictionary, 1997:58.) The algorithm sets out questions to ask mothers regarding all the four main conditions implicated in morbidity and mortality of children. Signs and symptoms to look and feel for are also included in the algorithm. In addition all children are assessed for malnutrition and immunization status. Once the information has been gathered, the child's condition is then classified and treatment identified and administered. Counseling and education of the mother takes place so that she will have a clear understanding of the child's condition and how to manage that condition at home. In addition specific guidelines are given to the mother on when she should return to the health facility. (WHO, 2001b.)

This approach differs from previous approaches. In the past, mothers who brought their children to a health care facility were asked what the child's problem was. Once that was established, the health worker concentrated on that problem and generally did not probe for other problems. Many health workers failed to recognise that the health of children extends beyond a single common pathogen or condition and includes essential elements of nutrition, the psychosocial support of the health sector as well as family and community practices. For this reason they missed the need for attention to other coexisting conditions and this led to the inappropriate or insufficient management of sick children. IMCI incorporates holistic attention to the child with the use of interventions that are known to be cost effective. This would then limit the number of visits to the health facility as the children would be better managed and their overall health improved. (Loening, 2001.) It is important to note that in South

Africa nurses are the major group of health workers working in health facilities and for this reason the terms health worker and nurse are used interchangeably.

1.2 BACKGROUND TO THE PROBLEM

Since the adoption of the IMCI approach in 1995, it has been implemented in 57 countries world wide, including 17 African countries. (Lambrechts, 1999.) This IMCI strategy was first introduced into KwaZulu (KZN), a region in South Africa, in 1998. (Horwood, 2000.) Prior to the implementation of this approach into KZN, a task team was established to assess whether the approach would address the main causes of morbidity and mortality in the region. In addition, it needed to be sure there was sufficient commitment to the approach to ensure success in making the significant changes to the manner in which health services are rendered, as advocated by the approach.

KwaZulu Natal has one of the highest prevalence rates of human immuno-deficiency virus (HIV) infections in the world, with statistics indicating that 36,2% of pregnant women attending government ante natal clinics are HIV seropositive (Department of Health, 2000a). In view of a conservative estimate of 25% mother to infant transmission rate during pregnancy, labour and breastfeeding, together with the lack of retroviral therapy for these mothers, a high incidence of HIV infection among children under the age of 5 years can be expected (Coovadia and Wittenberg, 1998). Bobat, Coutsoudis, Moodley and Coovadia (1995) estimated a 50:1 ratio of healthy children to HIV infected children in South Africa in 1995. Coovadia (2000)

acknowledged high rates of infection and estimated that 1600 new cases of HIV/AIDS are occurring on a daily basis in South Africa.

Children who are HIV positive need special monitoring and appropriate management and care in order to improve their quality of life. (McKerrow, 2000; Kibel and Wagstaff, 2001.) However, as a result of the low uptake of voluntary HIV testing by pregnant women, many of these children go undiagnosed until very late in the disease process and health care workers find that morbidity and mortality among these children is high. (McKerrow, 2001.) Despite the lack of anti retroviral therapy for both the mother and her child, much can be done for children with HIV infection in order to improve and extend their quality of life. Therefore, it is essential that these children be recognized. The existing IMCI algorithm did not make provision for identification of children who are symptomatic of HIV infection and for this reason the task team needed to adapt the algorithm.

As a result of this, in the adaptation of the existing algorithm, a series of questions suggestive of symptomatic HIV infection have been incorporated into the existing generic algorithm. Each of the four main sections dealing with the four main symptoms addressed in the existing algorithm (cough, diarrhoea, fever and ear problem) has had a question included that would suggest the child could be symptomatic of HIV infection. The algorithm section dealing with malnutrition has also been adapted to include aspects that would suggest symptomatic HIV infection. At the completion of the four main symptoms and malnutrition, a complete sub-algorithm has been included, and contains specific signs and symptoms' that are suggestive of HIV infection. Nurses using the adapted IMCI approach would start by

following the algorithm through the four main symptoms and malnutrition. This includes the one question pertaining to HIV at the end of each main symptom's and malnutrition. If there has been a positive response to the added question regarding HIV, the nurse would evaluate the child using the HIV sub-algorithm. Conversely, should the nurse not get a positive response to the question pertaining to HIV, the nurse would omit the HIV sub-algorithm. (WHO, 2001b.)

The sensitivity and specificity of the clinical signs and symptoms for making the classification "symptomatic of HIV infection" have not been addressed in this study. Another researcher has been evaluating this. Preliminary findings are suggestive that the indicators used to identify children who are "symptomatic of HIV infection" are indeed sensitive and specific. (Horwood, 2001.) For the purpose of this study, it was assumed that the indicators used for the classification of "symptomatic of HIV infection" are specific and sensitive enough to identify this condition. However, it was recognized that it was important that nurses use the algorithm and use it correctly.

Nurses are facing issues relating to life and death on a daily basis. Llewellyn and Payne (1995) identified this as a source of occupational stress. Carr and Merriman (1996) added that in a profession in which curing illness and disease is seen as fundamental, health professionals have viewed the death of a patient as a failure. In addition, anticipating one's own death, fear of the process of dying and fear of the death of a close significant other, are some of the components that influence an individuals' attitude to death (Neimeyer, 1994).

Studies suggest that health workers with low death anxiety tend to exhibit greater ability in comforting and caring for the terminally ill patients. In contrast, health workers with a high death anxiety are more reluctant to spend time with dying patients. (Carr & Merriman, 1996: Payne, Dean & Kulus, 1998.) In both these studies, hospice nurses were found to display low death anxiety, making them more suitable for the field in which they practiced. The researcher was not able to identify if this phenomenon has been investigated in relation to clinic nurses who deal with large numbers of HIV positive patients, hence the reason for the study.

In view of the foregoing, this study focused on the effective and accurate utilization of the adapted HIV portion of the algorithm. In addition, factors influencing the use or non-use of the algorithm were sought.

1.3 THE AIM OF THE STUDY

The aim of the study is to evaluate the use of the human immuno-deficiency virus (HIV) portion of the integrated management of childhood illness (IMCI) algorithm by IMCI trained nurses working in selected primary health care clinics in KwaZulu Natal (KZN).

1.4 THE OBJECTIVES OF THE STUDY

1.4.1 To assess the accuracy with which IMCI trained nurses in KZN are using the HIV portion of the IMCI algorithm.

1.4.2 To assess the extent to which IMCI trained nurses in KZN are using the HIV portion of the IMCI algorithm to guide decisions regarding the management of sick children.

1.4.3 To determine what factors influence the use of the HIV portion of the IMCI algorithm by IMCI trained nurses in KZN.

1.5 ASSUMPTIONS

It is assumed in this study that use of the generic IMCI policy in the form of the algorithmic approach, when accurately applied is sensitive and specific enough in order to identify the conditions specified. This subject has been extensively researched both prior to and following the introduction of the generic IMCI approach throughout the developing world. (Weber, Mulholland, Jaffer, Troedsson, Gove, 1997; Kolstad, Burnham, Kalter, Kenya-Mugisha and Black, 1997.)

It is assumed that once the health worker has undertaken the training in order to apply the generic IMCI algorithm the health worker is able to accurately identify sick children and appropriately manage these children. This training course has been evaluated and found to be effective. (Simoes, Desta, Tessema, Gerbresellasie, Dagnew, & Gove, 1997; WHO, 1997.) In KZN, nurses undertake the recommended 11 day training course in order to gain the knowledge and skills required to apply the adapted IMCI algorithm. The generic IMCI training has been shown to be effective in training health workers to apply the generic algorithm. However, the evaluation of the training to apply the adapted algorithm has as yet not been undertaken.

1.6 MOTIVATION FOR AND SIGNIFICANCE OF THE STUDY

The integrated management of childhood illness approach is a sick child survival strategy introduced to address the causes of morbidity and mortality among children under the age of 5 years. This approach is aimed at improving the case management skills of health workers, improving the health system needed for the effective management of childhood illnesses and improving family practices in order to effectively care for children. The case management of health workers component has been based on the development of algorithms that are followed by health workers in order to assess and classify sick children for the main conditions that cause disease and death. (Appendix 1.)

As has been stated in 1.2, KZN has one of the highest prevalence rates of HIV infection in the world. Much can be done for children who are HIV positive. These children need special monitoring and appropriate comprehensive management and care. (McKerrow, 2000; Kibel and Wagstaff, 2001.) By adopting a holistic approach to nutrition, supplementation, prevention of diseases and early intervention of opportunistic diseases, the quality of life to both the children and their families can be improved. (McKerrow, 2001.)

As a result of the high prevalence of HIV in KZN, an IMCI task team decided to include HIV into the IMCI approach in order assist health workers to detect the infection, and thereby address the morbidity and mortality associated with HIV infections. This was done by the inclusion of questions into each section of the generic algorithm as well as a separate specific HIV algorithm as previously discussed

in 1.2. This study will focus on the effective and accurate utilization of the HIV portion of the algorithm and the factors that influence its use.

During informal discussions with student's registered for training to work in primary health care clinics in KZN it became apparent to the researcher that nurses were reluctant to address issues relating to HIV/AIDS with mothers in the clinics. There were a number of reasons for this:

- the students felt that mothers do not want to know if their children were HIV positive;
- the students were worried that if they told a mother that her child was HIV positive, the mother would make the connection that she too was HIV positive and they did not know how to deal with her;
- the students felt that there was no point in telling a mother that her child was HIV positive as there was "nothing" that could be done for her or her child; and
- the students were worried about the mothers' reaction to the new of being told that her child was HIV positive. The felt that they did not have the skills to deal with their distress.

A study by Naude and Mokoena (1998) showed a similar fear and reluctance among student nurses when dealing with patients with HIV and AIDS. In addition, these concerns were corroborated verbally by Mrs J Dixon (2001) a counsellor who provides HIV/AIDS workshops to medical and nursing staff in a large tertiary level hospital in KZN. Given this reluctance to address issues relating to HIV/AIDS, one must question the likelihood, extent and ability of clinic based nurses to address issues relating to HIV/AIDS.

Nurses are undergoing occupational stress on a daily basis as they face issues relating to life and death. (Llewellyn and Payne, 1995.) Studies suggest that nurses with low death anxiety are more suited to dealing with patients with terminal disease. (Carr & Merriman, 1996: Payne, Dean & Kulus, 1998.) Nurses working in primary health care clinics are not assessed for death anxiety and therefore it is unknown how this affects dealing with mothers and children who are symptomatic of HIV/AIDS.

In addition to nurses having to deal with the fear of HIV/AIDS, they also have to address issues pertaining to the cultural and traditional attitudes to death and dying among African people. Mndende (1997) describes the significance attributed to the ancestors, the belief in life hereafter and a supernatural power which impacts not only on the nurse's practice as a health worker, but also permeates his or her beliefs as a person. Beliefs and attitudes have been shown to influence behaviour and it is for this reason they have been used extensively in health education campaigns (Hubley, 1995). The researcher has not been able to locate studies to indicate how these beliefs and attitudes have impacted on the HIV/AIDS pandemic in southern Africa. In addition, this phenomenon, as it pertains to the HIV/AIDS found among children under the age of 5 years, in all probability still needs to be evaluated.

Regardless of the fear of both HIV/AIDS and the death anxiety of nurses the evaluation of the HIV portion of the IMCI algorithm by IMCI trained nurses may have several benefits to both the nurses and the affected children. Attitudes, psychomotor skills and knowledge pertaining to HIV/AIDS by nurses will be identified. Should the study indicate a general reluctance of IMCI trained nurses to

address issues pertaining to HIV/AIDS, the IMCI training could be adjusted and refined to address this problem. Once IMCI nurses feel comfortable to tackle issues pertaining to HIV/AIDS, it is likely that children who are "suspected symptomatic of HIV infection" will be identified early and managed appropriately. This will reduce the mortality and morbidity and improve the quality of life for these children and their families.

Children who are HIV seropositive have mothers who are seropositive. Adult HIV/AIDS presents with many problems. Fatigue is common and can be debilitating for mothers who have young children to care for. In addition, between 40% and 70% of all HIV/AIDS patients experience AIDS-dementia with the overriding clinical features of apathy, inertia, reduced concentration and depression. (Hoeman, 1996). These issues impact on the care mothers are able to provide young children who are themselves sick. Identification of children who are symptomatic of HIV infection could afford nurses the opportunity to assist mothers who are ill and in need of help.

In the experience of the researcher, the care of children with HIV/AIDS has previously been carried out in secondary and tertiary level hospitals. This perception has been corroborated by Zwi, Pettifor and Soderlund (1999). They estimated that children who were HIV infected occupied 20% to 35% of all the hospital beds available in paediatric wards in urban hospitals in South Africa. However, it is the perception of the researcher that by introducing the district health system and the primary health care approach, children who are symptomatic of HIV infection can be managed and cared for in primary health care settings. The use of this HIV portion not only identifies children who are symptomatic of HIV infection but also guides the

management of these children in primary health care settings. For this reason, research that can contribute to the more effective and accurate use of the HIV algorithm is valuable.

1.7 OPERATIONAL DEFINITIONS

For the purpose of this study, the following operational definitions will apply.

Generic IMCI algorithm – the full algorithm as was developed prior to the inclusion of the HIV portion of the algorithm

HIV algorithm – all the questions and guidelines specifically dealing with HIV that are embedded within the generic IMCI algorithm

IMCI trained nurse - this is a nurse who has complete the full requirement of the 11 day training course deemed necessary in order to assess, classify and manage sick children between the ages of 2 months and 5 years.

IMCI training course - this is an eleven day training course in which nurses are taught to use the IMCI algorithm in order to assess, classify and manage sick children. The training course includes one post-training follow-up visit by an IMCI trainer/supervisor that is undertaken in the IMCI nurses' own clinic.

Accuracy – the Oxford Advanced Learners Dictionary (1999: 9) defines accuracy as "being correct, exact or without error". For the purpose of this study, accuracy is

considered to be all of the above with specific reference to both the generic algorithm and the HIV portion of the algorithm. When using both these algorithms, in order for it to be accurate, the nurse must ask all the questions as well as correctly apply and classify according to the IMCI algorithm.

Extent - for the purpose of this study the extent to which the IMCI nurse uses the HIV algorithm in order to guide her management decisions is considered, the accurate assessment of children who are possibly symptomatic of HIV infection, the manner in which this is communicated to the mother, counseling regarding HIV, testing for HIV, early diagnosis of opportunistic diseases/conditions and prompt treatment thereof, chemoprophylaxis for diseases and appropriate referral to the next level of care.

1.8 CONCLUSION

Disease and death in children under the age of 5 years resulting from common conditions remains unacceptably high in the developing world. In South Africa in general and KwaZulu Natal in particular, much of the disease and death can be attributed to HIV and AIDS. With the introduction of the integrated management of childhood illness approach, including the additional HIV portion, an attempt has been made to address these problems. However, unless this approach is accurately and effectively applied in not only the assessment and classification of these conditions but the management as well, the impact of this approach will once again be lost. Health workers, and in KwaZulu Natal nurses, are the people on whom this responsibility falls. If health workers / nurses do not apply this approach

meticulously, children will not reap the significant benefit of health care as advocated by this approach.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

As the HIV/AIDS pandemic continues to attract media attention in South Africa, health and welfare workers need to develop strategies that will allow them to identify and ultimately help individuals who find themselves caught up in this disease. Health workers will need to consider not only the medical challenge that this disease poses, but also the social, economic, psychological and legal issues that impact on the lives of suffers.

Despite the lack of access to antiretroviral medication in South Africa much can be done to improve the morbidity, if not the mortality, of this disease. In order to provide this care, health workers need to make a conscious effort to identify those individuals suffering from this condition early in the disease process. Only then can holistic ongoing care be provided which may prevent the premature destruction of the immune system and therefore contribute to the improvement of the quality of life of the individuals and their families.

In this chapter the literature has been reviewed and will be discussed in relation to the study. Much has been written about HIV and AIDS. To review it all and comment would be impossible within the constraints of this study. Therefore, for the purpose of this study a short background to HIV / AIDS has been given. The scope of the problem has been identified as it forms the motivation for the study. In developed

countries, HIV testing is undertaken and individuals found to be HIV seropositive are then managed appropriately. However, in developing countries it is not always possible for this to be done and so it is necessary to identify individuals who are possibly HIV seropositive in other ways. Many factors play a role in the testing of individuals. For this reason issues such as HIV testing with pre and post-test counseling are discussed. Factors influencing nurses' decisions to address issues pertaining to HIV have also been dealt with. Interventions that play a role in the quality of life of patients with HIV / AIDS are addressed.

The IMCI strategy is reviewed in some detail as it forms the basis of the study. Factors that could affect nurses' ability or desire to use this approach are discussed, as is, other professional issues. This literature review has guided the course of the study and has influenced to data collection tool used in the study.

2.2 ACQUIRED IMMUNE DEFICIENCY SYNDROME / HUMAN IMMUNO DEFICIENCY VIRUS

2.2.1 BACKGROUND TO HIV/AIDS

Acquired immune deficiency syndrome (AIDS) is the name given to a condition in which patients present with a wide variety of clinical features suggesting a weakened immune system. It is a slow, progressive permanent disease. The organism that is responsible for the destruction of the immune system in this condition is the human immuno deficiency virus (HIV). The HIV is a retrovirus which alters the patients genetic RNA from a single stranded RNA molecule to a double stranded DNA molecule with the aid of the enzyme reverse transcriptase. The HIV material is

encapsulated in an envelope but has numerous glycoprotein projections on its surface. These projections have an affinity to target cells on the patients' CD4 cells (which are the cells concerned with immunity). Once attached to the CD4 cells, the HIV genetic material, with the aid of the enzyme reverse transcriptase, becomes incorporated into the patients' cells. The HIV then destroys the CD4 cells. (Flaskerud, 1995; Evian, 2000.)

2.2.2 THE SPREAD OF HIV

HIV is spread in three ways. These are:

- during sexual intercourse;
- when the HIV infected blood is passed directly into the body of an uninfected person; and
- from a mother, who is infected, to her child during pregnancy, childbirth and via breastfeeding (Evian, 2000; Coovadia and Wittenberg, 1998; Hussey, 2001).

Once a person has been infected with HIV they will pass through many stages before being diagnosed as having AIDS. In adults, this can last between five to 12 years. (Evian, 2000.) However, it seems that this process can be accelerated in children. About 20% of HIV seropositive children, especially children in sub-Saharan Africa, will develop serious disease within the first twelve months. Wood (1999) postulates that this rapid disease progress may be linked to the time the infection was acquired, i.e. if acquired in early pregnancy, there will be a rapid progression to AIDS. Most of these children will die by the age of 4 years. This group of seropositive children are known as rapid progressors. The remaining children who are HIV seropositive,

progress through this disease process at a slower rate and develop signs of serious disease later. These groups are known as intermediate progressors who develop signs of serious disease at approximately five years of age and the slow progressors who develop signs of serious disease at about eight to ten years of age. (National Institute of Allergy and Infectious Disease, 1999; Hussey, 2001; The European Collaborative Study, 2001.)

2.2.3 THE SCOPE OF THE PROBLEM

HIV contributes to high morbidity and mortality in populations and therefore is a significant health problem (UNAIDS/WHO, 1998; Farthing, Simon, Straughton, Cream & Muhleman, 1993; British Columbia Persons Living with AIDS Society, 1998; UNAIDS, UNICEF, UNFPA, UNESCO, WHO, WORLD BANK, 1997). Although this is a global problem, it has been reported that 95% of all HIV infected people live in developing countries (National Institute of Allergy and Infectious Diseases, 1999). By 1996 it was estimated that 14 million people living in sub-Saharan Africa were infected with the virus (UNAIDS, UNICEF, UNDP, UNFPA, UNESCO, WHO, WORLD BANK, 1997). However perhaps this estimate was a conservative one as by 2000 the estimate for sub-Saharan Africa was 25.3 million people with HIV, of which 55% were women (HIV Insite, 2001). These estimates of HIV infection led to many countries in sub-Saharan Africa predicting a decrease in their life expectancy age and an increase in the infant mortality rate (National Institute of Allergy and Infectious Disease, 1999; HIV Insite, 2001).

Surveillance studies conducted on pregnant women attending government antenatal clinics in South Africa indicate a high prevalence as shown in Table 1. In addition, KwaZulu Natal, a region in South Africa, has a prevalence rate markedly higher than the national rate. (Department of Health, 2000a.)

Table 1. HIV prevalence in South Africa nationally and KZN

	1998	1999	2000
South Africa	22.8%	22.4%	24.5%
KwaZulu Natal	32.5%	32.5%	36.2%

(Department of Health, 2000a.)

This high prevalence of HIV infection in pregnant women implies a high rate of infection in children born to these pregnant mothers. HIV Insite (2001) quotes a study undertaken as part of the Policy Project, which reported that in 1992 nine percent of children under the age of 15 months admitted to hospital in South Africa were HIV positive. In 1996, forty six percent of children admitted to hospitals were found to be HIV positive according to the same study.

Given the number of children presenting with serious disease in hospitals in South Africa, the researcher concludes that there are many more children who are HIV infected within the community. If these children could be identified early, it is the perception of the researcher that interventions could be introduced early rather than late to delay serious disease occurring in these children.

2.3 IDENTIFICATION OF INDIVIDUALS WHO ARE HIV SEROPOSITIVE

The identification of HIV in adults through testing is much easier and clearer than the identification of HIV in children and young infants. However, in both adults and young children, infrastructures need to be put into place to support not only the testing procedure but also the pre and post-test counselling that support the testing for HIV.

2.3.1 TESTING ADULTS FOR HIV

In order to identify individuals, who are HIV seropositive, blood testing needs to be undertaken. The tests used in South Africa are:

- enzyme linked immunosorbent assay;
- western blot test;
- polymerase chain reaction; and
- the p24 antigen test.

2.3.1.1 The Enzyme Linked Immunosorbent Assay

The enzyme linked immunosorbent assay (ELISA) is the test that is commonly used in South Africa as the preliminary test for screening for HIV antibodies. This is a fairly complex process in which blood is taken from the patient and spun to separate into serum. The serum is incubated and then bound with polystyrene proteins. Using rabbit and goat proteins and IgG, the serum with HIV antibodies are selectively incubated and washed out with enzymes. This allows a colour to develop over time and this colour is used as a measurement of the amount of HIV coat protein present in a given volume of the patients' plasma. The colour is then compared against a standard curve. (Devlin, 1997.)

Despite the fairly complex method of testing for HIV antibodies, one of the problems associated with the ELISA test is that due to the sensitivity for viral protein, some other antibody existing in the persons system could be picked up and misinterpreted. For this reason it is recommended in South Africa, that two ELISA tests be undertaken on each sample. If this reveals a positive result, it is recommended that a Western Blot test be performed. (Wood, 2000.) Although recommended by Wood, in the experience of the researcher, this is not done due to the cost implications. Other recommendations are for two tests to be performed, using kits from two different manufacturers, on two separate blood samples (Wood, 1999). The practicalities of this suggestion are perhaps its limiting factors.

In addition to this laboratory ELISA test, a rapid ELISA test has been developed. The advantage of the rapid test is that results are available within 30 minutes. The need for advanced laboratories may be temporarily bypassed by this test. However, it must be noted that the accuracy and the reliability of this rapid test are dependent on the test being properly performed and the test results being accurately read. For this reason, a confirmatory laboratory based ELISA test should be performed on all persons who indicate a positive reactive test on the rapid ELISA testing method. (Evian, 2000.) Based on the researcher's own knowledge and experience, it needs to be noted that this rapid test does not signify that one can bypass the proper processes involved in HIV testing (i.e. the informed consent and pre and post test counselling).
In addition, the use of this test on children below the age of 18 months is not advisable as it identifies HIV antibodies, and in children of this age, maternal antibodies may produce a false positive result.

2.3.1.2 The Western Blot Test

This test is designed to identify the presence of HIV antibodies in serum or plasma. This test also involves a complex process with complex equipment. Purified HIV viral antigens are placed in a gel by electrophoreses, separated into peptides and these are then transferred onto sheets of nitro-cellulose paper. This nitro-cellulose paper is then incubated with the serum specimen. If any antibody binds to the separated peptides on the paper, it is detected by a secondary anti-human antibody and then conjugated to a suitable enzyme marker. Antibodies detected against known viral components are considered true positive results, whilst antibodies specific against non-viral cellular contaminants are considered false positive results. (Turgeon, 1995.)

The Western Blot test is seen to be both expensive and time-consuming. It therefore requires well-trained personnel to analyse it correctly. As a result, the cost implications prevent developing countries using this method of testing on all persons requiring HIV testing. It is recommended as a confirmatory test following the ELISA test although in practice not always performed. (Wood, 2000.) The Western blot test is considered the 'gold standard' of antibody testing for HIV (Wood, 1999).

2.3.1.3 The Polymerase Chain Reaction Test.

This test is used to amplify very small quantities of DNA in order to analyse it. Using the polymerase chain reaction, DNA is synthesised through a heating and cooling process in order to enlarge or amplify fragments of foreign DNA, which are then analysed. This allows testing of individuals for HIV before the production of

antibodies. (Devlin, 1997.) However, this process is too costly to apply to large scale screening and therefore not suitable for screening in South Africa.

According to Wood (1999) this test is the test of choice to confirm infection in infants where the mother's HIV antibodies may remain for up to 18 months.

2.3.1.4 The P24 Antigen Test

The P24 antigen test is highly specialised and detects HIV proteins in blood. If the test is positive, it confirms HIV infection in the blood. However, one of the problems associated with this test is that it can give a negative result in persons who are infected with HIV. For this reason it is not the test of choice. (Wood, 1999.)

2.3.1.5 Other non invasive tests – e.g. saliva test and urine test

As testing using blood serum requires an invasive procedure, the use of non-invasive tests, in the view of the researcher, would be a preferable option. However, when compared with serum tests, they are less sensitive in identifying HIV disease. Tiensiwakul (1998) examined urine for HIV-1 antibodies using the Western Blot assay and compared them with the same patients' serum results using the Western blot assay. The sensitivity of urine testing was found to be 97% compared to 100% in the serum testing. (Tiensiwakul, 1998.) It is argued that when dealing with patients suffering from a condition with potentially fatal outcomes, only 100% accuracy is acceptable. Therefore, they are suitable for screening purposes only as opposed to diagnosis.

2.3.2 TESTING CHILDREN FOR HIV

Testing new-borns or very young children to identify their serological HIV status has in the past been problematic. This is because when testing very young children the mother's antibodies are detected if either the ELISA or Western Blot test is used. For this reason, the serological status of very young children using these tests is not conclusive. Some people believe that by using sensitive viral tests like the P24 Antigen test, most seropositive infants can be identified by one month of age and virtually all can be identified by six months of age (United States Department of Health and Human Services, 1997). Others are more likely to use the polymerase chain reaction test, as they believe it is more accurate and can detect minute quantities of the virus's genetic material in the infant's blood. (National Institute of Allergy and Infectious Diseases, 1999; Wood, 1999.)

The problem associated with the testing of infants for HIV in South Africa is that these tests are highly sophisticated and expensive and are therefore not feasible for screening purposes. In addition, the infrastructure to support the mass screening of infants using this technology is not available in many of the communities and districts in which there is a high prevalence of HIV infected children. Screening of children using other more readily available testing methods does not give accurate results and for this reason it is necessary to identify individuals, and in particular children, who are symptomatic once the infection has progressed. It must be noted that the researcher feels this identification should be done as soon as possible as valuable time will have been lost though late identification.

2.4 IDENTIFICATION OF INDIVIDUALS WHO ARE SYMPTOMATIC OF HIV INFECTION

After an individual has been infected with the HIV virus, they may experience an initial 'flu-like' illness. However, this soon disappears and the infected individual will not feel sick or ill for a period of time. Some individuals progress more rapidly to immune-deficiency (between 5 – 7 years) while others remain well and active for a much longer time (between 10 – 15 years). During this time the immune system is gradually destroyed. (Schmidt and Crespo-Fierro, 1995;Evian, 2000.)

Individuals whose immune system is weakening may present at primary health care clinics with the following conditions:

- generalised lymphadenopathy
- fevers;
- skin rashes / conditions including folliculitis, seborrhoeic dermatitis and chronic itchy skin;
- fungal nail infections;
- mouth ulcers, angular stomatitis or chelitis;
- recurrent upper respiratory infections; and
- weight loss. (Evian, 2000; Wood, 1999.)

As the immune system starts to fail, more severe opportunistic infections occur. These include:

- severe oral or vaginal thrush;
- recurrent herpes simplex infections (cold sores);
- herpes zoster (shingles);

- persistent fevers and night sweats;
- skin rashes;
- generalised lymphadenopathy or shrinking of glands that have previously been enlarged;
- diarrhoea;
- weight loss of more than 10% of their body weight; and
- reactivation of any TB that they may have had in the past.

(Evian, 2000; Wood, 1999)

In children, the manifestation of this condition is slightly different. Children who are seropositive show signs and symptoms of a weakened immune system in many different ways. A large proportion of children will show signs of growth failure with poor or no weight gain. Frequently these children do not reach accepted milestones in growth and development of motor skills or mental development such as sitting, crawling, walking and speech. In addition, children are more likely to become ill with serious bacterial infections and the usual childhood infections tend to occur more frequently and are often more severe than in children who are seronegative. (Holditch-Davis, Miles, Burchinal, O'Donnell, McKinney & Lim, 2001.)

Chronic diarrhoea due to opportunistic pathogens is common. HIV seropositive children frequently develop severe candidiasis affecting both the oral cavity as well as the buttocks. Pneumocystis carinii pneumonia (PCP) has been shown to be the leading cause of death in these HIV infected immune deficient children. (National Institute for Allergy and Infectious Diseases, 1999; Canadian Paediatric Society, 1993.)

Due to the expense involved in the various tests to screen for children who are HIV seropositive, many countries have had to rely on first identifying children who are symptomatic of HIV infection, prior to testing as discussed in section 2.3.2. The identification of children who are symptomatic of HIV infection early in the disease process will give health workers the opportunity to intervene, hence the need for the study.

2.5 PRE AND POST-TEST COUNSELLING

2.5.1 THE NEED FOR PRE AND POST-TEST COUNSELLING

As the diagnosis of 'HIV seropositive' has serious implications, care needs to be taken to prepare the patient adequately both before and after the test has been performed. Patients will have to make some very important and often difficult decisions about lifestyle changes that could have far reaching effects. These changes address issues that are often very personal and not very easily discussed. These include:

- issues regarding their sexual practices;
- issues regarding families, marriages, employment, etc;
- issues relating to fear, death disability, illness, etc; and
- issues relating to guilt about passing the diseases onto her children (in the case of a mother). (Wood, 2000.)

Pre-test counselling could address many of these areas by relieving anxiety and acquiring an understanding of the facts about HIV/AIDS. The goals of counselling both before and after an HIV test according to Wood (2000) are:

- to find out the individual's level of knowledge regarding HIV and AIDS;
- to ascertain the individual's beliefs, attitudes and misconceptions about the disease;
- to correct any wrong information about the disease by the giving of correct information and then to check that the person has retained this accurate information;
- to identify any risk factors for HIV in association with the individual through the taking of a detailed personal history (including sexual history, drug abuse history and other psycho-social history);
- to help individuals identify those aspects of their behaviour or lifestyle that need to be altered in order to safeguard themselves and others from this disease;
- to motivate and encourage these individuals to change behaviour or lifestyle;
- to assist individuals to adjust emotionally to HIV and AIDS;
- to assist other family members and particularly sexual partners to accept and cope with the information;
- to help family members and sexual partners develop ways to support the affected person by giving accurate information regarding the disease;
- to assist with practical and material problems that may arise as a result of this disease by identifying resources if necessary; and
- to assist individuals to consider the future and therefore make appropriate decisions about care for themselves and their dependants.

Wood (1999) sums these up into two main goals namely, to give information and to provide both emotional and psychosocial support to the client. Evian (2000) includes in the above-mentioned goals the need to explore the consequences of a positive test and what the individual would do if the test were indeed positive. These issues are not merely the innate feelings of a few selected individuals but form the basis of the Interim National Medical and Dental Council's (INMDC) guidelines on the management of patients with HIV infection and AIDS. The INMDC sets out clearly what is considered to compromise informed consent. In addition, in terms of the Child Care Act No. 74 of 1983, Section 39, a child above the age of 14 years may consent to medical treatment, which would include a HIV test. In cases of children below the age of 14 years, the parent or guardian of the child should consent to medical treatment, or the HIV test, on the child's behalf. (Strode, 2000.)

It is the researcher's experience that many nurses report that they feel they do not have the skill to undertake this pre and post-test counselling. Given the nature of pre and post-test counselling, the researcher questions why nurses find it so difficult to undertake pre and post-test counselling. These criteria, as described above, form the essence of counselling that takes place on a daily basis all clinical situations.

2.5.2. DOES COUNSELLING TAKE PLACE?

According to the Medical Association of South Africa's 1992 guidelines (as cited by Strode, 2000) regarding invasive procedures, a doctor should only investigate or treat a patient with his informed consent and therefore every effort must be made (including pre-test counselling) to adhere to this principle. In addition, all doctors

must respect the patients' right to decide about being tested for HIV or not, except where the knowledge of a patient's HIV status is essential to the welfare of a health worker at risk from the infection (Wood, 2000; Frieland and Karstaedt, 1991; Strode, 2000). This informed consent and pre and post-test counselling is also a requirement in terms of the Interim National Medical and Dental Council (Strode, 2000).

The HIV and AIDS Charter of South Africa states that HIV antibody testing must only occur with free and informed consent. The exception is in cases of unlinked, anonymous epidemiological screening programmes. In addition, pre and post-test counselling must be available to all. (Wood, 2000; Strode, 2000.)

Despite these very specific guidelines, Louw, Alt, Soldin and Hoffman (1995) demonstrated that interns working in a teaching hospital in South Africa did not always follow them. The study investigated interns working in a hospital in South Africa and whether they obtained informed consent for tests they performed on patients in the hospital. It showed that 34% of interns obtained informed consent for each test they performed, while 8% failed to obtain consent for any test they performed. Thirty eight percent of the interns indicated that they had practised pre-test counselling while 38% state that they did not. Of those interns that indicated they had undertaken pre-test counselling only 13% indicated that pre-test counselling had occurred in all cases of HIV testing. When asked about the intern's attitudes to pre and post-test counselling, 34% indicated that they felt pre-test counselling was necessary all of the time, while 40% indicated that it was sometimes necessary. In addition to these questions, the study looked at which of the interns had formal training in HIV counselling and results indicated that 97% of the respondents had

never received any formal training in HIV test counselling techniques. In addition, 62% of intern respondents had never received any formal training in general counselling techniques. This phenomenon is corroborated by Cook and colleagues (1998) who found that graduating medical students had a limited knowledge of how to counsel patients about HIV testing.

In the Louw et al (1995) study, when questioning the interns about the reasons for not providing HIV test counselling, only 10% cited incompetence. Other reasons for not providing HIV test counselling were time constraints (23%), language barriers (21%), patient too ill (11%), patient's ignorance (10%), and patient unaware of the test (10%) and other (14%). Many of these issues are similar problems facing nurses working in primary health care settings as discussed previously in Chapter One, Section 1.7.

In some ways, the above study is mirrored by an earlier study undertaken by Friedland (1991) in which a survey was undertaken to document the opinions of doctors working in the paediatric departments of three academic hospitals regarding informed consent for HIV testing. Frieland found that the majority of doctors (61 – 68%) in his study thought that informed consent were not necessary. Only 3 doctors noted that it was the parents' right to know what investigations were being performed on their child.

Given that nurses use doctors as role models or superiors, it is little wonder that nurses are reluctant to initiate pre and post-test counselling. It is therefore the perception of the researcher, that nurses avoid identifying individuals who are

symptomatic of HIV infection, as the next logical step would be to advise mothers that their children need to be tested and then undertake the pre-test counselling.

2.6 FACTORS THAT COULD INFLUENCE NURSES IN ADDRESSING HIV/AIDS IN PATIENTS

There are many factors that could influence nurses' decisions to address HIV/AIDS in patients. These include the inability of nurses to cope with the patient's reaction to the HIV test, the stigma associated with a diagnosis of HIV/AIDS and the nurses' own attitudes to death. All of these issues are discussed in a little more detail.

2.6.1 REACTION TO HIV TEST

The psychological reaction to the HIV test notification is an issue of concern (Sieff, Dawes and Loewenstein, 1999; Beevor and Catalan, 1993). This reaction has been commonly perceived, according to Sieff et al. and Beevor and Catalan, as being detrimental to the individuals' psychological health. The impact of telling individuals the results of their HIV test has been studied in the past. Perry, Jacobsberg and Fishman (1990) investigated the impact of HIV testing on the psychological status in a sample of 'at risk' subjects who volunteered for the test. During the study the subjects' emotional status was assessed at intervals ranging from:

- before the test;
- immediately after the test results;
- two weeks later;

- ten weeks later; and
- one year after the notification of the test results.

The study results showed that the majority of subjects displayed a high level of anxiety prior to the test. On learning the test was negative, subjects displayed relief. Subjects who tested positive displayed anxiety at the time of notification but by the ten-week evaluation, the anxiety had decreased. At one year, the psychological state was determined by a variety of other characteristics as opposed to the HIV status.

Similar results were found when investigating the psychological effects of testing for Huntington's disease, a debilitating, fatal genetic disorder (Brandt, Quaid, Folstein, Garber, Maestri, Abbott, Slavney, Franz, Kasch and Kazazian, 1989). Brandt et al (1989) were concerned that should a patient be diagnosed with the disease their psychological status would be disturbed enough to commit suicide. Although the tests that they used to identify Huntington's disease did not accurately predict a positive or negative result (it only indicated an increased risk for the disease) the subjects in the study with the increased risk of the disease showed no major disruption in their lives at their one-year follow-up. These results were repeated in the study done in Canada by Wiggins, Whyte, Huggins and Adams (1992) clearly indicating immediate distress following the results of a test for a life threatening disease and an improvement at the one-year follow-up.

Despite this documented improvement of the psychological status of the individual at the one-year follow-up, the immediate distress at the time of notification is a cause of concern. According to Sieff et al (1999) this distress can be associated with the individuals' ability to predict their own reactions to both a favourable or unfavourable

outcome of the test. In the Sieff et al study, the distress anticipated by individuals to a positive HIV test result was higher than the actual reported distress by the positive HIV result. Nurses working in primary health care clinics, who are concerned about the distress patients and mothers experience when undergoing and receiving a HIV test result, may well overestimate the level of actual distress as has been demonstrated by Sieff et al (1999). Although it is important to study the experiences of persons undergoing HIV testing, Strawn (1995) and Barroso (1996) have suggested a new line of enquiry, namely that of factors that contribute to the focus on living rather than dying. It can be argued that in developed countries this type of investigation may be appropriate, however, in developing countries with little access to medication, it may not be feasible. One would need to show evidence to people living with HIV/AIDS in these developing countries that outcomes of the disease were favourable. In the experience of the researcher, this concept has not been promoted in South Africa.

This phenomenon is not restricted to medical personnel. Burnett, Baggaley, Ndovi-McMillan, Sulwe, Hang'omba and Bennett (1999) undertook a study in Zambia to determine collaboration between formal health workers and traditional healers in caring for people with HIV. Although not a direct aim of the study, it indicated that many traditional healers expressed difficulties about discussing a diagnosis of HIV with patients. This difficulty was attributed to fear of the patient becoming depressed and suicidal.

It is clear that fear relating to the outcome of HIV testing is a problem to health workers, nurses and other health related individuals. This needs to be addressed

during training courses in order to prevent this fear governing the practices in which HIV is avoided rather that addressed.

2.6.2 ATTITUDES TO DEATH

Nurses are facing issues relating to life and death on a daily basis and for this reason death anxiety and attitudes have been the focus of study by many people (Beck, 1997; Spall and Johnson, 1997; Hainsworth, 1996; Bennett, 1992; Johansson and Lally, 1991). This phenomenon has been of interest not only from the nursing or medical perspective but also from the patients perspective (Fishman, 1997). However, it is in the context of the health worker that this aspect has been considered.

Llewellyn and Payne (1995) identified death anxiety as a source of occupational stress. Carr and Merriman (1996) added that in a profession in which curing illness and disease is seen as fundamental, health professionals view the death of a patient as a failure. In addition, anticipating one's own death, fear of the process of dying and fear of the death of a close significant other are some of the components that influence an individuals' attitude to death (Neimeyer, 1994; Demmer, 2000).

Some studies suggest that health workers with low death anxiety tend to exhibit greater ability in comforting and caring for the terminally ill patients. In contrast, health workers with high death anxiety are more reluctant to spend time with dying patients (Carr and Merriman, 1996; Payne, Dean & Kulus, 1998). In both these studies, hospice nurses were found to display low death anxiety making them more suitable for the field in which they practised.

It is the researcher's perception that nurses working in primary health care settings may not be aware of the levels of death anxiety and for this reason be more likely to use 'avoiding' coping strategies as described by Niemeyer (1994) in his review of the literature. This is consistent with the preliminary discussions with nurses registered for bachelor degree (as discussed in Chapter One).

Kaye, Gracely and Loscalzo (1994) studied the changes in medical students' attitudes following a course on death and dying. This was done in response to the findings of Dickinson and Pearsons (as cited in Kaye et al., 1994) that attitudes towards dying patients were related to the amount of formal 'death and dying' education that they had received. In the Kaye et al. study, two groups of medical students were recruited and data was collected both prior to and following formal death and dying education. Findings indicated a decline in the negative attitudes to death and dying of the group who received the formal training, as opposed to the control group who received no formal training. In contrast, a study conduct by Hainsworth (1996) seemed to suggest that death education had no effect on the attitude of nurses towards the care of they dying. As a result of conflicting evidence, some authors remain tentative, as death anxiety is a complex issue that has not yet been fully evaluated. Hull, as early as 1991, alluded to this complexity and suggested that health workers' attitudes towards death and dying have to a greater extent been acquired in their own social lives, prior to the commencing any medical training.

As there is no clear evidence on issues pertaining to death anxiety and its influence on nursing practice, the researcher must assume that some aspects surrounding death anxiety do indeed play a role. For this reason, an open mind is needed when

evaluating nursing practice regarding death and dying, and in the context of this study, in nurses attitudes to the death or imminent death of patients with HIV.

2.6.3 THE STIGMA OF HIV INFECTION

The first cases of AIDS were identified in the early 1980's in America. This resulted not only in a new disease being identified but a psychological burden of an incurable infection. This burden was compounded by the fact that the first people to suffer from this disease were a highly stigmatised sub-population namely homosexuals and intravenous drug abusers. Homosexuality during the 20th century has been viewed and treated as a mental disorder (Burns, 1992). In view of this, it is little wonder that HIV/AIDS patients were damned. Intravenous drug users were equally condemned. This resulted in alienation of infected persons and many were often unable to tell family, friends and colleagues about their illness for fear of prejudice and isolation (Williams, 2001; Ingram and Hutchinson, 1999.)

As the disease became more widespread, the face of the disease changed and in Africa HIV was shown to be a heterosexual disease affecting both males and females. Regardless of whether it is spread homosexually or heterosexually, it is a disease that is spread by behaviours that take place in private. This in itself has played a role in the lack of people's ability to talk about the disease. In addition, the time difference from the behaviour leading to the infection and the first signs of illness has contributed significantly to the denial of becoming infected. Another important factor to play a role in this denial is that people do not die of HIV/AIDS. They die of opportunistic diseases that can proliferate as a result of a weakened or destroyed

immune system. Many people use this as a denial that the disease is in fact caused by HIV. (UNAIDS, 2000a.) An example of this denial is the President of South Africa, Mr Thabo Mbeki. His stance that HIV does not cause AIDS is now known throughout the world. He believes that poverty, poor socio economic circumstances, poor living conditions and malnutrition etc. causes AIDS. (Health Systems Trust, 2000.) Although these factors contribute to behaviours in which HIV is spread, the in themselves do not cause AIDS. The causative organism is the human immuno-deficiency virus that is spread by sexual contact.

In many countries, shame and fear still surround HIV infection. Discrimination against people who are infected with the HIV does occur. Some HIV infected people have been denied treatment by health workers, jobs by employers and housing, insurance coverage and entry into foreign countries. (UNAIDS, 2000a.)

Gender dominance also plays a role in the stigma attached to HIV infection. In some countries it is common practice for men to have multiple sexual partners as it is thought that it is "essential" for men to have sex. Women may also be forced into sexual exchanges as a way in combating poverty. (Ndubani, 2000.) Merson (1994) stated that in sub Saharan Africa, infected women outnumbered men by around 6 to 5. Men have been known to blame the women for the infection. In these cases they may no longer support these women, throwing them out and even murdering them. (UNAIDS, 2000a.)

Children who are HIV positive have been known to be isolated from other children, thus preventing them learning the vital skills of interaction at an early age. In

addition, children seem to be reluctant to disclose the cause of death of a parent if he or she had died of AIDS. This was identified in a study undertaken in Kenya, where 72 AIDS orphans were interviewed. Not one of the children in the study acknowledged that their parents had died of AIDS, even though they were not ignorant to the fact. (UNAIDS, 2000a.)

Although legislation has been passed to prevent these incidences occurring, stigma associated with a positive HIV status plays a role in the reluctance to be tested for HIV infection. In the context of this study, the stigma associated with a HIV positive status may influence nurses' desire to provide this concrete evidence and it is the perception of the researcher that the whole topic of HIV is therefore avoided.

2.7 WHY TEST?

In Western society, early intervention in the course of the HIV disease has led to improvements in the survival and quality of life of infected children and adults (Ray-Brown, 2001). In the case of mother and child HIV infection, this is attributed mainly to the introduction anti-retroviral medications in the antepartum, intrapartum and neonatal period. However, in many developing countries like South Africa, this has not been an option due to a variety of reasons. This could be the reason that 95% of all HIV infected people now live in developing countries. (National Institute of Allergies and Infectious disease, 1999.)

Despite the lack of anti-retroviral therapy, much can be done to improve the morbidity and mortality for both mothers and babies who are HIV seropositive. There are many

low cost home-based interventions that families and nurses can offer to children. (McKerrow, 2001; Wood, 1999.) Testing of mothers in the ante-natal period allows nurses the opportunity to advise mothers of the suggested breast feeding practices which aid the prevention of mother to child transmission of the HIV through the milk (Coutsoudis, Pillay, Spooner, Kuhn and Coovadia, 1999). Mothers who are HIV positive should be identified. Failing this, their children should be identified through symptomatology followed by accurate testing in order to institute interventions that will improve their quality of life.

2.8 INTERVENTIONS AGAINST HIV/AIDS

In the view of the researcher, there is no point in identifying children and adults who are HIV positive unless some form of intervention can be offered. In developing countries, the use of anti-retroviral therapy is not considered due to the cost implications. However there are numerous low cost home-based interventions that are available to boost the immune system, prevent the breakdown of the immune system and effectively manage and control opportunistic diseases. A number of these interventions are discussed in this review.

2.8.1 EARLY DETECTION OF OPPORTUNISTIC DISEASES

As discussed previously in section 2.3, both adults and children whose immune systems are slowly being destroyed will present with opportunistic diseases. These must be diagnosed early in order for them to be managed aggressively, accurately and appropriately.

It is important to note that according to Schmidt and Crespo-Fierro (1995) these opportunistic infections rarely occur singly, patients are typically infected by more than one organism simultaneously, resulting in multiple body system being affected.

2.8.1.1 Diarrhoea

Diarrhoea in children with HIV may be due to a number of causes. These include:

- protozoal infections like giardia and entamoeba;
- bacterial infections such as salmonella, shigella, and campylobacter;
- viral infections like the rotavirus or the cytomegalovirus;
- cryptosporidiosis;
- fungal infections like candida; and
- worm infestations.

In all cases of diarrhoea in HIV positive children, oral hydration fluids should be given. Mothers should be taught to mix a sugar/salt solution in order to start the hydration process as soon as the diarrhoea starts. In addition, mothers should know how much fluid to give and when to give the fluid. This should to a large extent prevent dehydration. However, mothers as well as health workers (in the case of KwaZulu Natal - nurses) must observe for signs of dehydration and these must be managed appropriately. Children and infants with severe dehydration or persistent diarrhoea must be referred to hospital for intravenous fluids and medical management. Medication for specific causes of diarrhoea must be administered e.g. Nalidixic Acid for shigella infections. (Evian, 2000.)

In addition to the medical management of the cause of the diarrhoea and the management of the dehydration related to the diarrhoea, special attention must be given to feeding practices of children presenting with diarrhoea. The Centers for Disease Control and Prevention (2000) advocate that similar precautions for the preparation of infant formula should be taken as for drinking water for adults.

2.8.1.2 Acute respiratory infections

As a result of the weakened immune system, pneumococcal infections and infections with the Haemophilus influenzae organism are common in children with HIV infections. Children with these infections will present at primary health care clinics with varying degrees of respiratory distress. These could range from fast breathing to chest indrawing and cyanosis. (Evian, 2000; Horwood, 1999.)

Standard primary health care management of these children and infants will be dependent on the severity of the condition. Pneumonia will be treated with amoxycillen that will effective in treating both the above-mentioned organisms. A more severe pneumonia involving respiratory distress should also follow the standard outpatient management of initiating treatment and transferring to secondary level facility for further management. In addition, should children not respond to this management, referral is again necessary. (Horwood, 1999.) Immunisation against pneumococcal disease is available but not widely used due to cost. (Evian, 2000.)

2.8.1.3. Tuberculosis (TB)

Tuberculosis has often been linked to people with HIV infections. As a result of their weakened immune systems HIV positive persons cannot control the latent phase of this disease and the patient becomes ill sooner than is the case in people with normal systems. UNAIDS (2000b) believes that in both South Africa and Uganda, half of all TB patients are also HIV positive. Globally HIV infections are responsible for 15% of all new TB cases. (UNAIDS, 2000b.)

TB, unlike HIV, can be effectively treated and cured. The South African National Department of Health has adopted the international strategy of 'directly observed treatment short-course' known by the acronym of DOTS to address the TB problem. This approach has been shown to achieve cure rates of 80% and more (UNAIDS, 2000b). The fundamental elements underpinning this strategy are government commitment, the detection of infectious cases through smear positive sputum specimens, standardised short course anti TB treatment with direct observation for at least 2 months, a regular uninterrupted supply of TB medication and recording and reporting to allow assessment of overall programme performance. (Department of Health, 2000b.)

HIV infected individuals who have been diagnosed with TB are treated according to the above principles. TB can be cured in patients who are immuno-compromised as a result of HIV infection. The identification of TB in HIV positive adults is through the collection of sputum specimens and the identification of the TB bacillus. This is the same as with individuals who are not HIV positive. However, should an individual know they are HIV positive, they can benefit from preventative therapy with anti TB drugs. Six months treatment of Isoniazid has been shown to prevent TB

disease in 60% of patients who are HIV positive. (Department of Health, 2000b; Centers for Disease Control and Prevention, 2000.)

In children, the diagnosis of TB is a little more difficult to make, as they are not always able to produce sputum specimens for confirmation of the TB bacillus. Clinical features of TB in children include:

- failure to gain weight;
- cough for more than two weeks;
- audible wheeze which does not respond to bronchodilators;
- painless swelling of the lymph glands; and
- unexplained fevers. (Department of Health, 2000b.)

These clinical features make the diagnosis of TB in children even more difficult as several HIV-related respiratory diseases might have similar symptoms. In addition, as discussed previously in section 2.4, HIV presents in a similar manner to TB. A score system for the diagnosis of TB in children has been devised by the National Department of Health, in which careful systematic collection of information pertaining to the child is used in order to assist in the clinical judgements surrounding the diagnosis. For this reason, children who present with these signs and symptoms need to be identified not only for the possibility of HIV but for TB as well.

Children under the age of 5 years, who live with adults that are smear positive for TB, are at high risk of developing the disease. These children need to be given a course of preventative TB treatment. This is vitally important for children who are HIV positive, in view of the fact that their immune system is poorly developed as well as

being gradually destroyed, thus making opportunistic TB an even greater threat. For prevention Isoniazid is recommended at five milligrams / per kilogram for a period of six months. (Department of Health, 2000b.)

2.8.1.4. Thrush

Thrush is a fungal infection caused by the candida albicans. This is a normal commensal organism found in the mouth. In babies, candida albicans can proliferate and cause a clinical thrush. It is especially common in artificially fed children. In individuals who are immuno-compromised as a result of HIV infection, the immune system cannot cope with the candida albicans and thrush can be extensive. (Edwards, Bouchier, Haslett and Chilvers, 1995.)

It is important to identify thrush early in order to prevent an extensive spread. If thrush is extensive it can affect the oesophagus, gut and bowel of the individual, leading to loss of appetite and loss of absorption of nutrients and diarrhoea. This in turn plays a role in weight loss, wasting and malnutrition. (Schmidt and Crespo-Fierro, 1995; Amisacary, 2001.) In section 2.8.2., malnutrition and wasting will be discussed as it increases the mortality of HIV positive patients.

In view of the impact of thrush on children who are HIV positive, all mothers are encouraged to breast feed exclusively until the age of 6 months. Thereafter, if the mother wishes to introduce artificial milk she is advised to do so with a cup and spoon as opposed to a bottle and teat. This is an attempt to prevent thrush occurring. In

addition, anti candida medication should be given on a daily basis to prevent thrush occurring. (WHO, 2001b.)

Oral hygiene is important if thrush is present. A solution can be made from 1 pint of water to which ½ teaspoon of salt and baking soda is added. This can be used to clean the mouth before and after eating, as well as before using the anti candida medication. (Greifzu, Radjeski and Winnik, 1990.)

2.8.1.5. Pneumocystis carinii pneumonia (PCP)

Pneumocystis carinii pneumonia is a serious infection that commonly affects the lungs, but can also affect other organs. Before the HIV/AIDS epidemic in the early 1980's, this condition was relatively rare and only found in patients who were immunocompromised as a result of corticoseroid therapy, certain leukaemia's or severe protein malnutrition. More recently, PCP has been associated with advanced HIV infection. It is one of the AIDS defining illnesses and is reported to affect 80% of people with AIDS. (Wilkin and Feinberg, 1999; Hardy, 1996; Centers for Disease Control and Prevention, 1999.)

Although some controversy exists about the origins of PCP, there is little doubt that it causes a substantial increase in the morbidity and mortality of patients with HIV/AIDS. While PCP can effectively be treated with a variety of drugs and drug combinations, the effectiveness of the treatment is dependent on the levels of diseases, as hypoxia and a widened alveola-to-arterial difference indicate an unfavourable prognosis. (Wilkin and Feinberg, 1999.)

PCP prophylaxis lowers the risk of this disease in persons who are susceptible. For this reason, persons who are infected with HIV should be given treatment in order to prevent PCP. Presently the drug choice for both the treatment and prophylaxis of PCP is trimethoprim-sulfamethoxazole combination. (Wilkin, and Feinberg, 1999; Hardy, 1996; Centers for Disease Control and Prevention, 1999.) The use of trimethoprim-sulfamethoxazole will not only prevent PCP but also provides prophylaxis against toxoplasmosis encephalitis (Centers for Disease Control and Prevention, 2000).

Children who are known to have been exposed to the HIV virus (mother with HIV) or children who present with symptomatic HIV infections should be given Co-trimoxazole (trimethoprim-sulfamethoxazole combination) in order to prevent PCP pneumonia. In addition children who present at primary health clinics with pneumonia that does not respond to the initial standard management of amoxycillin must be referred to a secondary level facility in order to rule out PCP. (WHO, 2001b.)

2.8.1.6. Skin manifestations related to HIV

Skin manifestations as a result of HIV infection have not been adequately studied, both worldwide or in sub-Saharan Africa. Despite this, skin conditions seen in the HIV infected patients are increasing and Wynn (1999) reports that 90% of HIV infected people entering medical care at urban hospitals present with skin manifestations. The hot, humid African climate coupled with the associated poor living conditions, lack of running water or drainage in rural settings, malnutrition and general poor hygienic conditions found in the African context of this disease may well

contribute to this increase in skin conditions. However, the minor skin conditions found as a result of poor socio-economic conditions are often more severe and persistent in the HIV infected individual as a result of their immunocompromised state. For this reason, they are found to be difficult to treat. (Owili, 1999.)

The common skin conditions found in HIV infected people are fungal infections like oral candidiasis, as dealt with above in 2.8.4.1. Viral infections such as genital warts, herpes simplex, herpes zoster and molluscum contagiosum also significantly contribute to an increase in the skin manifestations. These conditions can have a consequential effect on the morbidity associated with this disease. Parasitic invasion of patients who are immunocompromised provokes a variety of skin reactions, including direct damage by the parasite, damage due to scratching and secondary infections. Karposi's sarcoma is associated with AIDS and seen as a bruise-like flat lesion. Should these occur on the mucous membranes and lung, there is a relatively poor prognosis. (Owili, 1999.)

Seborrhoeic eczema is probably the most commonly associated skin condition found in HIV infected individuals. This is frequently found in the nasolabial, forehead, neck, presternal and pubic regions. (Owili, 1999.)

Management of these conditions will be dependent on the condition and each patient should be managed individually. As skin conditions, in the experience of the researcher, cause irritation and poor self-image, failure to effectively manage these conditions will contribute to a poor quality of life for the patient.

2.8.1.7 Cytomegalovirus

The cytomegalovirus (CMV) is a member of a group of viruses related to the herpes virus group. The cytomegalovirus can be found in all of the body organs. Infection with the cytomegalovirus can be asymptomatic in healthy people but cause serious illness and sometimes death in people with weakened immune systems, as in HIV positive patients. HIV positive patients who are infected with the cytomegalovirus may present with pneumonia, hepatitis, encephalitis, esophagitis, colitis or retinitis. Antiviral medications are used to treat patients with a weak immune system who develop serious illness from CMV. (Carson-DeWitt, 1999.) These antiviral medications are not available at primary health care clinics and therefore should a nurse suspect the patient to have cytomegalovirus, it is important to refer the patient for treatment at the nearest hospital. Kirchner (1999) attributes CMV infection as one of the main causes of prolonged fever in HIV infections. For this reason, it is important that patients presenting with prolonged fever be investigated for CMV. Similarly, should patients with pneumonia, diarrhoea etc. not respond to conventional recommended treatment, referral would be necessary to exclude cytomegalovirs as the causitive organism.

The Centers for Disease Control and Prevention (2000) suggest that all children who are HIV positive and CMV-infected should be examined by an opthalmologist every four to six months to exclude retinitis leading to visual disturbances. This practice may be possible in developed countries. However it is the view of the researcher that in developing countries, it is questionable whether the resources available could cope

with this intervention. Despite the lack of resources for continuous monitoring, CMV can be treated in order to prevent the serious complications from this disease.

2.8.1.8 Cryptococcal meningitis

Cryptococcal meningitis (a fungus causing meningitis) occurs in cases of advanced HIV disease and is associated with patients who are severely immuno-compromised. The prognosis is poor if therapy is not provided and therefore early detection of the condition is vital in order to initiate therapy early. Although this condition is not treated at primary health care level, the detection of this condition is done in the primary health care settings. Following a strong suspicion of this condition, the patient must be referred to a district hospital for lumbar puncture and management of the condition. Patients who have been diagnosed and treated with cryptococcal meningitis will need ongoing therapy in order to prevent a recurrence of the condition. The treatment of choice is Fluconazole. In adults, patients present with headaches, which are often insidious in nature over a prolonged period (often weeks), malaise, confusion, depressed level of consciousness, fever and localising signs, such as cranial nerve palsies. These signs do not present in the classical manner and therefore the health workers need to vigilant to this condition. Lung and skin involvement can occur at the same time. (International Association of Physicians in AIDS Care, 2001.)

In the context of IMCI, this condition will manifest under the algorithm dealing with danger signs. All children are assessed for convulsions during this illness, inability to drink at all, vomiting of all fluid taken orally and the level of consciousness. In

addition the algorithm dealing with fever evaluates all children for signs of severe disease, neck stiffness and bulging fontanel. In applying these portions of the IMCI algorithm accurately and effectively, the health worker will identify children who could present with this condition. The management of these children is urgent referral following emergency pre-referral treatment.

2.8.2. NUTRITIONAL INTERVENTIONS

In studies on adults, nutritional status of individuals has been linked to survival of patients with HIV/AIDS (Abbaticola, 2000; Casey, 1997; Kotler and Grunfeld, 1995; Guenter, Muurahainen, Simons, Kosok, Cohan, Rudenstein and Turner, 1993). As part of the disease process, patients with HIV/AIDS loose weight. This loss of weight has been attributed to a number of factors. However, the degree of wasting determines the survival of the patient rather than the cause of the wasting (Abbaticola, 2000; Grunfeld and Feingold, 1992). In addition, Stuttman, Ockenga, Selberg, Hoogestraat, Deicher and Muller (1995) demonstrated that body cell mass strongly predicted survival and that malnutrition could occur at any stage of the HIV disease, even during the early asymptomatic disease.

Studies by Chandra and Sarchielli (1996) and Casey (1997) have suggested that stunting protein energy malnutrition in children and infants can depress the cell-mediated immune response, which in turn increases the risk of infection related to mortality. This phenomenon is replicated by Howland, Gortmaker, Mofenson, Spino, Gardner, Gorski, Fowler and Oleske (2000) whose study showed evidence of moderate to sever immune suppression, in children, as a result of negative life events.

One can argue that poor nutrition can be classified as a negative life event although malnutrition was not one of the variables in the study. Since children's bodies are growing all the time, they need a constant supply of adequate calories and nutrients. Children with HIV/AIDS are always fighting infection and therefore their bodies are constantly working overtime and using food. They therefore cannot afford to go without food. (Zafonte, 2001.) Zafonte (2001) proposes that the underlying reasons for the malnutrition in children with HIV/AIDS include those listed hereafter.

- Changes in metabolisms as a result of:
- alterations in the function of the gastro-intestinal tract and the ability to use food in an efficient way;
- increased use of body fat stores;
- recurrent fevers and infections causing a rise in metabolic rate; and
- depletion of vitamin and mineral stores
- Changes in oral intake as a result of:
    - a decreased intake due to medications schedules that require the child to be without food for a period of time before and after the medication has been given;
    - altered intake due to oral infection with candida;
    - lack of adequate food supply in the home;
    - mothers that are infected as well and therefore not able to care for the child properly; and
    - an inability to tolerate fats and lactose.

2.8.2.1 Active feeding

Actively promoting medical nutrition therapy has been shown to save lives, reduce morbidity, improve health outcomes, reduce length of hospital stays and improve the quality of life of HIV/AIDS patients. Medical nutritional therapy involves the referral of the HIV positive patient to a dietician for assessment and management of nutritional deficiencies, maintenance of lean body mass and the support of activities of daily living and quality of life. (Young, 1997; Abbaticola, 2000; Walsek, Zafonte and Bowers, 1997.) Zafonte (2001) further re-enforces the suggestion of the referral of HIV/AIDS patients to a professional in dietetics. In the South African context, due to the lack of trained dieticians in many primary health care settings, this is not always an option. For this reason, in the view of the researcher, primary health care nurses need to be trained to undertake this function in settings where dieticians are not available. Close relationships should be formed between dieticians in major centres and primary health care nurses in order to undertake the function of evaluation and management of nutritional status of all patients with HIV/AIDS. Although it is the researchers view for primary health care nurses to take on the assessment and monitoring of the nutritional status of these patients, this concept has been linked to other health worker categories as described by Grayce-Barnes (1995) in relation to physicians-assistants.

It is clear that active feeding does play a role in the management of HIV infections in children. In South Africa, some social welfare grants are available to assist families with children of parents who are HIV infected, to purchase food. These grants include the Child Support Grant, the Disability Grant and the Social Relief Grant.

(Centre for Adult Education, Commission on Gender Equality, Midlands Women's Group, 1999). However, in the view of the researcher, these grants are not widely known and are difficult to access.

2.8.2.2 Monitoring of children

Management of children who are HIV positive would include careful monitoring of nutritional status through the use of the 'weight for age' chart. This will help to identify early protein energy malnutrition in order to promote active feeding of these children. In doing so, it will preserve these children's immune status and therefore reduce the risk of infection. (Evian, 2000.) However, growth faltering is only truly usable in those situations where children are seen and weighed frequently in health facilities. Children with HIV infection often present with wasting or marasmus. Studies undertaken in both South African and Zimbabwe hospitals suggest that early intervention to prevent children with HIV infection becoming wasted, could play an important part of the care of the child with HIV (Horwood, 1999).

Horwood (1999) proposes that nutrition and feeding should be one of the main focuses when consulting children who are symptomatic of HIV infection, regardless of their reason for attending the health facility. She stresses that feeding advice should include information on locally available soft high-energy foods. Suggestions made in the early 1990's regarding feeding of children with HIV infection are not discounted and are still valid. These include information to combat poor appetite and wasting and the offering of frequent small meals to children, even when ill and having

diarrhoea. Caregivers must be encouraged to supervise meal times and to actively feed children. (King, King and Martodipoero, 1991.)

2.8.2.3 The link between malnutrition and diarrhoea

Evidence has shown that as a result of malnutrition diarrhoea occurs, especially in the case of kwashiorkor. When this occurs, the bowel wall atrophies allowing the invasion of bacteria. As a result the child looses fluid, becomes drowsy and appetite is affected. Poor appetite then affects the ability take in adequate amounts of protein rich food. The immune system is then affected making the child more susceptible infection, leading to further malnutrition perpetuating the cycle. (Coovadia and Wittenberg, 1998.)

2.8.2 VITAMIN A SUPPLEMENTATION

Coutsoudis, Bobat, Hoosen, Coovadia, Khun, Tsai and Stein (1995) found a substantial reduction in the overall morbidity of infants born to HIV infected mothers, resulting from the administration of Vitamin A supplementation at intervals following delivery. Other studies indicate the beneficial effects of vitamin A supplementation on diarrhoea and hospital admissions (Fawzi, Roger, Hertzmark, Fataki, Herrera, Ndossi and Spiegelman, 1999; Ghana VAST Study Team, 1993). Vitamin A has been shown to strengthen the humoral immune response and increase the number of lymphocytes (Coutsoudis, Kiepiela, Coovadia and Broughton, 1992) and this information has been used as the basis for a study evaluating the role vitamin A supplementation plays in children who have measles, another common childhood

disease. There is little doubt that children who are vitamin A deficient as a result of their mothers' HIV infection or associated with their own HIV infection, could benefit from the strengthening of their own immune system by vitamin A supplementation (Coutsoudis et al., 1992).

Vitamin A deficiency has been shown to play a significant role in diarrhoeal disease and especially prolonged diarrhoea. This has been attributed to poor mucosal host defence of the gut as a result of the deficiency. This in turn could lead to enhanced bacterial growth that is followed by increased translocation of the bacteria, resulting in the bacteria reaching the circulation and septicaemia occurring. In addition, a condition similar to that of 'contaminated bowel syndrome' in which large numbers of bacteria are found in the bowel could occur, where there is poor mucosal defence and poor protective antibodies leading to increased inflammation of the gut wall. The result of this condition is chronic diarrhoea. (Hanson, 2000.)

2.8.4 PARASITE CONTROL

Parasites such as ascaris (round worm) and trichuris (whip worm) can cause nutrition related deficiencies and must be treated regularly. For this reason, all HIV positive children should receive a course of albendazole every 6 months in order to eradicate these parasites (Evian, 2000). As these children are already at risk of malnutrition (as explained in Section 2.8.2) it is particularly important that the infestation be eradicated.

2.8.5 PREVENTION OF DIARRHOEAL DISEASE

Diarrhoea is a common condition affecting all young children at some stage during the first few years of life. In children with HIV/AIDS, diarrhoeal disease can have a significant effect on morbidity and mortality. Dysfunction of the gut mucosa, regardless of whether caused by the HIV, the diarrhoea or by organisms resulting in diarrhoea, results in an increase in the permeability of the gut, protein loss and monosaccharide malabsorption. (Wittenberg, 2000.) In order to compensate for this a combined approach is necessary. Exclusive breastfeeding up to the age of six months has been shown to be beneficial in reducing the morbidity and mortality due to gastrointestinal infections (WHO, 2001c).

It is also important to prevent any diarrhoea from poor hygienic conditions. Visser (1996) advocated the following guidelines to prevent HIV infected children developing diarrhoeal disease from contaminated food sources:

- washing hands thoroughly before handling, serving or eating foods;
- avoiding raw or unpasteurised milk;
- ensuring that meat, fish or chicken is well cooked;
- avoiding raw eggs in uncooked foods like drinks, mayonnaise etc.;
- not using eggs if the shells are cracked;
- avoiding the use of pre-prepared salads, fish, meat, eggs etc. from supermarkets or vendors;
- ensuring that 'leftover' food is refrigerated as soon as it has cooled;
- only reheating 'leftover' food once and ensuring that it is hot all the way through;
- storing food in a cool, dry place.

One can argue that nurses should know the child's HIV status and should be careful to provide health education regarding the prevention of diarrhoea. This health education should include the topic of contaminated food sources.

2.8.6 IMMUNIZATIONS

Children with HIV infections should receive all of the routine childhood immunisations as outlined by the National Department of Health. The only exception is that the Bacillus Calmette Guerin (BCG) vaccine against tuberculosis should not be given to children who are symptomatic of HIV infection (Evian, 2000; Centers for Disease Control and Prevention, 2000; Heese, 1995). Since the BCG vaccine is given at birth, theoretically this should rarely be an issue of concern. However, a number of babies are born at home, usually to impoverished, poorly educated women. These children may present at clinics already showing signs of being symptomatic of HIV infection. It is these children who have never previously been immunized and displaying symptomatic HIV infection, which should not receive BCG vaccine. Other immunisations include immunisations against polio, diphtheria, pertussis, tetanus, haemophyllis influenzae, measles and hepatitis B. The immunisation schedule is as follows:

AGE	VACCINE
Birth	TOPV (0), BCG
6 weeks	TOPV (1) DPT + HIB (1) HBV (1)
10 weeks	TOPV (2) DPT + HIB (2) HBV (2)
14 weeks	TOPV (3) DPT + HIB (3) HBV (3)
9 months	Measles (1)
18 months	TOPV (4) DPT (4) Measles (2)
5 years	TOPV (5) DP

Adapted from Heese, H (ed.). 1995. Handbook of Paediatrics Oxford University Press: Cape Town.

2.9 THE INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESSES

2.9.1 THE GENERIC IMCI ALGORITHM

As stated in Chapter One, many children under the age of 5 years in developing countries are dying of common conditions that are both preventable and treatable. The diseases that have been identified as predominantly responsible for this are acute respiratory infections, diarrhoeal disease, malaria, measles and malnutrition. Children who are HIV infected, as a result of their immature immune systems as well as the destruction of their immune system are more likely to suffer from the above conditions.

Although the primary health care approach to the provision of health care did make some difference to reducing the mortality and morbidity among these children, the approach was selectively and vertically applied. This resulted in aspects of care being over emphasised at the expense of others, thus negating much of its impact. In addition, countries in the developing world needed to concentrate their resources on interventions that were known to work. (WHO, 2000.)

To counteract this and to address the continuing burden of disease in developing countries, it became clear a more comprehensive approach was needed. In response to this, WHO in conjunction with UNICEF developed an integrated management of childhood illness (IMCI) strategy in 1995. This strategy focussed not only on the improvement of the health system, but also took cognisance of the need to improve the case management skills of health workers dealing with children and the need to improve family and community practices with impact directly on the health of children. (WHO, 2001a.)

A simple, well-structured algorithmic approach was developed in order to address and improve the case management skills of health workers. The main aim of this algorithm is to assist health workers to identify and differentiate children who are mildly ill and can benefit from home management from those who are severely ill and need specialised care. Danger signs are specified, for which all children must be assessed. The algorithm continues by posing a series of questions to mothers regarding the main symptoms relating to the major childhood diseases in South Africa. Signs and symptoms to both look and feel for are embedded in the algorithm. All children should be assessed for nutrition and immunisation status. Once the information has been gathered, the child's conditions is then classified and treatment

identified and administered. Counselling and education of the mother is a crucial part of the management of sick children, as this will have a direct impact on not only the management of the child at home, but may well play a role in changing family and community practices. In addition, specific guidelines are given to the mother on when she should return to the health facility. (WHO, 2001b.) The sensitivity and specificity of the indicators within the approach to identify and classify sick children, has been studied and indeed shown to be effective as discussed in Chapter One (Weber et al., 1997).

When the IMCI approach was first introduced into South Africa in 1998, it was presented to key role players in the field of maternal and child health. They in turn cascaded the training downward to managers and supervisors at the various clinics via the 11 day training course. The next level to which the training was cascaded was the nurses' within the clinics who were consulting with sick children on a daily basis. The training was so designed, to ensure commitment to the IMCI programme at both the management level of health facilities as well as the level of basic health workers / nurses. During the basic IMCI training, nurses who showed insight, commitment and a high level of clinical skills were identified and trained as IMCI trainers. These trainers were then expected to further cascade the training in their own areas and districts. (Horwood, 2000.)

2.9.2 THE HIV ALGORITHM

The IMCI approach was developed in 1995 and introduced into South Africa in July 1998 during the first case management course. KwaZulu Natal was represented on

that course. Prior to this implementation, a inter-provincial task team was established to assess whether the approach would address the main causes of morbidity and mortality in the region. If so, the task team needed to be sure there was sufficient commitment to the approach to ensure success in making the significant changes to the manner in which health services are rendered, as advocated by the approach. (WHO, 2001b.)

As stated earlier in Section 2.2.3, South Africa has a high prevalence of HIV. In addition, KZN has one of the highest prevalence rates of HIV infections in the world. An annual survey undertaken in antenatal clinics in South Africa, indicated that 36.2% of pregnant women attending government antenatal clinics were HIV infected. (Department of Health, 2000a.) Pregnant mothers can transmit this HIV infection to their infants in three ways, namely during pregnancy, during labour and through breast-feeding. This transmission occurs in approximately 25% of cases. As a direct result of this, a high incidence of HIV infection can be expected in children under the age of 5 years (Coovadia and Wittenberg, 1998). This transmission from mother to child transmission can be reduced by 50% with the administration of a short course of the drug Zidovudine (Rosenfield, 2000). Because of the high cost of this drug it is not widely used in the developing world. Recently the drug Neverapine has been shown to prevent mother to child transmission at a fraction of the cost and is therefore a feasible option for developing countries. However, the mothers need to be tested prior to the administration of Neverapine and this in itself is a costly exercise if administered on a large scale. In KZN, although the introduction of Neverapine has occurred at selected pilot sites it is on a limited scale only. The majority of clinics offering ante-natal care do not have access to this intervention and therefore the

number of children who born to HIV positive mothers must be assumed to remain high. For this reason it remains necessary to identify children who are symptomatic of HIV infection.

In order to identify children who are symptomatic of HIV infection, health workers need to assess many signs and symptoms. The IMCI task team has developed a rational approach to these many signs and symptoms and included this into the existing algorithmic approach to the management of childhood illnesses. Each of the four main sections of the existing algorithm dealing with the four main symptoms (cough, diarrhoea, fever and ear problems) has had a new question included that would suggest the child could be symptomatic of HIV infection. The existing algorithm section dealing with malnutrition has also been adapted to include aspects that would suggest symptomatology of HIV infection. In addition to these adaptations a new algorithm has been included. This new algorithm contains specific signs and symptoms that are suggestive of HIV infection.

Nurses or health workers using the adapted IMCI approach would start a consultation with a sick child by following the algorithm through the identification of danger signs and then the four main sections (cough, diarrhoea, fever and ear problem) and malnutrition. This would include the questions pertaining to HIV. If there has been a positive response to the HIV specific question, the nurse would then automatically continue into the special HIV algorithm. Should the nurse have received a negative response to the specific question related to HIV in the four main sections of the IMCI algorithm, there would be no reason to apply the special HIV algorithm. (WHO, 2000b.)

The sensitivity and specificity of the clinical signs and symptoms for making the classification "suspected symptomatic of HIV infection" have not been addressed in this study. Another researcher has been evaluating this. Preliminary findings are suggestive that the indicators used to identify children who are 'symptomatic of HIV infection" are indeed sensitive and specific. As stated in Chapter One, for the purpose of this study, it is assumed that the indicators used for this classification, are sensitive and specific enough to identify this condition. However, it is important that nurses apply the algorithm accurately and effectively.

2.9.3 WHO/UNICEF HEALTH FACILITY SURVEY

WHO regularly reviews the implementation of the IMCI strategy. In South Africa, all nine provinces had implemented the IMCI approach by January 2001 and were self sufficient with respect to the training of nurses in order to use this approach. Consequently, in May 2001 a health facility review was undertaken to evaluate how sick children were managed in health facilities, how health workers apply the IMCI algorithm during the management process and whether health systems and facilities were providing a conducive environment in which IMCI could be implemented. (WHO, 2001d.)

During the review, IMCI nurses were observed as they consulted and managed sick children between the ages of 2 months and 5 years. The study showed that only 47% of children were assessed for the presence of 3 danger signs, while 56% of children were checked for 3 of the main symptoms. The nutritional status of children was compared to the "Road to Health Card" in 67% of children, while feeding problems

were only assessed in 33% of children. The management of children once classified for pneumonia was correctly carried out in only 44% of children. Similarly, children with diarrhoea were correctly treated 33% of the time.

These poor performances by IMCI nurses were conveyed to IMCI nurses during specially arranged workshops (Dalton, 2001).

2.10 PROFESSIONAL FACTORS THAT COULD INFLUENCE NURSES USING THE IMCI ALGORITHM EFFECTIVELY

There are many factors, relating to issues within the profession, which could influence nurses' use of the IMCI approach. These include nursing education, methods of instruction during the training course, burnout, supervision and the need for ongoing updating and continuing education. These are discussed briefly.

2.10.1 NURSING EDUCATION

The South African Nursing Council regulates and controls both nursing practice and nursing education. They stipulate the minimum requirements which nurses must achieve prior to registration. Since 1994 nurses have been trained in accordance with the "minimum requirement for the education and guide concerning the teaching of students in the programme leading to registration as a nurse (general, psychiatric and community) and midwife. (SANC, 1994). These specialities provide nurses with basic skills to deal with problems they may encounter while working in different nursing settings. However, the researcher questions whether the content in the basic

programmes offered to nurses in this manner, adequately equips them with the necessary skills to deal with the challenges relating to HIV/AIDS. In addition, given that a large proportion of nurses in the services trained some time before the introduction of counselling skills in the curriculum, the researcher feels that it is possible that nurses may not feel comfortable when counselling patients, and especially HIV patients. There are presently a number of short courses that aim at addressing this problem.

2.10.2 TEACHING STYLES

In the past, many teaching methods have been used in order to instruct nurses. Traditionally, in South Africa, nursing tutors have taught nurses according to formal curricula as set out by the South African Nursing Council, which governs nurse education. However, many studies now suggest that imparting information in a formal classroom setting may not be effective for health care workers. Other options, such as a problem based learning approach (Boud and Feletti, 1991; Creedy, Horsfall and Hand, 1992; Andrews and Jones, 1996), reflective thinking (Driscoll, 1994; Glen, Clarke and Nichol, 1995; Fisher, 1996; Hyrkas, Tarkka and Paunonen-Illmonon, 20001) and the use of a clinical supervision approach (Bartle, 2000; Nuccio, Lingen, Burke, Kramer, Ladewig, Raaum and Shearer, 1996) appear to more ably equip a practitioner to cope with the demands the profession places on them.

In the experience of the researcher nurses working in KwaZulu Natal function in isolation with little backup from the medical profession (doctors). For this reason, it is important that nurses be prepared for practice in a manner that allows them to

function confidently and competently. The IMCI case management training course is presented in a loosely structured problem-based approach. The main complaint is seen as the problem. This is then documented along with other problems. Subsequently, each problem associated with the major causes of childhood ill health is evaluated. Using a specific set of guidelines, these problems are classified and management is identified and carried out.

2.10.3 CLINICAL SUPERVISION

In order to understand the concept of clinical supervision, it is necessary to define what it means. Clinical "pertains to or is founded on actual observation and treatment of patients, as distinguished from theoretical or experimental" (Miller-Keane Encyclopaedia & Dictionary of Medicine, Nursing and Allied Health, 1997:340). Supervision has a number of definitions. However, for the purpose of this study the definition used to describe supervision within the nursing context is "a process whereby a therapist is helped to become a more effective clinician through the direction of a supervisor who provides theoretic knowledge and therapeutic techniques and supports" (Mosby Dictionary, 1997:1567). Based on the above definitions and considered within the context of this study, it is the researcher's view that clinical supervision is a process whereby the IMCI supervisor or IMCI trainer observes the practice of the IMCI nurses as they consult with sick children in order to assist the IMCI nurses to increase the efficacy of their practice through direction and support.

Clinical supervision has had various forms of negative connotations associated with it. Heath and Freshwater (2000) therefore found it important to first define the reasons for undertaking the supervision. If one considers the supervision purely from a technical point of view, it would then amount to one of surveillance and monitoring. This would enhance the negative point of view without consideration of the positive aspect of clinical supervision. A form of managerial checking then takes place, which is one of the main reasons for the rejection of supervision. In addition, many supervisors can find themselves being used to monitor the practice of colleagues thus potentially compromising not only professional integrity but also confidentiality. (Heath and Freshwater, 2000.)

Evers (2000) suggests that a form of mentorship needs be offered during clinical supervision whereby behaviours such as befriending, planning, collaborating, coaching and reflection could take the nurse from a novice consultant to a satisfied skilled practitioner. Price and Price (2000) on the other hand, argue for a supervisor to assist consultants with identifying appropriate issues for problem analysis in order to help sustain professional inquiry over a number of weeks or months. Bartle (2000) in the view of the researcher, describes the role of the supervisor most clearly by identifying certain functions. These are as follows:

- formative function – which includes an education function, one in which skills are developed and one in which the supervisor assists the health worker to understanding and ability through reflection;
- normative function – in which a managerial function is undertaken and quality control is provided; and

- restorative function – in which the supervisor plays a supportive role enabling the person to deal with what has happened and to move on.

Bartle also points out that in order for successful supervision to take place, the health worker's understanding of what clinical supervision is, needs to be discussed. In the view of the researcher, if supervision could be undertaken as described above, a relationship of trust could be established in which clinical supervision could take place and thereby improve the quality of care to the patients. Scally and Donaldson (1998) felt that there was a need for a culture of openness in which all professionals should participate, share knowledge and good practice. This would then place the responsibility for quality of care on organisations (who employ supervisors) and individual health workers.

Clinical supervision is undertaken following the case management training course in order for growth and development of the clinical skills to occur. It can be argued, that should clinical supervision consisting of all three functions described in clinical supervision (Bartle, 2000), namely the formative function, the normative function and the restorative function, be carried out following the IMCI training course, then reflective thinking within this sphere, would have been addressed, thus complying with the recent thoughts on health worker training. However, it must be noted that this approach has not been accurately and effectively applied in KwaZulu Natal.

2.10.4 BURNOUT

Duquette, Kerouac, Sandhu and Beaudet (1994) postulated that nurses were at great risk of burnout. In their view, burnout is a complex phenomenon that contributes to psycho-social dysfunction and impact negatively on the mental health of nurses. Some factors implicated in nursing burnout were found to be role ambiguity, workload, age, a lack of coping skills and a lack of social support. It is argued by the researcher that in KwaZulu Natal, many of these contributing factors exist on a daily basis. For this reason, the researcher assumes that they could play a role in the poor application of the IMCI approach when consulting with sick children.

Wood (1999) suggests that HIV counselling makes nurses working situations more stressful than before. He proposes that all HIV counsellors have support and mentoring systems built into their work settings. He also advocates that all HIV counsellors attend stress management courses.

This phenomenon of burnout among nurses and what could be done to address it needs to be investigated within the South African context.

2.10.5 WORKING WOMEN

Many women are no longer able to stay at home to exclusively care for their families. In many instances, women have to contribute to the financial income for the family and as such make up a large proportion of the workforce. In addition to having a

paying job and raising a family, women may also need to care for elderly relatives. (Letvak, 2001.)

Letvak (2001) postulates that as a group, nurses seem to suffer more than most working women do. This is as a result of the stressful nature of the work, nursing shortages as well as having to care for patients that are increasingly more ill. In addition factors such as long working hours, irregular working schedules, holiday and weekend work, all contribute to the stress that nurses experience.

Despite these stresses that nurses face on a daily basis, they are required and expected to perform at their best, even when facing problems of their own. Golda Meir, an influential woman and only women Prime Minister of Israel is quoted as saying "At work, you (women) think of the children you've left at home. At home, you think of the work you've left unfinished. Such a struggle is unleashed within yourself, your heart is rent". (Meir, 1969.)

Valentine (1996) identified nurses as having a docile female role and as a result was unable to join and reap the benefits of the mainstream feminist movement. Roberts (1995) had a similar view and questioned whether female nurses were as liberated as other working women. Letvak (2001) postulates that nurses make up the largest single force in the health care system (and in the South African context, this is indeed so) and questions the reason for nurses being controlled by the very system that they make up.

Ferguson (1993) feels that the concept of power is generally not associated with nurses. The public perceives nurses as powerless. Nurses also see themselves as powerless and the perception is that the closer the nurse is to individual and direct patient care, the less power the nurse has within the health care setting.

Given these feelings of powerlessness, the researcher must assume that as the health system in South Africa in general and KwaZulu Natal in particular, consists mainly of female nurses, these factors influence the care given to patients at clinic level.

2.10.6 THE NEED FOR CONTINUING EDUCATION

Hayes, Morin, Sylvia and Bashford (1995) define continuing education as "organised educational experiences beyond basic preparation, designed to maintain and/or to augment the knowledge, skills, and attitudes of nurses for the purpose of protecting the public health, safety and welfare". Sherwood (1996) argues that the working environment is a powerful indicator in determining the knowledge and skill gained from continuing education programmes. As such, nurse managers should recognise that they are in the unique position to model, mentor and facilitate nurses' commitment to a life-long learning culture. However, Perry (1995) states that nurse managers have difficulties with continuing education in that staff on study leave need to be replaced, thus cost is a major consideration. In addition, some nurse managers might feel threatened by highly educated nurses.

In the context of IMCI, it can be argued that the case management training course complies with the definition of continuing education as stated above. Some of the

problems perceived by Perry (1995) were anticipated prior to the initiation of training in the KwaZulu Natal district, and therefore nurse managers/supervisors within the existing health care system were trained first in IMCI. This practice also ensured that when IMCI was introduced to the nurses working directly with the clients, the clinic as a whole would be committed to the IMCI approach. However, in many sub-districts, this training has not yet been cascaded down to clinic level and the researcher questions, which of the reasons argued above is causing the delays.

As stated in the definition of continuing education above, it is an organised educational experience of nurses beyond their training and is life-long, implying that it is a continuous process. Despite having undergone IMCI training, there are many other aspects that can be covered by updating and training, that are embedded within the IMCI approach. These include the need for specific nutrition training, immunisation training and up-dating and training relating to disease conditions such as HIV, TB, ear nose and throat problems and skin conditions. These conditions all need special attention within the health care settings. DeMong and Assie-Lussier (1999) argue that it is the responsibility of the nurse manager to recognise the needs of the nurses and to schedule time for staff to attend these continuing education programmes. Failing this, nurse managers could offer these courses or up-dates in the form of in-service classes on a regular basis.

It is vital that all nurses working in health care setting continue to maintain and augment their knowledge, skills and attitudes in order to provide a high quality of patient care. IMCI is only one such programme. There is a great need for the development of counselling skills for nurses that could impact positively on all the

programmes provided within the health care system. Although it is necessary to gain access to all the other programmes that are available in order to provide continuing education, it is necessary to merge these skills so that holistic care can be provided as opposed to fragmented care.

2.11 CONCLUSION

It is clear from the literature reviewed that HIV/AIDS remains a complex subject. Not only do many nurses lack the basic knowledge to deal with the disease, but they are also influenced by the many positive and negative messages in both the media and the professional publications. In addition, nurses are mothers, wives, working women as well as highly qualified personal who have to juggle roles that often conflict with one another. It is within this context and against this background that this study has been carried out.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

The purpose of this chapter is to describe the methodology that was used to collect the data necessary in order to answer the research objectives. This study's aim was to evaluate the use of the HIV portion of the IMCI algorithm by IMCI trained nurses in KwaZulu Natal. A quantitative approach was used. However, qualitative data was collected to add richness and fullness to the study. Methods of data collection, target population, sample selection, limitations to the study and ethical considerations are discussed in this chapter.

3.2 DESIGN

The study was designed in two phases in order to meet the objectives of the study. Phase one was designed to evaluate the accuracy with which IMCI nurses used the HIV portion of the algorithm as well as the extent to which they used this portion of the IMCI algorithm to guide their management decisions regarding sick children. Once this phase had been completed the researcher conducted in-depth interviews in order to determine knowledge, understanding, and attitudes which could influence the use or non-use of the HIV portion of the IMCI algorithm.

An evaluation study design was used. Bond (in Cormack, 1996) states that evaluation research is conducted for the purpose of informing decision-makers to enable them to

make better decisions. This study aimed to evaluate the use of the HIV portion of the IMCI algorithm in order to guide decisions to refine and adjust the IMCI/HIV training.

As the IMCI approach is an acknowledged and accepted method of assessing, classifying and managing sick children in primary health care clinics in KZN, the study can be classified as health systems research by virtue of the fact that it seeks to improve an existing structure of the health system. (Katzenellenbogen, Joubert & Abdool Karim, 1997.)

3.3 DATA COLLECTION

The study utilized two methods and instruments for data collection that corresponded to the two phases. The first method was participant observation and the second was in-depth interviews. Each will be discussed separately with special emphasis on the tools used in each method.

3.3.1 PARTICIPANT OBSERVATION

Observation has long been regarded as one of the fundamental methods of data collection for the purpose of research (Burns and Grove, 1999; Cormack, 1996; LoBiondo-Wood and Haber, 1998; DeVos, 1998; Holloway and Wheeler, 1996). However, the issue of participant or non-participant observation is one that remains fairly unclear. Cormack (1996) differentiates between participant and non-participant observation by describing direct observation as non-participant observation. In direct observation the observer remains apart from the study and has no input, thus ensuring that the data collected is

uncontaminated by the presence of the observer. Conversely, Cormack states that indirect or participant observation is where the observer becomes involved with the object of study. In this study, the observer participated with the IMCI nurse once the consultations were complete. As this study dealt with live patients, to send a patient home with incorrect treatment would have been ethically unacceptable, and therefore intervention at this stage was built into the study. However, it could be argued that the observation was complete once the intervention had taken place LoBiondo-Wood and Haber (1998) acknowledge that intervention or non-intervention is important, but they also ascribe to a further breakdown of observation as undertaken either with concealment or non-concealment. In this study, there is no concealment but there is intervention. Holloway and Wheeler (1996) talk in terms of the complete participant, the participant as an observer, the observer as a participant and the complete observer. This differentiation correlates loosely to the LoBiondo-Wood and Haber (1998) approach of concealment with no intervention, concealment with intervention, non-concealment with no intervention and concealment with intervention. In the absence of clear cut direction, for the purpose of this study, the observation will be termed participant observation by virtue of non-concealed observation by the observer with some intervention prior to the patient going home. The intervention will be discussed later in the chapter when the ethical issues are addressed.

The first two objectives of the study were:

- to assess the accuracy with which IMCI trained nurses in KZN use the HIV portion of the IMCI algorithm; and,
- to assess the extent to which IMCI trained nurses in KZN are using the HIV portion of the IMCI algorithm to guide decisions regarding the management of sick children.

In order to achieve these objectives, IMCI nurses were observed as they consulted with sick children using this approach. The participants were observed in their own clinics. This was in accordance with Schurink's belief (in de Vos, 1998) that human behavior is influenced by the setting in which it occurs. For this reason, subjects should be observed in their natural habitats where first hand knowledge or data is obtained on how these subjects go about their everyday lives in order to obtain a more accurate picture of the real situation. Therefore, it was the opinion of the researcher that participant observation was the appropriate data collection method to gain the information that was required to achieve the research objectives.

Information was sought about the accuracy with which these IMCI trained nurses used the HIV portion of the IMCI algorithm. In addition, data was gathered about the extent that the HIV portion of the algorithm guided decisions that the IMCI made regarding the management of sick children. Consequently, this correlated with the objectives of the study.

One of the problems known to be associated with participant observation is that people who are aware that they are being observed in a study setting may change their behavior in an attempt to present themselves differently. This is commonly known as the 'Hawthorne effect'. This phenomenon may create a threat to both the internal and external validity of the study and needs to be actively addressed. Brink (1999) suggests countering this by unobtrusive observation techniques. However, unobtrusive data collection violates the ethical principles of informed consent and for this reason it has to be used with caution. In the study, attempts to limit this phenomenon were addressed in two ways.

The first manner of addressing this problem was rooted in the historical background to IMCI training. All IMCI trained nurses were routinely followed up within 6 months of training by an IMCI facilitator who would then evaluate the IMCI trained nurse as they consult with sick children. An evaluation tool in the form of a checklist was used to determine whether the IMCI nurse had gained the necessary case management skills taught during the IMCI training course. The IMCI facilitator undertaking the evaluation was generally the same person providing and teaching within the IMCI training course. Although one cannot guarantee that being familiar and comfortable with the person who is undertaking the observation would limit the perceived Hawthorne effect, one can argue that it would reduce this phenomenon. For this reason, the researcher appointed the IMCI facilitator, presently providing IMCI training to nurses in KZN, as a research assistant. The research assistant undertook the observation phase.

The second manner used to reduce the Hawthorn effect was to partially disclose the specific objectives of the study. Participants were informed that the study focused on the IMCI algorithm and no mention was made about the HIV portion of the IMCI algorithm. The IMCI algorithm is structured in such a way that the HIV portion is the last section of the algorithm. The researcher hoped that by the time the entire algorithm had been followed by the IMCI nurse, the IMCI nurse would have grown accustomed to the IMCI facilitator observing the consultation. In this manner the Hawthorne effect would be minimized. In addition, the IMCI nurse was observed as she consulted either with 10 children or for a period of 2 full days. During the data collection it appeared that the 10 observation were sufficient to reduce the Hawthorne effect. After a few observations the IMCI nurse's practice did appear to deteriorate in terms of the use of the algorithm. However, this could have been attributed to tiredness at the end of the day or a lack of food

as many IMCI nurses did not stop for tea or lunch. The ethical implications inherent in this partial disclosure will be dealt with in section 3.9.

3.3.1.1 Evaluation Tool

During the observation phase, data was collected using two checklists (Appendices 2 and 3). According to Cormack (1998) checklists have many advantages are used to indicate whether or not a particular behavior had occurred and the number of times the behavior had occurred.

In this study, the first checklist, "Checklist No. 1", was one that had been developed by WHO/UNICEF for the purpose of evaluation of IMCI training. This checklist indicated any inconsistency in the ability of IMCI trained nurses to accurately classify sick children according to the IMCI approach. Inaccurate classification would result in inappropriate management. When using this checklist, the observer marks each correct classification with a tick. Each incorrect classification would be marked by number within a circle. A footnote was then made to correspond to the number detailing the reason for the incorrect classification. Although this checklist has been extensively used thoughout South Africa, the researcher found it difficult, using this checklist, to identify the specific area that IMCI trained nurses deviated from the algorithm, thereby obtaining the incorrect classification. However, because this checklist was the recognized tool developed by WHO for the evaluation of the programme and the research assistant was familiar with this checklist, it was decided to include it.

In view of the difficulty encountered with Checklist No. 1 the researcher decided to augment it with a second checklist. The second checklist "Checklist No. 2", was developed and tested within the Department of Community Nursing at Technikon Natal. The purpose of the development of this checklist, was to identify the specific problem areas that IMCI nurses experience during the process of classification. In essence, this checklist evaluates the process of assessment in order to reach a classification. The management of sick children would then follow. Essentially, the first checklist evaluated the outcome of the classification and management process, the second evaluated the process of classification.

During the observation phase, the research assistant used these two checklists simultaneously. Checklist No. 2 was used as each question was posed to the mother. Each task that was undertaken was documented. After the questions and observations were carried out, the IMCI nurse used the information to classify the sick child. At this stage, the classification was documented on Checklist No. 1 as well as Checklist No. 2. Although in theory, this may appear to have been a simplistic procedure, in practice it was found that at times, using two checklists simultaneously proved difficult. Data obtained from Checklist No. 2 was in many ways superior and in retrospect, duplicated data collected from Checklist No. 1. Although the rationale for the use of Checklist No. 1 was the research assistant's familiarity with the checklist and the fact that it had been used extensively during routine evaluation, it was felt by the researcher that should a further study be carried out with the purpose of evaluating clinical practice, Checklist No. 2 could be used on its own. It is specific enough to produce the data needed to evaluate clinical practice.

Despite data pertaining to the use of the entire IMCI algorithm being gathered, only data pertaining to the HIV portion of the algorithm was analyzed. However, the remaining data about the entire use of the IMCI algorithm was forwarded to the IMCI training team in order to be utilized when evaluating the clinical outcomes of the full IMCI training course. This was done in order to strengthen and add value to the health systems research approach.

3.3.1.2 Venue and time

The observations were undertaken in the selected clinics in which the IMCI nurses worked on a daily basis. Mutually suitable appointments were made with the chief professional nurses in charge of these clinics. On arrival at the clinic, the IMCI nurse who had been identified in the sample selection process was approached for permission to participate in the study. If that particular IMCI nurse was not on duty at the time, the person consulting with sick children using the IMCI approach, who fulfilled the selection criteria, was then observed.

The observation phase started as the IMCI nurse called her client. In most clinics, the first observations commenced in the early mornings at approximately 09H00. This was because most clinics started the day with a spiritual message followed by a health education talk. Only then did the nurses start to consult with the clients. The IMCI nurse was then observed until she had consulted with 10 children between the ages of two months and five years. In most clinics this process took from about 09H00 to 15H30. Many IMCI nurses did not break their consultation time to take tea or lunch. In the clinics where there were few children attending, the nurse was observed during all consultations

with children in this age group or until there were no further children to observe. Although the study was designed to allow for a period of two days of observation if there were a limited number of children attending the clinic on that particular day, in reality, the clinics were geographically so far apart that it was extremely difficult to return the following day to complete the observations. In one clinic, the researcher and research assistant returned two weeks later. In other clinics, due to prior arrangements to visit other clinics on the following day, it was impossible to return to the clinic and so for two participants, only five and seven observations were undertaken.

3.3.1.3 Person conducting the evaluation

The researcher was not Zulu speaking. The research setting was rural clinics in KZN. Mothers and children attending these clinics were predominantly Zulu speaking. Although IMCI training is delivered in English, nurses working in clinics with predominantly Zulu speaking clients, consult in Zulu. For this reason it was necessary to appoint a research assistant who was able to follow the consultation in Zulu during the evaluation phase. The research assistant was an existing IMCI trainer who was both knowledgeable and skilled in the use of the IMCI approach. In addition, this trainer had been involved in routine evaluation of the IMCI nurses following training. The researcher was not present during the evaluation phase of the study. This was done in an attempt to limit the Hawthorne effect discussed above in Section 3.3.1.

In spite of the fact that the research assistant was knowledgeable and skilled in the use of the IMCI approach, it was felt that interrater reliability needed to be assessed.

3.3.1.4 Interrater reliability

Interrater reliability is assessed in order to compare the equivalence of the two raters during a pilot study (Polit and Hungler, 1997). This was carried out in the following manner. The researcher and the researcher assistant undertook evaluations of two primary health care student nurses as they consulted with sick children using the IMCI approach, using the two checklists. The results obtained from the research assistant were compared with the results obtained from the researcher.

Only one slight difference between the raters occurred with Checklist No. 1, which when discussed was insignificant. However, the findings for Checklist No. 2 indicated a need to adapt it in order to include further questions regarding infant feeding. In addition, it was felt that it would be easier to include a column in which the research assistant could document her own findings on both checklists. These changes were made to the checklists (Appendices 4 and 5).

3.3.2 IN-DEPTH INTERVIEWS

The third objective of the study was to determine what factors influence the use of the HIV portion of the IMCI algorithm by IMCI trained nurses in KZN. Carrying out in-depth interviews with all the research participants achieved this. In depth interviews were chosen over questionnaires because Miss Phillips (29.01.01) the Deputy Director of Maternal and Child health in the province, had reported a poor response rate to questionnaires during previous studies.

The rationale for the choice of in-depth interviews as opposed to focus group discussions was twofold. Firstly, Brink (1999) suggests that one of the disadvantages of focus group discussions is that people may be uncomfortable to participate during group sessions. As HIV is a relatively sensitive topic, nurses may not want to discuss their true feelings or motives in an open meeting. In addition, some participants who formed part of the study sample may have been in a position to influence decisions regarding other participants' employment and promotion and therefore honest discussion on issues about HIV could be perceived as threatening. Secondly, in focus group discussions, a leader could emerge who could take over the direction of the discussions. Other participants, who were perhaps not as forceful by nature, could conceivably then just agree with the discussions and this would obviously limit the amount and quality of the information that was gathered. (Polit and Hungler, 1997.)

3.3.2.1 The evaluation tool

The tool used during the in-depth interviews was a question guide (Appendix 6). The question guide was divided into two sections. Section A determined socio-demographic details of the respondents. These questions related to previous training and education. It included details regarding IMCI training, supervisory visits and number of children consulted on a daily basis during the course of the respondents' normal duties. This information was used during data analysis to establish associations and relationships between level of training, duration of practice using the IMCI approach and the knowledge, skills and attitudes to HIV, information sought in Section B of the question guide. The questions in Section B were designed to ascertain the knowledge, attitudes and

clinical practice of respondents with regard to HIV infection in children and stem from the literature review as discussed in Chapter Two.

Although a variety of questioning techniques were used, the bulk of the question guide involved open-ended questions. These were designed in order to elicit responses regarding respondents feelings, attitudes, knowledge and understanding of HIV in general and also within the IMCI context specifically. This was in accordance with the third objective of the study and as previously stated linked to literature available about HIV in children. There were numerous yes/no questions that led into the open-ended question regardless of whether the answer was yes or no. Further questions were included to ascertain the respondents' knowledge regarding the availability of interventions at clinic level and were included as a direct response to the motivation for the study, as discussed in Chapter One.

The question guide was pre-tested during the consultative process of constructing the question guide. This was done by discussing the question guide with other expert researchers and academics. Following the input of each of the above persons, the question guide was adapted and refined until any ambiguity and wording was corrected. In addition to the pretest, it was also piloted on two Zulu-speaking student's who were undertaking formal education and training in primary health care. These students had been trained to use the IMCI approach when consulting and managing sick children in clinics. The rationale for the pilot to be performed on Zulu speaking IMCI nurses was that they closely resembled the target population. The respondents in the pilot study were asked to comment on language style, level of discomfort during the interview and length of interview. Although some reservations were expressed about questions that provoked anxiety, the pilot respondents felt that the questions did open up dialogue, which gave a

better insight into factors that may influence the use of the HIV portion of the algorithm. For that reason it was decided to continue with them. The length of the interview was not found to be excessive. Although it was generally felt that the language style was adequate, some adjustments were made. Following the pilot study the question guide was altered slightly. (Appendix 7.)

3.3.2.3 Venue and time

The IMCI trained nurses who had been observed during the evaluation phase of the study selected the venue and time for the in-depth interview. The venue for these interviews was a quiet consulting room within the clinic buildings.

When the study was originally structured, it was thought that these in-depth interviews would take place after all the evaluations had been complete. This did not occur. The majority of IMCI trained nurses who participated in the study were from different clinics. As a result of the distances between the clinics, the researcher thought it prudent to interview the respondent directly after the completion of the observation phase. Rationally, in the view of the researcher this was thought to be more practical. However, many different scenarios took place. A description of some of the scenarios follows. One participant was observed for one full day where only 5 evaluations were completed due to lack of children visiting the clinic. The evaluations were completed at the following visit that took place 4 weeks later. Following the completion of the observations, the in-depth interview was conducted. This was after lunch which suited both the researcher and participant. Another permutation was two participants from the same clinic were selected in the study sample. The evaluation proceeded through the ten observations of the first

participant, but on completion there were no further children at the clinic in order to proceed with the next participant selected. Only once both participants had completed their evaluation phase were the in-depth interviews undertaken. These interviews also took place between 15H00 and 17H00. In most situations, the in-depth interviews followed directly after the observation phase, as the researcher did not anticipate a further visit to the clinic and as previously mentioned, the general time for these interviews were late afternoon. In the case of the two participants who did not complete the full 10 observations, the researcher anticipated that there would be no further opportunity to undertake the remaining observations, and so the researcher continued with the in-depth interviews. In both these cases, the interview took place just after midday which was a mutually convenient time.

An additional five interviews were conducted with nurses who were not observed for reasons explained in section 3.8.5. These interviews took place when the nurse had completed her morning duties and had time to spend with the interviews. Generally this was during the nurses' lunchtime. This brought the total number of in-depth interviews conducted to thirteen.

3.3.2.3 Person conducting the interview

The researcher personally undertook all the in-depth interviews as all IMCI trained nurses spoke English. The research assistant was not present during the in-depth interviews as it was perceived by the research that her presence could limit the quality and quantity of information that these IMCI nurses would be willing to share.

3.4 TARGET POPULATION

The target population for this study was nurses who had undertaken training from the Department of Health, KZN, in order to equip them to apply the IMCI algorithm when consulting sick children. When the study was first conceived, the IMCI approach had been introduced into 8 selected clinical sites in KZN. There were at the time, approximately 120 nurses who had undergone training. As a result of the cascading method for the implementation of training favored by the Department of Health, KZN, by the time the study was implemented, more nurses had received training. However, the researcher decided to remain with the original target population of 120 nurses' as it was felt that the newly trained IMCI nurses were not experienced in this approach and therefore had not developed their own routine and skills in using this approach. Consequently, the 120 nurses identified at the onset of the study formed the target population.

3.5 SAMPLING STRATEGY

3.5.1 SAMPLE SELECTION

A two-stage sample selection plan was applied to select the sample from the target population.

The first stage of the selection involved a purposive selection of the districts into which the IMCI approach to the management of sick children had been introduced. These were as follows:

* Empangeni Health Region

* Ndwedwe Region

* Hlabisa Health Region

* Murchison / Port Shepstone Region

* Uthukela Region

* Newcastle Region

* Imbalenshle Region

Previously, HIV/AIDS research has been carried out in the Ngwelezana Hospital, which falls into the Empangeni Health Region and Hlabisa District. A heightened awareness of HIV/AIDS in the Hlabisa area was anticipated and for this reason was excluded from the sample selection. Although some HIV/AIDS research had been carried out within the Ngwelezana hospital, it was felt any heightened awareness was likely to remain within the hospital confines and not affect the clinics in the area. For this reason the district was not excluded. The IMCI approach was only recently introduced to the Imbalenshle area. As a result, this not only limited its use within the district, but also limited the number of IMCI trained nurses using this approach. For this reason Imbalenshle was excluded.

It was decided to purposively select the Empangeni Health Region, the uThukela and Murchison districts as they were geographically far enough apart from each other to prevent contamination of the sample during the data collection phase. These districts were then called District A, District B and District C. However, due to problems encountered with permission to work in one of the districts, District C was later excluded. This is discussed in Section 3.6.

The second stage of the sampling involved the random selection of four IMCI trained nurses within each of the selected districts. A list of all the IMCI trained nurses in each of the districts was obtained. This list included details of the clinics in which the nurses worked. A number was allocated to all IMCI trained nurses in a district. Using a fishbowl method, four nurses were randomly selected from each district.

3.5.2 INCLUSION CRITERIA

Only professional nurses who satisfied the following criteria were included in the study:

- working in the public sector within the geographical area of KZN;
- had undertaken the 11 day IMCI training course presented by the Department of Health, KZN; and
- consulting with children between the ages of 2 months and 5 years.

3.5.3 EXCLUSION CRITERIA

The following exclusion criteria were applied:

- professional nurses who were working outside the geographical area of KZN;
- professional nurses who had undertaken the IMCI training course presented by any organization other than the Department of Health, KZN;
- professional nurses who had not successfully completed the IMCI course presented by the Department of Health, KZN, and had therefore not been issued with a certificate;
- professional nurses not working in public primary health clinics;

- professional nurses working in the geographical region of KZN, which had been directly involved with other research pertaining to HIV/AIDS;
- professional nurses consulting with children who are younger than 2 months old; and,
- professional nurses consulting with children who are older than 5 years old.

3.5.4 SAMPLE SIZE

Initially, it was planned that 12 IMCI trained nurses would be randomly selected from the original target population of 120 IMCI trained nurses. This would have amounted to a sample of 10% the target population. However, due to protracted difficulty in gaining entry into the study setting, only eight IMCI trained nurses participated in the observation phase. The difficulty in gaining entry into the study setting is discussed in Section 3.6.

The choice of the number of observations deemed necessary for the study needs to be discussed. The researcher has been unable to identify literature that gives clear guidelines about how many times a person must be observed in order to limit the Hawthorne effect. (Polit and Hungler, 1997; LoBiondo-Wood and Haber, 1998; Cormack, 1996.) Different researchers subscribe to different numbers of observations as is evident in WHO's (2001d) review of IMCI practice, where they used a total of five observations for each participant. In view of no clear guidelines, the researcher decided to use 10 observations with a view of limiting or even eliminating the Hawthorne effect.

Although only eight IMCI nurses participated in the observation phase, the researcher decided to increase this number for the in-depth interviews. An additional five IMCI

nurses were approached by the researcher and agreed to participate in the study thereby increasing the total number of in-depth interviews to 13.

3.6 DURATION OF THE STUDY

The eight IMCI trained nurses, who eventually participated in the study, were observed as they consulted with sick children until they had completed 10 consultations each or for an extended period of time. Despite initial concerns that insufficient children may attend clinics during the period of the study to yield 10 consultations per participant, this only occurred with three participants. It was possible to continue the observations at a later stage with one participant and the full 10 observations were complete. In the case of the other two participants, due to the distances between the clinics and the prior arrangements to visit other clinics, it was not possible to complete the observations. For this reason, only 72 observations were carried out. However, the researcher felt that although the number of observations that were originally planned had been reduced, the data obtained from the observations carried out was representative of the general practice of all nurses using the IMCI approach. In the view of the researcher, a similar pattern of clinical skills had been observed for each of the nurses, so no new information was likely to emerge. As discussed previously in Section 3.3.1.2 the observations commenced at approximately 09H00 and continued until the 10 observations were completed or there were no further children to consult. In reality, this lasted until approximately 16H00. However, it must be noted that the majority of these IMCI nurses did not break for tea or lunch and continued until there were no further children waiting to be seen. Only one IMCI nurse took half an hour break for lunch when there were still children waiting to be seen. A

total of 10 days were spent undertaking the observations. The in-depth interview took approximately 45 minutes each; a total of nine hours and 45 minutes.

The permission for the study took longer than was originally expected which delayed the onset of the data collection phase. This was as a result of the many levels in the organizational structure which needed to be traversed in order to obtain, not only the permission to undertake the study, but co-operation and a sense of 'buying into the study'; which the researcher felt was an important aspect. The research proposal was approved in July 2000 and permission obtained from the Director, Human Resource Department in July 2000. Following this permission, further permission was sought from the districts and this was obtained in September 2000. Subsequent to permission being granted, each district office was contacted and permission sought to enter the clinics. District A and District B gave verbal permission and the clinics identified in the selection process were notified of the data collection phase and the first clinic contact was made in October 2000. However, the permission from District C was not obtained and in December 2000 it was decided to exclude this district from the study.

The actual data collection phase of the study was determined by the time the research assistant could make available to the study, as the research assistant had work priorities other than the study itself. Although the actual data collection comprised of 10 days, the data collection phase was commenced during the first week of October 2001 and only completed at the end of November, 2001.

3.7 DATA ANALYSIS

Data was analyzed using the Statistical Package for Social Science Version 9 for Windows. Separate analysis was undertaken for each phase of the study (i.e. the observation phase and the interview phase). Descriptive statistical analysis was carried out for both sets of data. In addition, inferential statistical analysis in the form of a chi-square and cross tabulations were conducted.

Once the data from the in-depth interviews had been thoroughly examined, a coding system was developed to evaluate the data. Frequencies were determined. A more in-depth analysis of the data is discussed in Chapter Four.

3.8 LIMITATIONS TO THE STUDY

3.8.1 SMALL TARGET POPULATION

As the IMCI approach was only introduced into KZN in 1997, there were a limited number of nurses who were trained to use this approach. For this reason the target population was relatively small and therefore the sample size was proportionately small. At the onset of the study, IMCI had been introduced into 8 clinical sites in KZN with 120 nurses having undergone training.

3.8.2 THE NEED FOR A RESEARCH ASSISTANT

As previously discussed, the researcher was not Zulu speaking. The research setting was rural clinics in KZN. Mothers and children attending these clinics were predominantly Zulu speaking. Although IMCI nurses were trained in English, nurses working in clinics with predominantly Zulu speaking clients, consult in Zulu. For this reason it was necessary to appoint a research assistant who was able to follow the consultation in Zulu during the evaluation phase. The choice of the research assistant was very important. The research assistant had to be knowledgeable and skilled in the use of the IMCI approach to the management of sick children. In addition she had to be a person with whom the study participants felt at ease in order to limit the Hawthorne effect as much as possible. In view of this, the research assistant appointed was the IMCI trainer who, as part of her everyday duty, was evaluating nurses using the IMCI approach. In addition, interrater reliability was assessed, as previously discussed in Section 3.3.1.4. However, in the researcher's opinion, the study would have been more accurate if the researcher could have undertaken the evaluation phase personally.

3.8.3 POSSIBLE VESTED INTEREST OF THE RESEARCH ASSISTANT

The research assistant was a Department of Health, KZN, IMCI trainer. A possibility could have existed that the research assistant may not have wanted the findings of the study to reflect negatively on her ability to teach the IMCI approach. However, it was argued that as a person committed to the IMCI approach, the IMCI trainer would rather have wanted accurate feedback about the outcomes of the training in order to better provide for the care of sick children.

This was openly discussed with the research assistant prior to the implementation of the evaluation phase. The research assistant remains committed to providing a high quality of care to all sick children, regardless of the outcome of the study and values the evaluation of training.

3.8.4 POSSIBLE LOW PREVALANCE OF CHILDREN WITH "SYMPTOMATIC HIV" PRESENTING AT CLINIC LEVEL

The first phase of the study was the evaluation of the use of the HIV portion of the IMCI algorithm by IMCI trained nurses as they assessed sick children. It was argued that during the period of the study, the children attending the clinic may not have had symptoms that were suggestive of HIV infection, thus the nurses would not have a need to use the HIV portion of the IMCI algorithm. This was technically correct. However, when applying the IMCI algorithm, each of the main symptoms covered in the generic algorithm had specific signs and symptoms, which would have led the IMCI, nurse into the HIV algorithm. These questions should have been asked, regardless of whether the child was symptomatic of HIV infection or not. Should the IMCI nurse not have addressed these signs and symptoms, children who were symptomatic of HIV infection, would not have been identified. As a result, regardless of the prevalence of symptomatic HIV infection at clinic level, the study was able to determine whether IMCI nurses were checking the indicators embedded within the generic IMCI algorithm to gain entry into the HIV portion of the algorithm.

3.8.5 INABILITY TO GAIN ENTRY TO ONE OF THE REGIONS SELECTED IN THE SAMPLE, THUS LIMITING THE NUMBER OF PARTICIPANTS

As discussed in Section 3.6, the researcher was unable to gain entry into one of the purposively selected districts.

There are many levels within the organizational structure of the Department of Health, KwaZulu Natal. In view of this, the researcher deemed it necessary to obtain permission not only from the Director of Human Resources, KwaZulu Natal, but also from each of the persons who represent the different levels within the organization. This was to ensure that when reaching the district, there was no opposition to the study and that the districts not only agreed to the study, but fully endorsed it in terms of the need for the study and the recommendations that came out of the study.

However, in one district, despite having gained permission from both the Director of Human Resources and the Regional Director of the district concerned, the researcher was unable to obtain further permission to the study. It must be noted that, in the view of the researcher, this was not an overt attempt to prevent the study from taking place. It appeared to be an administrative problem where the next level within the organizational structure was extremely busy and the researcher was unable to make contact either telephonically or by facsimile. When contact was made, it seemed that further people needed to be consulted and the person with whom contact was made, was unable to make that decision. At that stage, the researcher was unable to wait any longer for permission as the study had to be completed during 2001. In discussion with the research supervisor, it was decided to omit the district from the sample. In defense of this decision, it is argued

that 72 observations were sufficient to determine a trend in the manner in which IMCI nurses practiced using the IMCI approach. In addition, further in-depth interviews were conducted using IMCI nurses who complied with the selection criteria, thus ensuring that a full complement of interviews was undertaken.

3.9 ETHICAL CONSIDERATIONS

Prior to the commencement of the study, the researcher obtained permission from the KZN Department of Health, Human Resource Development Department (Appendix 8). In addition, permission was obtained from the Regional Directors in whose districts the study was undertaken (Appendices 9, 10, 11). Once permission was granted from the authorities (Appendices 12, 13, 14, 15), permission was sought and obtained from two of the selected sub-districts and finally from the professional nurses in charge of the clinics. This permission was obtained verbally. Each participant in the study was then approached individually during which time the purpose of the study was discussed. Information details were given to the participant (Appendix 16) and informed consent was obtained (Appendix 17). Issues contained within the informed consent were addressed and these are discussed below.

Confidentiality was ensured in the following manner:

- the name of the clinic or district would not appear on any documentation or in the final results and would be referred to as District A and District B;
- each participant was allocated a number and his/her name would not appear on any documentation or in the final results; and

- the list of numbers and corresponding names were not available to any person/persons and kept secure by the researcher alone.

The researcher stated that no IMCI trained nurse was compelled to participate in the study. IMCI nurses selected in the sample who did not wish to participate in the study would not have been coerced to do so.

Three further ethical problems had to be addressed. The first was the issue of partial disclosure. The Hawthorne effect suggests that when participants are observed they may alter their behavior. It was important that this not occur if the study was to yield valid data. For this reason the researcher only partially disclosed the aims and objectives of the study when seeking initial agreement from IMCI nurses to participate in the study. The researcher informed the IMCI nurses that the study involved assessing the use of the entire IMCI algorithm in primary health care clinics and written permission was obtained in order to accomplish this (Appendices 16 and 17). The researcher did not initially inform the IMCI nurses that the study's main focus was the HIV portion of the IMCI algorithm. Full disclosure of the intent to only use and analyze the HIV portion of the algorithm was made prior to the in-depth interview. At that stage, the reasons for the partial disclosure were given and each participant was asked for permission to use the previously collected data. Although the researcher had anticipated some reluctance from the IMCI trained nurses to proceed with the in-depth interviews or permission to use the previously collected data, no IMCI nurse objected and therefore the in-depth interviews continued. Prior to the in-depth interview this permission to proceed was obtained in writing (Appendix 18 and 19).

Although the data collection process involved access to confidential personal data in the form of patient records, permission was sought from the relevant people to have access to the data. In the view of the researcher, the relevant people from whom permission was sought was the KZN Department of Health, the Regional Directors from each of the districts, the IMCI trained nurses participating in the study as well as the mothers who brought their children to the clinics (Appendix 20 and 21). The personal data from the patient records was not used or recorded during the study. In terms of ethical considerations, children are perceived as a special group. The children in this study were between the ages of two months and five years. These children were unable to give assent to participate in the study, and for that reason, permission was obtained from the mothers, as discussed above.

All material containing the actual names and allocated codes of the participants in the study was kept locked away. Although the research assistant knew some of the participants from their original IMCI training, in the view of the researcher, by the end of the study, the research assistant would have forgotten which personal identification codes had been allocated to which participant. This would then assure that when the final document was circulated, no person was able to identify any participant with either their clinical practice or the responses to the questions during the in-depth interviews. The researcher will retain all data pertaining to the study for a period of three years, thereafter, the data will be shredded.

As previously mentioned, three "Subject Information" letters were provided. The first was used during the initial phase of the observation where permission was sought from IMCI nurses to undertake the evaluation phase of the observations. At this point,

permission was sought for observation of the full generic IMCI algorithm (Appendix 16). After the observations had taken place, a further "Subject Information Letter" was given informing the participant of the 'partial disclosure' and the use of information specifically pertaining to the HIV portion of the IMCI algorithm (Appendix 18). Finally, a "Subject Information Letter" was given to mothers seeking permission to be present during the consultation (Appendix 20). Although these subject information letters were written in English, the researcher felt that the letter to mothers needed to be translated into Zulu as this was the mother tongue of most mothers in the areas in which the study was undertaken. This was done (Appendix 22). The researcher did not feel it prudent to translate the subject information letter to the IMCI participants into Zulu, as all IMCI training was conducted in English and therefore assumed that these participants could effectively communicate in English.

Although no participant was asked to perform any act or make any statement that could have caused discomfort or embarrassment, the researcher acknowledged that poor performance in the use of the IMCI algorithm in general and the HIV portion of the algorithm in particular, could cause the participants some embarrassment. In order to limit the embarrassment, the researcher explained that their performance in the use of the algorithms in no way affected their employment ability or standing in the community. The study was an attempt to identify whether nurses were applying the HIV portion of the algorithm accurately and effectively, and if not, the factors that influenced it use, in order to improve training and therefore facilitate its use. They were assured that confidentiality was to be maintained and therefore should not pose any embarrassment to the subjects. The researcher also acknowledged that some of the question asked during the in-depth interviews could have caused some anxiety and stress to some participants. In an attempt

to limit this, the researcher spent some time at the beginning of each interview explaining the purpose of the interview. Each participant was told that it was not compulsory to participate in the study, but their input was extremely valuable. The researcher attempted to establish a relationship with each participant that was viewed as non-threatening; from the reception of each participant, this was achieved.

The study protocol was structured in a manner that did not require any physically invasive or potentially harmful procedure to be carried out. However, one issue regarding children receiving the appropriate management needed to be clearly defined and addressed. At the completion of the observation phase, the research assistant established if the management of the sick child was appropriate according to the guidelines as set out in the IMCI algorithm. When the research assistant found that the assessment, classification and/or management of the sick child did not comply with the given guidelines, the research assistant intervened and corrected either the assessment, the classification or the management. This process did not differ from what was normally done during the routine evaluation of the IMCI training programme and complies with the principles embedded in supervision, as discussed in Section 2.11.2 and differing teaching styles, as discussed in Section 2.11.1. It needs to be noted, that if a participant did not use any indicators leading to the HIV portion of the algorithm, or did not use the HIV portion of the algorithm, the research assistant did not correct or intervene for fear of contaminating the sample. In those cases when this occurred, the research assistant referred the mother to the researcher who then assessed fully for HIV and managed the child according to the given guidelines. In this manner, the participant was not aware of the true objectives of the study until the completion of the evaluation phase of the study had been completed on that particular participant.

Although the study did not benefit either the IMCI participants or the mothers directly, it was hoped that the study would benefit both the IMCI nurses and the mothers, indirectly. The IMCI nurses would benefit as a result of being able to refine and adapt the IMCI training in order to make the HIV portion of the algorithm more 'user friendly". The mothers would benefit from the expertise that the research assistant and researcher brought to the clinical practice of IMCI nurses. There was no monetary benefit to either the IMCI participants or the mothers. The researcher benefited in the aspect of having used the study to complete a Masters Degree of Technology: Nursing.

3.10 CONCLUSION

This chapter has dealt with the methodology used to underpin the study. Reasoning for the choice of the study design and the data collection methods have been discussed. No research progresses without some problem areas and this study has been no different. Problems encountered when undertaking the study have been discussed as well as the manner in which these problems were addressed and overcome. Lastly, when undertaking research involving humans, it is important that the ethical issues inherent in this area of study, be addressed. For this reason, a large portion of this chapter has been devoted to these issues.

CHAPTER FOUR

DATA ANALYSIS

4.1 INTRODUCTION

The purpose of this chapter is to describe and discuss the statistical analysis of the data that was collected. As explained in Chapter Three, the data was collected in two phases - the observation of IMCI trained nurses as they used the IMCI algorithm to assess, classify and manage sick children in the clinics and the collection of data from structured in-depth interviews. Analysis of each set of data will be presented separately.

4.2 ANALYSIS OF PHASE ONE - THE OBSERVATIONS

The first two objectives were to assess the accuracy with which IMCI nurses used the HIV algorithm and to assess the extent to which they used the HIV algorithm to guide their decisions about the management of these sick children. To answer these questions IMCI nurses were observed as they consulted with sick children.

Analysis of data from the observation phase involved a total of 72 observations undertaken as the IMCI nurse used the IMCI algorithm to assess, classify and manage the sick children attending the clinic. The study was conducted in two regions in KwaZulu Natal. A total of eight IMCI nurses were observed. The maximum number of observations that were carried out on each IMCI nurse was 10 and the minimum was five. The researcher developed and applied codes to the observation phase (Appendix 23). Analysis was

undertaken using the Statistical Package for Social Sciences (Version 9). Descriptive and inferential statistical analyses were conducted.

On order to answer the first objective regarding the accuracy with which IMCI nurses use the HIV portion of the IMCI algorithm, accuracy was determined. Each participant was numerically scored for accuracy in the use of both the generic IMCI algorithm and the HIV algorithm. This numerical allocation for accuracy will be discussed later in Section 4.2.3. A chi-square test was used to determine independence and relatedness between accuracy and regions.

The second objective was to determine the extent to which the HIV portion of the algorithm was used to guide management decisions regarding sick children. In order to answer this question, IMCI nurses had to first accurately apply the HIV algorithm in order for them to then use the algorithm to guide their management decisions.

4.2.1 DATA OBTAINED FROM CHECKLIST NO. 1

As explained in Chapter One, the IMCI approach involves nurses using an algorithmic approach in order to assess and then classify sick children who come to the clinics. Checklist No. 1 was used to determine the IMCI nurses' ability to accurately classify these sick children but did not indicate the process that the nurse used in order to assess and therefore make the classification.

Data rendered from this checklist indicates that in the majority of consultations during this study, nurses accurately classified the sick children who participated in the study.

Table 2. Classification of sick children by IMCI trained nurses using the IMCI algorithm as evaluated using Checklist No 1

N = 72 observations

Criteria for classification when using IMCI	Correct %	Incorrect %	Total %	Correct n	Incorrect n	Total n
Danger signs	97.2	2.8	100	70	2	72
Classification of cough	94.4	5.6	100	68	4	72
Classification of diarrhoea	98.6	1.4	100	71	1	72
Classification of persistent diarrhoea	97.2	2.8	100	70	2	72
Classification of fever	83.3	16.7	100	60	12	72
Classification of ear problem	100	0	100	72	0	72
Classification of nutrition	41.7	58.3	100	30	42	72
Classification of possible HIV infection	86.1	13.9	100	62	10	72

While the above data indicates the correctness of the classification, it must be noted that correctness, in this context, does not imply that the algorithm was used accurately. It merely indicates that, despite the manner in which the algorithm was used, the classification that the IMCI nurse made did not differ significantly from the classification the research assistant made. Each of the classifications in Table 2 will be discussed separately and the relevant links with the literature which support the statement made about the results will be given.

The first assessment that an IMCI nurse makes on all sick children in the clinic is to check for the presence of danger signs in order to identify serious illness immediately, so that pre-referral treatment can be carried out as soon as possible. The danger signs that are routinely sought are:

- a child is unable to drink anything;
- a child that is vomiting everything taken orally;
- a child that is lethargic or unconscious; and,
- a child who has had convulsions with this particular illness.

The danger sign that was missed was that the IMCI nurse did not identify lethargy in the sick child. A failure to identify lethargy in sick children with general diseases can have serious implications. When dealing with children who are possibly symptomatic of HIV infection should this danger sign be missed, conditions such as cytomegalovirus and cryptococcal meningitis (Sections 2.8.1.7 and 2.8.1.8) may not be identified. It is therefore imperative that all children be accurately assessed for the presence of danger signs.

IMCI nurses evaluate the cough symptom when the mothers complain of cough or difficult breathing in their children. If the mother does not complain of a cough, the IMCI nurse needs to ask about it directly. The IMCI nurse then uses the guidelines in order to assess and classify for cough. (Appendix 1.) Cough had been incorrectly classified in 5.6% of children. Children who are symptomatic of HIV infection can present at health facilities or clinics with a number of respiratory conditions (Section 2.8.1.2, Section 2.8.1.3 and Section 2.8.1.5). In view of this, they need to be accurately assessed for cough and difficult breathing in order to identify HIV related conditions early for management of the conditions. IMCI nurses who do this have the potential to play a positive role in the morbidity and mortality of children who are HIV infected.

When classifying sick children for diarrhoea, the IMCI nurse assesses the child for dehydration. This study suggests that most nurses who participated in the study had the ability to accurately classify children for dehydration. There are many causes of diarrhoea in children with HIV infection (Section 2.8.1.1, Section 2.8.1.4, Section 2.8.1.7 and Section 2.8.5). These may result in dehydration and for this reason it is

important that nurses are able to classify the dehydration in order to effectively manage it. However, if the underlying cause for the diarrhoea is not managed, the diarrhoea will persist. For this reason, IMCI nurses need to be able to distinguish between acute diarrhoea and persistent diarrhoea. In this study 97.2% of nurses were able to do this.

In the researchers' experience in the clinical setting, nurses often appear to regard fever as a 'common' sign and in many instances little importance has been given to it. However, in view of the HIV pandemic in South Africa, nurses need to be more vigilant when investigating fever. In many conditions occurring as a result of the HIV and the destruction of the immune system, fever is present (Section 2.8.1.2, Section2.8.1.3, Section 2.8.1.5, Section 2.8.1.7 and Section 2.8.1.8). In this study classification for fever was only correct in 83.3% of the observations. The research assistant reported that in many instances, IMCI nurses did not assess and classify for fever even though the mother had reported fever as one of the reasons for attending the clinic. This finding is possibly a corroboration of the researcher's perception of how nurses have viewed the sign of fever in the past. However, it also implies that nurses do not have knowledge of the importance of this sign when relating it to HIV/AIDS.

The classification of ear problems in this study indicated that IMCI nurses were correct in all the observations that were carried out. However, it must be noted that during this study there were very few children who actually presented with ear problems as the reason for attending the clinic, hence the classification that there were

no ear problems present. Should more children in the study have had ear problems, the researcher questions whether 100% would still be correct.

Table 2 seems to indicate a poor ability to correctly classify the nutritional status of children. This is important in view of the association between malnutrition and the morbidity and mortality of children who are symptomatic of HIV infection. As discussed in Chapter Two (Section 2.8.2), malnutrition in HIV infected children can depress the immune system. As a result, these children are more prone to infection and more susceptible to opportunistic diseases (Section 2.8.1). Therefore, nurses need to identify children with malnutrition in order to prevent the impact that malnutrition has on immunity. In addition, the disease process of HIV infection, causes patients to lose weight and consequently this specific sign is used as an indicator of symptomatic HIV infection in children (Section 2.8.2). However, if IMCI nurses are not able to classify the nutritional status of children accurately, they will miss the opportunity to use this classification in order to lead them into the HIV portion of the algorithm. The research assistant reported that in many instances the 'Road to Health Card' was incorrectly filled in. Some nurses were unable to interpret the 'Road to Health Card'. Other nurses failed to recognize signs of malnutrition such as visible wasting and oedema. In view of an incorrect classification for malnutrition in 58.3% of observations, it is imperative that this aspect of IMCI training be addressed.

The classification for symptomatic HIV infection during this study was correct in only 86.1% of the observations, which essentially means that 10 children who participated during the study could have left the clinic with an incorrect classification. Children

who are symptomatic of HIV infection need regular monitoring of growth and development (Section 2.8.2.2) and active feeding (Section 2.8.2.1), early diagnosis of opportunistic diseases (Section 2.8.1) prophylaxis against diseases and infestations (Section 2.8.1.3, Section 2.8.1.5, Section 2.8.2.3, Section 2.8.4 and 2.8.6). It is imperative that nurses identify children who are symptomatic of HIV infection early in the disease process in order to provide interventions that reduce the morbidity and therefore delay the mortality associated with this disease.

If one compares these findings to the WHO Report of Health Facility Survey (2001) as discussed in Section 2.9.3, an overall improvement in the clinical skills of IMCI nurses is noted. However, it is the view of the researcher that this may possibly be related to the use of Checklist No. 1, in this study, in order to collect the data. The researcher acknowledges that in the abovementioned study, a checklist resembling Checklist No. 2 was used, as opposed to the conventional Checklist No. 1 generally used to evaluate clinical skills following the IMCI training. The improvement indicated above is not as evident when analyzing the data collected using Checklist No. 2 as discussed later.

4.2.2. DATA OBTAINED FROM CHECKLIST NO. 2

The data obtained from Checklist No. 2 indicates if the IMCI nurse has followed all the steps in the algorithm in order to accurately assess the child and thereby providing an accurate base on which to classify the sick child. For example, were all the correct questions asked and were all the relevant signs actively sought during the assessment of the sick child? It was through the use of this checklist that the researcher was able

to determine whether the IMCI nurse asked the relevant questions that had the potential to lead the nurse to use the full HIV algorithm. Should the nurse not have asked these questions, she may possibly have missed the classification of 'symptomatic of HIV infection' with the inherent problems attached to this misclassification. Results from this checklist are depicted in Table 3.

In order to interpret the data displayed in Table 3 it is important to note how the data was recorded. If one looks at the correctness of danger signs depicted in Table 3, only 54.2% correctly used all 4 danger signs as advocated by the IMCI algorithm in order to guide their classification. When this is compared to the correctness of danger signs depicted in Table 2 there is evidence of a marked decrease in the level of correctness of the assessment of this sign. However, as mentioned, the correctness implied by Checklist No. 1 was not as a result of accuracy in the application of the indicators as advocated by the algorithm. While many nurses were correct in their classification, the measures they used to classify the danger signs were not obvious. In the researcher's view, many of these factors seemed to be intuitive rather than scientific or reasoned and this possibly needs to be further investigated.

Table 3. Evaluation of IMCI trained nurses for the accuracy with which they use the HIV portion of the IMCI algorithm

N = 72 observations

	Correct %	Incorrect %	Total %	Correct n	Incorrect n	Total n
Assessed for all 4 danger signs	54.2	45.8	100	39	33	72
Asked main symptom – cough	91.7	8.3	100	66	6	72
Asked cough – HIV question	45.8	54.2	100	33	39	72
Asked main symptom – diarrhoea	70.8	29.2	100	51	21	72
Asked diarrhoea – HIV question	56.9	43.1	100	41	31	72
Asked persistent diarrhoea – HIV question	56.9	43.1	100	41	31	72
Asked main symptom - fever	61.1	38.9	100	44	28	72
Asked fever – HIV question	31.9	68.1	100	23	49	72
Asked main symptom – ear problem	58.3	41.7	100	42	30	72
Asked ear problem – HIV question	56.9	43.1	100	41	31	72
Used nutritional assessment as entry to HIV algorithm	40.3	59.7	100	29	43	72

The data regarding the main symptoms in Table 3 suggests that IMCI nurses do not actively seek the presence of the 4 main causes of disease in sick children as promoted by the IMCI approach. The research assistant indicated that many sick children were evaluated for their presenting problem only, which would explain the low percentage of correctness for the main symptoms of cough, diarrhoea, fever, and ear problems. This practice negates the rationale for an integrated approach to child health, which underpins the IMCI strategy. As mentioned in Chapter One, 12 million children worldwide die of these common conditions. Early recognition and appropriate management can prevent these deaths. However, these conditions need to be actively sought in order to recognize them early. This study suggests that this is not occurring

among the participants and the researcher thinks that other IMCI nurses in KZN are likely to practice in the same manner.

By not actively seeking all the main symptoms required in the integrated approach of this strategy the IMCI nurse will not get the opportunity to evaluate for the presence of symptomatic HIV infection using all the main symptoms. Given the assumed high incidence of HIV infection among children under the age of five years (Section 1.2 and 2.2.3), this could lead to HIV infected children being identified late in the disease process. As a result, these children will have had to suffer many infections and opportunistic diseases needlessly. It is vital that all the main symptoms are evaluated, at each visit, in order to accurately assess children for HIV infection and therefore reduce the morbidity and delay the mortality of these children When interpreting the data pertaining to the use of the indicators that would allow the IMCI nurse an entry point to the full use of the HIV algorithm, it must be noted that should the nurse have not questioned about the main symptom, it is assumed that she is incorrect in the entry point for HIV regarding that main symptom. For example, if the mother brought her child to the clinic with a cough and the IMCI nurse only assessed for the cough, she may miss the child who has a fever. If she had assessed for fever, she may have identified a child who has had fever for longer than one month an indicator to fully assess for 'symptomatic HIV infection'. As discussed in Sections 2.8.1.3 and 2.8.1.7 opportunistic diseases like TB and cytomegalovirus can result in prolonged fevers.

On closer inspection of the data shown in Table 3 it is noted that cough was the symptom that had been most accurately classified. The probable explanation for this

phenomenon could be two-fold. The first explanation is that in many instances, cough was the presenting problem and for this reason cough was assessed and classified. The second explanation could be that the position of cough within the algorithm was first, and hence possible emphasis had been placed on it. These two reasons may account for the high percentage of nurses assessing and classifying for the symptom of cough.

Despite most IMCI nurses being correct in their classification of the main symptom of cough, only 45.8% asked the question about the cough that would allow entry into the HIV algorithm. In view of the opportunistic diseases that affect the respiratory tract of HIV infected children such as acute respiratory infections (Section 2.8.1.2), PCP (Section 2.1.8.5), TB (Section 2.8.1.3) and cytomegalovirus (Section 2.8.1.7), it must be assumed that HIV and its opportunistic diseases are often missed in children.

According to Table 3 the presence of diarrhoea was actively sought in only 70.8% of observations. Although the researcher concedes that most mothers would tell the nurse if the child had diarrhoea, it is important to remember that Schmidt and Crespo-Fierro (1995) have observed that opportunistic diseases rarely occur singly and often multiple body systems are affected by different organisms, as mentioned in Section 2.8.1. For this reason, nurses must overtly question the mother regarding all the main symptoms as required when applying an integrated approach to child health. Diarrhoea is situated in the second position of the IMCI algorithm and it is interesting to note that the assessment for this symptom was performed second best. Whether there is any likelihood that the position of a particular symptom within the IMCI

algorithm has any correlations with how well nurses apply the symptom is debatable. However, it is noted.

The questions leading to an entry into the HIV algorithm for diarrhoea and persistent diarrhoea was only actively sought in 56.9% of observations. As pointed out in Section 2.8.5, diarrhoea is a common condition in children. In the case of HIV infected children, as a result of their weakened immune system (Section 2.2.1) these children are more prone to diarrhoea and the HIV question that will give entry into the HIV algorithm deals specifically with recurrent episodes of diarrhoea. One of the consequences of diarrhoea for all children is dehydration and according to Table 2 most nurses are able to accurately classify for dehydration and therefore manage the dehydration. A further complication of diarrhoea and persistent diarrhoea is a loss of weight in the child. As the nutritional status of the child is not only affected by the HIV but is also associated with survival of patients with HIV (Section 2.8.2) it is imperative that all IMCI nurses intervene early to prevent diarrhoea leading to nutritional problems.

Table 3 indicates that only 61.1% of participants actively questioned about the presence of fever. Once again it is noted that this portion of the algorithm appears in the third position on the algorithm. Table 3 reveals that when assessing and classifying for the presence of fever, nurses performed this function third best when compared to other symptoms. As stated previously, whether this signifies anything is questionable. The presence of fever can be classed as a subjective symptom (i.e. the mother telling you that fever has been present) as well as an objective symptom (i.e. fever being present at the time of consultation). Both are equally important and

during the use of the algorithm the nurse is required to check both. It is therefore concerning that nurses are not using this important sign while assessing and classifying sick children. As mentioned in Section 4.2.1, when nurses disregard this sign they lose the opportunity to provide a high quality of care to sick children.

Ear problems were only actively sought by 58.6% of the participants in the sample, with 56.7% seeking entry to the HIV algorithm. This low percentage, in the view of the researcher, was due partly to it not being the presenting symptom and partly to ear problems being the last of the main symptoms on the generic IMCI algorithm. It should be remembered that as a result of the weakened immune system, children with HIV are susceptible to all organisms and need to be actively treated when infections are present. As mentioned in Section 2.8.1, many infections occur concurrently. If a child has a chronic ear infection as well as a cough, the mother may only complain of the cough. Should the IMCI nurse not ask about the ear problems, it could be missed. A chronic ear infection automatically allows entry to the HIV algorithm.

While Table 2 reveals that 58.3% of participants correctly classified for malnutrition, only 40.3% of participants used this classification as an entry point into the HIV algorithm (Table 3). The findings regarding the poor use of nutrition as a way into the HIV algorithm confirms the findings in Table 2 regarding the assessment of the nutritional status in children. Once again, the importance of the nutritional status in relation to HIV disease cannot be overemphasized (Section 2.8.2).

The operational definition of the HIV algorithm includes all the questions relating to the main symptoms that will lead the nurse to use the HIV portion of the algorithm.

In the HIV portion of the algorithm all these questions are repeated. In order for the IMCI nurse to make the classification of 'symptomatic of HIV infection' there must be at least 3 positive responses to the questions and signs. Should the nurse not have asked the questions that lead to an entry into the HIV portion of the algorithm the researcher has assumed that there was a possibility of an incorrect classification. With this in mind, an analysis of the actual HIV algorithm is depicted in Table 4.

Table 4. Classification and management of children who are symptomatic of HIV infection

N = 72 observations

	Correct %	Incorrect %	Possibly incorrect %	Total %	Correct n	Incorrect n	Possibly incorrect n	Total n
Classification of 'symptomatic of HIV infection'	6.9	6.9	86.1	100	5	5	62	72
Management of 'symptomatic of HIV infection'	6.9	5.6	87.5	100	5	4	63	72

To fully understand Table 4 it must be noted that five IMCI nurses correctly classified for symptomatic HIV infection. In all these cases, the IMCI nurse also managed the child appropriately. Five IMCI nurses were incorrect in their classification for 'symptomatic HIV infection'. It could be assumed that if they were incorrect in their classification, they would also be incorrect in their management. What in fact occurred was that the child had previously been diagnosed as symptomatic of HIV infection and at this consultation the classification was not restated and for this reason was considered incorrect. However, the IMCI nurse did manage the patient appropriately with growth monitoring, nutritional interventions, chemoprophylaxis against opportunitistic diseases and suitable antibiotic for the presenting infection.

Nevertheless, the large percentage of 'possibly incorrect' observations needs to be clarified. If the IMCI nurse did not ask the questions about the main symptoms, it was assumed that there was a possibility that the question that leads to an entry into the HIV algorithm would have been missed. In view of this, the researcher proposes that many children who are symptomatic of HIV infection could be missed.

The second objective for the study was to assess the extent to which IMCI nurses were using the HIV portion of the IMCI algorithm to guide decisions regarding the management of sick children. Table 4 suggests that if IMCI nurses correctly apply the HIV algorithm, they then use this information to manage these children appropriately. However, as a result of not using the questions that indicate that children could be symptomatic of HIV infection, the researcher concludes that the HIV portion of the algorithm is not being used to guide decisions about the management of sick children.

As the accuracy with which IMCI nurse applied the algorithm was the first objective of the study, the researcher attempted to quantify accuracy. However, it must be noted that this could well be a subjective grading and therefore be questioned. Despite these perceived limitations, the researcher felt it would be valuable to use it to investigate possible relationships with other variables.

In order to determine the accuracy of the case management skills of the IMCI nurses, each nurse was allocated points for correct or incorrect assessment using both the IMCI and the HIV algorithms. One point was allocated for an incorrect assessment, two points for a correct assessment. The data obtained from the two checklists were

scored slightly differently. In Checklist No. 1 points were allocated with one point for an incorrect classification and two points for a correct classification. In Checklist No. 2 the dimension of the possibility of being incorrect provided a third category. For this reason, one point was allocated for incorrect, two points for possibly incorrect and three points for correct. These points were then added and an accuracy score determined. The sum (points allocated for accuracy added together) of the accuracy scores were then placed into five categories with the poorest performance between 17 and 20 points categorized as 1 and the best performance in terms of accuracy between 33 and 36 points categorized as 5. A cross tabulation and chi-square test was applied between accuracy, as determined above, and regions. Table 5 indicates the results of the cross tabulations specifically for Checklist No. 2 and regions. The cross tabulations and chi-square for Checklist No. 1 were comparable and therefore these were not included in this report.

Table 5. Cross tabulation between accuracy and regions

HIV accuracy category		Region A	Region B	Total
1	Count	10	15	25
	Expected Count	11.1	13.9	25.0
	% within HIV category	40.0%	60.0%	100.0%
	% within Region	31.3%	37.5%	34.7%
	Total	13.9%	20.8%	34.7%
2	Count	3	2	5
	Expected Count	2.2	2.8	5.0
	% within HIV category	60.0%	40.0%	100.0%
	% within Region	9.4%	5.0%	6.9%
	Total	4.2%	2.8%	6.9%
3	Count	2	9	11
	Expected Count	4.9	6.1	11.0
	% within HIV category	18.2%	81.8%	100.0%
	% within Region	6.3%	22.5%	15.3%
	Total	2.8%	12.5%	15.3%
4	Count	14	8	22
	Expected Count	9.8	12.2	22.0
	% within HIV category	63.6%	36.4%	100.0%
	% within Regions	43.8%	20.0%	30.6%
	Total	19.4%	11.1%	30.6%
5	Count	3	6	9
	Expected Count	4.0	5.0	9.0
	% within HIV category	33.3%	66.7%	100.0%
	% within Region	9.4%	15.0%	12.5%
	Total	4.2%	8.3%	12.5%
Total	Count	32	40	72
	Expected Count	32.0	40.0	72.0
	% within HIV category	44.4%	55.6%	100.0%
	% within Region	100%	100.0%	100.0%
	Total	44.4%	55.6%	100.0%

The chi-square did not reveal any significant relatedness or independence between the regions and accuracy. The researcher is not surprised by this as the cross tabulations did not reveal any particular region being more accurate than the other. Both regions performed poorly in terms of accuracy with Region B more inaccurate at 60.0% at level one (the poorest performance). However, it must be noted that neither region performed well as 34.7% of the sample observations were in this category. This table indicates that 22.5% of the Region B observations were performed at level three of

accuracy, while Region A only performed 6.3% of observations at this level of accuracy. At level four of accuracy, Region A reversed this trend with 43.8% of observations at this level of accuracy and Region B only 20.0% of observations. If one considers that level 4 and 5 represents better performance in terms of accuracy, the Region A must be considered more accurate as 53.2% (43.8% + 9.4%) of observations were performed at this level. In contrast, Region B only had 35.0% (20.0% + 15.0%) accuracy at levels 4 and 5. As there is no major disparity of accuracy between these two regions, the researcher suggests that this picture is probably typical of the practice in all the clinics indicating that the sample selected was representative of IMCI nurses in KwaZulu Natal.

4.3 ANALYSIS OF PHASE TWO - THE IN-DEPTH INTERVIEWS

The third objective was to determine what factors influence the use of the HIV portion of the algorithm. To answer this question, in-depth interviews were undertaken with both the IMCI nurses who had participated in the first phase as well as other IMCI nurses who had agreed to be interviewed (Section 3.8.5). A structured interview guide was used which consisted of both open and closed questions. There was no time limit to the length of the interview and all IMCI nurses were assured of confidentiality.

A total of 13 in-depth interviews were carried out with 13 IMCI trained nurses in two districts in KwaZulu Natal. Eight IMCI nurses from District A and five IMCI nurses from District B participated in the in-depth interviews. The completed in-depth interviews were coded according to a codebook, which was developed by the researcher (Appendix 24).

Analysis of this data was undertaken using the Statistical Package for Social Sciences (Version 9). Descriptive statistical analysis was carried out. In addition, some inferential statistical analyses in the form of cross tabulations were conducted. Possible relationships were examined in many variables, but due to the lengthy interview guide, only those found to be significant are reported.

In view of the fact that HIV / AIDS is such a broad and extensive area of research, is was not possible to investigate all that aspect and their relationships in depth. However, the researcher has attempted to include the more important analyses, links and relationships, as they pertain to this particular study.

4.3.1 DATA FROM EACH QUESTION IN THE IN-DEPTH INTERVIEW

In this section, data obtained from each question asked in the in-depth interviews is displayed and discussed. Relevant links with the literature review, which support statements made about the results, will be given.

Question 1. For how long have you been a registered nurse?

IMCI nurses were asked to give the actual number of years.

N=13

Mean = 12.76 years

Longest trained person interviewed = 28 years

Shortest trained person interviewed = 0 years

This question was included in an attempt to determine whether length of registration (overtly) and age (implicitly) in any way influenced IMCI nurses level of knowledge. As mentioned in Section 2.6.3, the first cases of AIDS were identified in the early 1980's. If the nurse had trained before this time, it could be assumed that the level of knowledge regarding this condition might be poor. A cross tabulation with level of knowledge was conducted and is discussed under Question 24.

Although the average length of work experience was 12.76 years, it was concerning to note that one participant in the study had only midwifery training and no general training. While the general training of nurses does provide some skills to work within clinic settings, the midwifery training only provides skills pertaining to ante natal, labor and post-natal care. During the interview, although not specifically as a requirement of this study, the researcher questioned this nurse about the duties she undertakes daily. She revealed that she performs health assessment, diagnosis and provides treatment and care to all patients who come to the clinic. Consequently, the researcher must conclude, that this nurse is undertaking these functions without the formal training to do so.

Table 6. Frequency tabulations for nurses' education and training

N = 13

Item	No. of responses (n)	%
General training		
< 5 years	4	30.8
6–10 years	2	15.4
11-15 years	2	15.4
16-20 years	1	7.7
> 21 years	4	30.8
Total	13	100
Primary Health Care (medical) training		
Yes	3	23.1
No	10	76.9
Total	13	100
IMCI training		
< 6 months ago	1	7.7
7 months – 12 months	3	23.1
13 months – 18 months	2	15.4
> 19 months ago	7	53.8
Total	13	100

Question 2. Have you received any primary health care training (other than IMCI)?

N = 13

Primary health care is a philosophy that encompasses a comprehensive, holistic approach to the manner in which health care is provided. However, in South Africa 'primary health care training' is commonly used to denote primary medical care training which involves the assessment, diagnosis and management of common conditions. The question was worded thus since the researcher wanted to know how many nurses had formal primary medical care training on which to base their practice.

While the researcher acknowledges that IMCI training is taught to health workers with very little other medical or nursing training elsewhere in the world (as alluded to

in Section 1.1), it is the researcher's conviction that prior knowledge and training provides a base on which to build the skills and interpretive values that are needed to apply the IMCI algorithm effectively. Nurses in KwaZulu Natal have undergone education in order to register with the South African Nursing Council (Section 2.10). However, the training provided may not fully prepare nurses to work in primary health clinics. It is important that all nurses working in primary health care clinics undergo specific training in health assessment, treatment and care of patients in all age groups so as to equip them to function safely within the clinic settings.

Only 23.1% of nurses who participated in the study had any previous primary health (medical) care training of any sort. Although this could perhaps explain the results seen in the observation phase, it does not excuse the poor results seen. In addition, the IMCI training has been show to be effective in preparing nurses to use this approach in other countries (Section 1.5).

Question 3. If yes, what training?

n = 3

This question was included in a genuine attempt to determine what training and skills are found amongst nurses in the clinics. The 23.1% of nurses had all undergone various short courses in primary health care nurses. The actual number of nurses who had undergone primary health care training was three, indicating, in the view of the researcher, a great need to adequately train and equip nurses to function in primary health care setting. The three nurses who had previous primary health care training

had been trained on short courses that are not listed or registered with the South African Nursing Council.

Question 4. How long ago did you do your IMCI training?

N = 13

The clinical ability of IMCI nurses who participated in the study was estimated by evaluating how long ago they had received the IMCI training. The researcher thought that once IMCI nurses had been given the skills and knowledge embedded within the IMCI training, these nurses would develop into skilled practitioners with experience. Table 6 indicates that the majority of nurses had more than 19 months in which to refine and develop their skills in the case management of sick children. On the other hand, the researcher concedes that their practice could slip if not using the IMCI approach regularly and correctly. In addition, while nurses may wish to apply the IMCI approach to the management of sick children, it is important to note that the environment in which this approach is applied needs to be conducive to the approach. Should management not be committed to the approach, the IMCI nurse may not be successful in implementing the use of IMCI to the management of sick children.

Given the average length of time since registration of 12.76 (Question 1) and the length of time since acquiring the skills to apply the IMCI approach, in the researcher's view the IMCI nurses within this study should have been able to perform with a greater degree of accuracy.

Question 5. Do you use the IMCI approach when consulting with children?

N = 13

This question was included to determine whether IMCI nurses were actually using the IMCI approach when they returned to their own clinics following the IMCI training. Choices were given to the respondents in order to establish whether the approach was used consistently. The study indicated that the majority (84.6%) of nurses always uses the IMCI approach while 15.4% of nurses admitted to only sometimes using the approach. There were no nurses who said they did not use the IMCI approach. This implies a high commitment to the use of the IMCI approach to the management of sick children. However the researcher questions the validity of these results as discussed in conjunction with questions nine and ten.

Table 7 Frequency tabulations for practice

N = 13

Item	No. of responses (n)	%
Use IMCI approach when consulting with sick children		
Always	11	84.6
Sometimes	2	15.4
Never	0	0
Total	13	100
Visited by IMCI Supervisor		
Yes	11	84.2
No	2	15.4
Total	13	100
Number of visits		
0	3	23.1
1	5	38.5
2	2	15.3
3 or more	3	23.1
Total	13	100

Question 6. If not always, explain.

n = 2

The nurses who admitted to only using the IMCI approach sometimes said that if a child was brought to the clinic with a minor complaint, that complaint was dealt with and then the child was sent home. The minor complaints that were addressed in this manner were usually skin conditions such as impetigo. This practice parallels the practice of nurses prior to the introduction of the IMCI approach and fails to recognize the importance of the holistic approach to the management of sick children (Section 1.1). In addition, by using this approach to the management of sick children, the nurses will miss key indicators which alert the nurse to HIV infection and in doing so, contribute to the morbidity associated with HIV. It also fails to recognize that skin conditions can occur in HIV positive children as mentioned in Section 2.8.6.1. It is the experience of the researcher that many children, who present with recurrent skin conditions despite adequate treatment, usually have some underlying immune deficiency, which in today's pandemic is usually associated with AIDS.

Question 7. Have you been evaluated by an IMCI supervisor/facilitator since you have completed the course?

N = 13

Supervision of the IMCI nurse should take place on at least one occasion following the IMCI training. The IMCI course facilitator (Section 1.7) undertakes this supervision. By the creation of the cascading method of training (Section 2.9.2) it was hoped that supervision would take place regularly within the regions. Clinic managers and supervisors were trained to offer the IMCI courses (Section 2.9.2) and therefore carry out the functions of IMCI supervisors ensuring a high standard of skill and knowledge when applying the IMCI approach. However, supervision does not

merely imply observation. As discussed in Section 2.11.2 supervision has many functions. Bartle (2000) has stated that a clear understanding of what supervision is needs to be determined. Heath and Freshwater (2000) have identified negative connotations to supervision that the researcher understands in the light of feelings of vulnerability associated with supervision by persons attached to management structures, who may have the ability to prevent promotion or remuneration following poor supervision. The valuable role of supervision, which incorporates the formative function of education and skill development, the normative function of quality control and the restorative function of support of staff, cannot be overemphasized. It was with this in mind that question 7 was posed. Was supervision taking place, and if so, how often?

An analysis of the data confirmed that an IMCI Supervisor, following the IMCI training had visited 84.6% of IMCI nurses within this study. In view of the poor performance of IMCI nurses as determined in Phase One of the study, the researcher must question the nature of the supervisory visit. Seemingly, the visit did not have the desired outcomes of skills development and quality control, as mentioned above.

The researcher is aware of a training programme for supervisors that has recently been introduced in KwaZulu Natal. The researcher does not know the content of this programme but it is hoped that the aspects discussed above are highlighted and re-enforced. Whether IMCI supervisors are included in this training is also questionable but the researcher assumes that as these supervisors form part of the management structure in KwaZulu Natal, they are indeed included in this training.

Constructive supervision is vital to ensure that skills do not deteriorate over time. These supervisory visits form an essential part of maintaining a high standard of care, not only in the IMCI approach but also to all nursing practice. In the context of this study, supervisory visits have occurred although there is no evidence of the nature of the supervisory visit. This is one area that needs to be monitored and assessed.

Question 8. If yes, how many times?

N = 13

The researcher included this question in order to establish whether the visit from the IMCI supervisors continued over time. From Table 6 it is evident that 53.8% of nurses had undergone training more than 19 months ago. Although as argued above, this could have both a detrimental effect (slipping over time) and a positive effect (more experienced) the researcher thinks that appropriate on-going supervision of IMCI nurses might aid in the provision of a high quality of care to sick children.

The researcher found that 38.5% of nurses in the sample had only had one supervisory visit, while 15.3% had two visits and 23.1% had three visits. The IMCI supervisor responsible for following training had not yet visited 23.1% of IMCI nurses in the sample and one of these had initially thought that the study was in fact the supervisory visit. The researcher was surprised by the 23.1% of nurses who had received either 3 or more supervisory visits as this does appear to relate to the accuracy with which the IMCI algorithm is applied. Once again, the nature of the supervisory visit must be questioned as discussed above. The researcher would have liked to test for a relationship or link between accuracy and supervisory visits. However, as a result of increasing the sample of nurses interviewed from eight to thirteen for the in-depth

interviews, this was not possible. Five of the nurses had not been evaluated for the accuracy with which they used the algorithm.

Question 9. How many patients, on average, do you see every day in your clinic?

N = 13

These two questions were included to determine the workload of IMCI nurses on a daily basis in response to the possibility of burnout of the nurses working in the primary health care clinics (Section 2.11.3). Nurses working in primary health clinics in KwaZulu Natal consult with a variety of patients during the day. Some clinics have arranged their work schedules to allow for one nurse to consult with the sick children while others attend to adult patients. Other clinics integrate their patients and will attend to the next patient in the queue. When these questions were asked during the in-depth interview, the researcher asked the IMCI nurses to separate pediatric patients from adult patients. For this reason, it is not necessary to add the number of adult patients with the number of pediatric patients. The data obtained from these questions are portrayed below in the following tables and then discussed.

Table 8. IMCI nurses' perceptions of number of adult patients consulted with daily.

N = 13

Number of Adult Patients	Actual Respondents (n)	Percentage of Respondents
< 30 patients	0	0%
31 - 40 patients	3	23.1%
41 – 50 patients	1	7.7%
> 51 patients	9	69.2%
Total	13	100%

Question 10. How many pediatric patients, on average, do you see every day in your clinic?

N = 13

Table 9 IMCI nurses perception of number of pediatric clients consulted daily

N = 13

Number of Pediatric Patients	Actual Respondents (n)	Percentage of Respondents
< 10 patients	1	7.7%
11 – 20 patients	2	15.4%
21 – 30 patients	2	15.4%
> 31 patients	8	61.5%
Total	13	100%

Although the IMCI nurses have reported a daily heavy caseload, it must be noted that the accuracy of their perceptions was not checked against the clinic records. Only 2 nurses checked the register in which they record their patients, when answering this question. The remaining nurses merely gave an estimation of what they perceived their own workload to be. The researcher questions whether these figures are accurate in view of some of the incidents that occurred during the data collection phase of the study. Each IMCI nurse was asked whether they used the IMCI approach when consulting with sick children (Question 5). They were given 3 choices when replying to this question, namely that they never used the approach, that they sometimes used the approach or that they always used the approach when consulting with sick children. As discussed under Question 5, only 15.4% of respondents indicated that they sometimes used the approach, while 84.6% said they always used the approach. There were no participants who admitted to never using the approach. During the first phase of the study the evaluation of the IMCI nurses who were examining the sick

children took between 45 minutes and one hour for each sick child. As the day progressed, if the nurses had taken time for tea or lunch, they seemed to speed up marginally, possibly due to increased blood sugar levels that food provides and improved concentration following a short break. Two inconsistencies stem from this. The first is that if the IMCI nurses who were evaluated were using the IMCI approach all the time, they would have developed the skills and accuracy with which to use the approach and therefore, in the experience of the researcher, each consultation with the sick child would take approximately 30 minutes. The other inconsistency is that if one consultation with a sick child took approximately 45 minutes, in an eight-hour day the IMCI nurse would only be able to undertake 10 consultations. This would not include time for tea breaks and lunch breaks. In view of these inconsistencies, the researcher must conclude that the perception of the workload undertaken by IMCI nurses does not seem to relate to the actual workload. Whilst this perception of the workload may not match with the actual workload, it is noted and possibly needs further investigation. The impression gained by the researcher was that many clinics were very busy and there seemed to be a limited number of nurses to attend to the patients possibly corroborating the estimated workloads.

Question 11. Have you previously had to tell a mother that her child may possibly be symptomatic of HIV infection?

N = 13

From the data analysis it is noted that 69.2% of participants (Table 10) had on some previous occasion discussed with the mother, the possibility that her child may be symptomatic of HIV infection. In one way this corroborates the perception of the

high prevalence of HIV infection among children in KwaZulu Natal as discussed in Chapter One. However, when considering this, in the light of this study, the researcher is surprised that so many nurses had identified children who are symptomatic of HIV infection, given the poor performance of nurses in the study with regards to the use of the HIV algorithm. The measures that were used by the IMCI nurses in order to make the classification of symptomatic HIV infection were not accurately demonstrated in the observation phase and the researcher is concerned that perhaps some of these children may not have been correctly classified.

Table 10. Frequency tabulations about HIV

N = 13

Item	No. of responses (n)	%
Told mothers about HIV		
Yes	9	69.2
No	4	30.8
	13	100
Not told mothers about HIV		
Yes	7	53.8
No	6	46.2
Total	13	100
Do mothers want to know about HIV		
Yes	8	61.5
No	5	38.8
Total	13	100
Do mothers suspect HIV		
Yes	10	76.9
No	3	23.1
Total	13	100
Do mothers link HIV in children with HIV in mothers		
Yes	12	92.3
No	1	7.7
Total	13	100

Question 12. If yes, what was the mother's reaction to this?

n = 8 (1 nurse did not answer this question)

This question was included in response to nurses being fearful of an adverse response by the mother on hearing that her child may be HIV infected as discussed in the motivation for the study (Section 1.6). In addition, the reaction to the HIV test has, in the past, been an issue of concern to some authors (Section 2.6.1). In this study, IMCI nurses gave the following descriptions of some mothers' reactions:

- very cross with me;
- did not want to accept it;
- just kept quiet, did not talk;
- did not want to accept it; and,
- 'she was fine, it seemed as if she knew already'.

Question 13. How did you feel about telling the mother that her child may possibly be symptomatic of HIV infection?

n = 8 (1 nurse as above did not answer this question)

As discussed in the motivation for the study (Section 1.6) one of the concerns voiced to the researcher was that generally nurses were worried about the mothers' reactions to being told that their child may be HIV positive. They felt that they did not have the skills to deal with the mothers' distress. For this reason, this question was included.

When answering this question, the nurses in the study expressed difficulty while discussing the possibility of the child being HIV positive. Others expressed sadness and shock. One IMCI nurse said she had been frightened at first but as she spoke to the mother, this fear receded. Only one participant in this study felt comfortable

talking to mothers regarding the possibility that their child may be HIV positive. She said "I feel free to talk to mothers about this. I don't have a problem".

Although the number of participants in the in-depth interviews were small (13), talking to mothers about HIV in their children does seem to be a problem and the researcher assumes that other nurses have similar fears. Perhaps this aspect needs to be more emphasized in the training of both general nurses and IMCI nurses.

Question 14. Has there been a time that you should have spoken to a mother about the possibility of her child being symptomatic of HIV infection and did not?

N = 13

Question 11 indicates that 69.2% of participants had previously spoken to mothers about the possibility of their child being HIV positive. By including Questions 14 and 15, the researcher wanted to find out whether there were times that they should have spoken but did not, and if so, why they did not. The results from Question 14 revealed that 53.8% of nurses had, on some previous occasion, suspected that that a child might be symptomatic of HIV infection and not spoken to the mother. This is a significant number as by not talking to the mother, the researcher questions how these sick children are managed. This could possibly answer the second objective of the study, which was to evaluate the extent to which the HIV portion of the algorithm was guiding management decisions regarding sick children. It appears that the HIV portion of the algorithm is often not used to guide decisions regarding the management of sick children, i.e. 53.8% admitting to not using it. In addition, it is

the researcher's belief that nurses may not have the knowledge of the amount of good they can do for children who are HIV positive (Section 2.8). If they did have the knowledge, they would surely manage these children more effectively.

Question 15. If yes, why did you not talk to the mother about the possibility of her child being symptomatic of HIV infection?

n = 7

Some of the reasons given for not discussing the possibility of being HIV positive were:

- "I thought perhaps she knows .. Maybe she is expecting these questions ..";
- "what would I want if this was my child";
- "told the mother that more investigations were needed and just referred the child";
- "just shifted the responsibility to the doctor, the child needed to be referred anyway";
- "I was frightened to tell the mother"; and,
- "the mother was not symptomatic of HIV infection and I thought she would just deny it anyway".

One could argue that by referring the child, the management in terms of the HIV would be addressed at the next level of health care. For this reason, the extent to which the HIV portion was being used to guide management decisions was not as bad as was originally thought. However, although not specifically required in the in-depth interview guide, the researcher asked what reason was given to the mother for

the referral. The nurses told the mothers that further tests were necessary but did not say which tests, and certainly did not prepare the mother in any way for pre and post-test counseling. Pre and post-test counseling is an essential component of HIV testing and needs to be undertaken (Section 2.5). Nurses need to have the skill to undertake pre and post-test counseling. The researcher is aware that these skills may not have been fully developed and are presently being developed in the KwaZulu Natal region. However, all nurses counsel for other conditions in their normal practice and should have at least developed some skills with which to prepare mothers adequately for referrals, if not for HIV testing.

Question 16. Do you think mothers want to know if their children are possibly symptomatic of HIV infection?

N = 13

During the motivation for the study, the researchers students had said that they thought mothers did not want to know if their children were HIV positive. The study participants did not share these perceptions. Of the 13 participants in the study, 61.5% felt that mothers would like to know the HIV status of their children, while 38.5% felt that mothers did not want to know. The researcher is perplexed regarding the participants' perceptions with regard to this point. If the participants really felt that the mothers wanted to know the HIV status of their children, why then did 53.8% of respondents fail to communicate this to mothers when there was some indication that the sick child could be symptomatic of HIV infection?

Question 17. Explain.

n = 11 (2 nurses did not answer this question)

In response to a request for an explanation, the IMCI nurses said that some mothers appeared to want to know what was wrong with their child and 'worried about the child' accounted for three of the responses. Other mothers appeared to be expecting it as the child had been ill for some time and one mother had asked "is it 'that' disease?" The responses that portrayed the perception that mothers did not want to know if their children were HIV positive were that even when you do tell them, some mothers deny it, especially if she (the mother) is still healthy. Others felt that as a result of the stigma the mothers were afraid to know whether their child was HIV positive.

Question 18. Do you think mothers may suspect that their children may be HIV positive?

N = 13

Question 19. Explain

n = 9 (4 nurses did not comment)

The general consensus of nurses within this study (76.9%) was that they believed that mothers had some suspicion about the possibility that their children might be HIV positive. This correlates loosely with the previous responses of nurses when they told of mothers asking whether their children had 'that' disease. Also if a child had been ill for some time, there was an increased level of suspicion. Occasionally a parent or

sibling had died with similar symptoms, which led them to believe the possibility of HIV infection. Some of this suspicion was attributed to the high level of advertising about the disease through the written media, radio and television.

Of those who said that mothers did not have a level of suspicion with regards to HIV, the responses were similar to those of Question 17, that even if you do tell them they don't believe you.

Question 20. Do you think that mothers who are told that their children are possibly symptomatic of HIV infection will conclude that they (the mothers) are HIV infected?

N = 13

The majority (92.3%) of participants felt that if the mother were told that her child was HIV infected, the mother would assume that she (the mother) was also HIV infected. It is the view of the researcher that once again, this knowledge could be attributed to media coverage as discussed above.

Question 21. How do you think the mothers will react to the knowledge that they (the mothers) were possibly HIV positive?

n = 11 (2 did not respond to this question)

The responses to this question surprised the researcher. The researcher assumed that the responses to this question would mirror the responses to the question about the

mothers' response to being told about her child possibly being HIV positive. The responses in this question were far more descriptive. They included the following:

- "they are ashamed";
- "they are fearful of dying";
- "some don't believe it and say they have been "thakathe" (bewitched)";
- "some worry about being excluded by their peer groups"; and,
- "some display great anger".

On the positive side, some nurses responded to this question by telling of mothers who made the link and then requested HIV testing for themselves.

Question 22. Will this reaction of the mothers be problematic to you?

n = 10 (1 nurse did not respond to this question)

Question 23. Explain.

n = 8

Of the ten participants who answered this question, eight said that the mothers' reaction posed a problem while two felt they could deal with it. Responses of the eight participants who were unable to deal with the mothers' reactions included some of the following:

- "when mothers deny that they could be HIV positive, I don't know what to do";
- "when they tell me their husbands won't use condoms, I don't know what to tell them";
- "they need a lot of education and I don't feel equipped to give it to them"; and,

- "if they deny it, it is difficult to get them to change their behavior".

These responses gave the researcher some insight into the lack of knowledge regarding HIV which became more evident in Questions 24, 25, 46, 47 and 48, and as such, answered the third objective of the study.

Question 24. What role do you think you (as a primary health care nurse) could play in the reduction in the mortality rate of children who are symptomatic of HIV infection?

N = 13

Question 25. What role do you think you (as a primary health care nurse) could play in the morbidity (amount of disease) associated with children who are symptomatic of HIV infection?

N = 13

In order to assess the participants' knowledge of the factors that contribute to the mortality and morbidity of children, who are HIV infected, these two open-ended questions were posed. As these were open-ended questions, the researcher did not prompt the participants in any way. This was deliberately done in order to establish the level of knowledge of interventions that could be effectively used to manage children with HIV infection, as nurses previously said there was nothing that could be done for children with HIV infection (Section 1.5). The literature review in Chapter Two (Section 2.8) was then used against which to measure the participants knowledge of interventions that have been known to work. In terms of this, the interventions use

against which to measure the participants' knowledge were the prevention of mother to child transmission, the early detection of opportunistic diseases, nutritional support and intervention, prophylaxis against diseases and health education. Each of these interventions will be discussed separately.

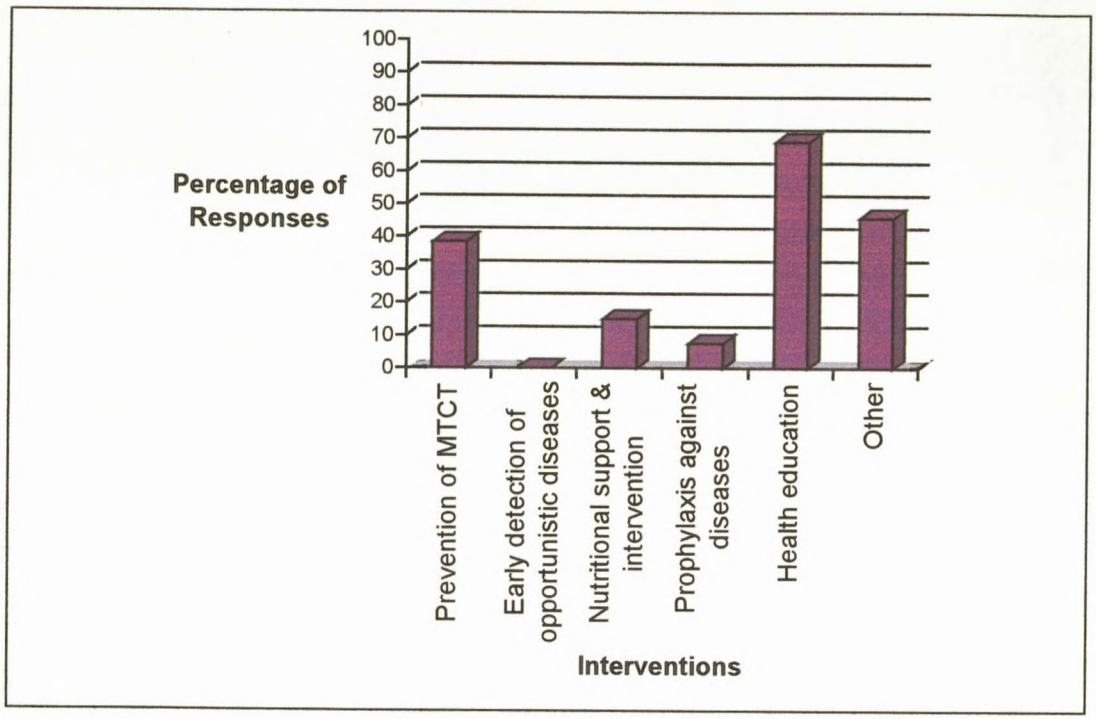

Figure 1. Knowledge of interventions to reduce the mortality of children with HIV infection.

In the view of the researcher, from Figure 1, it is evident that the majority of nurses in this study (69%), rely on health education to reduced the mortality of children who are HIV infected. The knowledge about the important role they play in their everyday practice of diagnosis and treatment of common complaints of adults and assessment, classification and treatment of young children is evidently not connected to the management of HIV. The researcher concedes that there is very little that IMCI nurses can do regarding the provision of medications for the prevention of mother to

child transmission of HIV. However, these nurses do have a role to play in educating mothers about exclusive breastfeeding practices which have been shown to be effective in reducing the likelihood of mother to child transmission (Section 2.7).

The early detection of opportunistic diseases were not mentioned at all and the researcher feels that not enough emphasis is given to this important aspect of managing HIV in children. As a result of the weakening of the immune system by the HIV, children who are infected with HIV are more likely to become infected by other opportunistic diseases. Many of these diseases occur simultaneously and may result in the child dying from one of these opportunistic diseases. (Section 2.8.) When applying the IMCI algorithm accurately numerous diseases can be identified and then treated (Appendix 1.) The researcher feels that because this important link between early detection of opportunistic diseases and the use of the IMCI algorithm is not emphasized, nurses are unaware of the important role that they play in managing this disease.

Although 15% of nurses in the sample spoke about the provision of food for these children to reduce the mortality associated with HIV, they tended to speak about food parcels and providing infant feeding formula for the feeding of the children. One nurse said that she had a role in providing regular Vitamin A and iron supplementation, clearly knowledgeable about the usefulness of this intervention. However, what was missing was the knowledge of the relation between malnutrition and survival rates. In addition, the cycle between malnutrition leading to poor immune function, leading to infections occurring leading to malnutrition appears not to be fully understood. (Section 2.8.2.) It is vital that all nurses are aware of the poor

prognosis associated with malnutrition and HIV and to take all possible steps to prevent this occurring.

Although Figure 1 indicates 7.6% of respondents mentioned the prevention of diseases, this prophylaxis was limited to the use of Co-Trimoxazole for the prevention of PCP pneumonia (Section 2.8.1.5). What was alarming was the lack of knowledge about the need for prevention against TB (Section 2.8.1.3) as no nurses who participated in the study mentioned prophylactic treatment of TB at any stage during the in-depth interviews. The research assistant confirmed this lack of knowledge. The research assistant reported that on two separate occasions during the observation phase of the study, a parent had been diagnosed with TB and the child had not been considered for prophylactic treatment. Given the strong link between TB and HIV it is highly likely that the parent could also have been HIV positive. The presence of TB in a parent is considered one of the signs and symptoms used to make the classification of 'symptomatic of HIV infection'. In view of the above, the researcher is disturbed by the lack of insight and knowledge about TB. Other conditions, namely diarrhoea, could be prevented, but there were no nurses among the sample who mentioned them.

While 69% of participants made reference to the provision of health education, many of the examples they gave did not convince the researcher that the health education would be effective. One nurse said she would provide education to mothers "to prevent husbands abusing their wives" while another said she would educate women to 'abstain'. Although these are very commendable socially, in the experience of the researcher, this form of health education does little to change the behavior of the

women who bring sick children to the clinic, as they do not address beliefs and attitudes. There seems little point in educating mothers about abusing husbands and often mothers often are not in the position to insist on abstinence. (Section 1.6.)

In Figure 1 the column representing 'other' was not measured against any set preconceived or known literature. This column represents the responses that were not included in the interventions previously identified. The responses included the 'telling' of mothers to have their children tested for HIV, the promotion of healthy lifestyles by abstaining from alcohol, sex and drugs, and the role they (the nurse) had as a 'role model'.

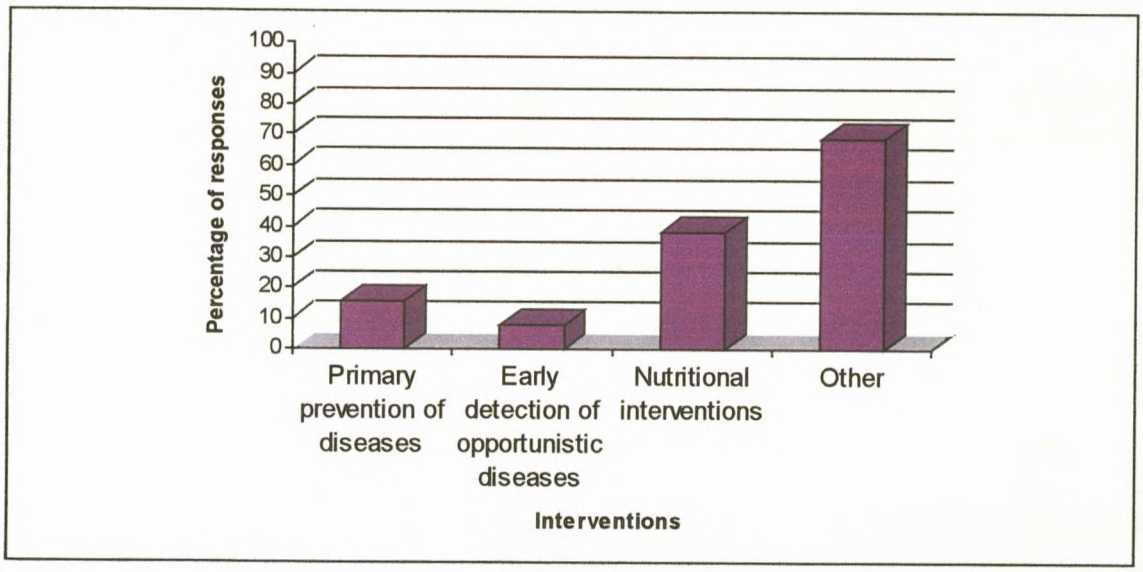

Figure 2. Knowledge of interventions to reduce the morbidity associated with HIV infection.

An examination of the role nurses felt they played in the reduction of the morbidity associated with HIV in children, seemed to indicate a slightly better understanding of their role in morbidity than of their role in mortality. This is depicted in Figure 2.

A comparison of the two figures shows the level of knowledge relating to morbidity to be marginally better than that of mortality. In Figure 2, 15.4% of respondents named the primary prevention of disease as a role they could play in reducing morbidity, while in Figure 1, only 7.6% mentioned it. While 7.6% of respondents mentioned the early detection of opportunistic diseases would have an influence on morbidity in Figure 2 there was no mention of this as depicted in Figure 1. Nutritional support and interventions were mentioned by 15% of respondents in relation to mortality and this level of knowledge increased to 38.5% in relation to morbidity. Although the researcher concedes these are not dramatic improvements, at this stage, they do represent some improvement and should be noted. Given the poor performance of IMCI nurses when assessing and classify the nutritional status of children (Phase One), the researcher is not surprised to find the poor knowledge of the importance of this intervention.

The 69% 'other', once again represents answers given that were not placed into specified categories. Some of the answers given for this include health education, the need to establish home gardens, giving children lots of love and ongoing tracking of children who are HIV positive.

Despite the slight improvement noted above, it is clear in general that the nurses in this study lacked the knowledge of interventions that reduce both mortality and morbidity associated with HIV infection. This would play a role in the nurses' perceptions of what they can do in clinics in order to manage children who are HIV infected as anticipated in the motivation for the study (Section 1.5). The researcher must also deduce that this lack of knowledge may be one of the factors that influences

the use of the HIV portion of the IMCI algorithm, which provides an answer to the third objective of the study.

A Pearson's chi-square test was conducted to see if there was any significant relationship between length of time since registration (experience) and knowledge (as evaluated using participants knowledge of intervention in order to reduce mortality). No relatedness was found. The Pearson's value was 1.733 with a significance of .785 which is above the alpha level of .05 indicating no significance.

Question 26. What strategies are available in your clinic to manage children who are symptomatic of HIV infection?

N = 13

Questions 26 and 30 are related and both deal with strategies for the management of children who are HIV infected. For the purpose of this study, a strategy is referred to as a plan or programme designed for a particular purpose and in terms of the above Question 26, the researcher wanted to know if nurses were aware of programmes that were available to manage HIV infection in children. Question 26 and Question 30 were deliberately separated in order to limit the influence that one had over the other. Question 26 was included to determine the level of knowledge about known strategies that have been implemented to manage HIV in clinics in KwaZulu Natal. It is argued by the researcher that nurses may well be managing children through these programmes or strategies, but do not realize they are doing so. Question 30 was included to find out if the respondents had knowledge of strategies that impact favorably on children with HIV infection.

An explanation of the results found in these two questions will be dealt with in this section. Nurses in the sample said there were a number of strategies available in the clinics. These included prevention of disease (immunizations) 48%, feeding programmes 53.8% and the regular monitoring of growth and development of children 15.4%. It must be noted at this stage, that should a nurse not have mentioned that a strategy was available in the clinic, did not mean that it was not actually available. It suggested that the nurse did not have knowledge that the strategy was connected to the management of HIV disease in children.

By the same token, if the nurse did not mention a particular programme or strategy to be introduced to the clinic (Question 30), it was assumed by the researcher, that the nurse did not know of the strategy. In the light of this, the researcher concludes that the strategy most commonly known to the sample in this study, is the introduction of feeding schemes and programmes for children and families with children who are HIV infected. The important role of growth monitoring in order to identify loss of weight and malnutrition in order to commence the feeding scheme, seems not to be considered. It is little wonder that nurses feel there is nothing they can do for children who are HIV infected (Section 1.5) They appear to have little knowledge of the effective management of HIV diseases.

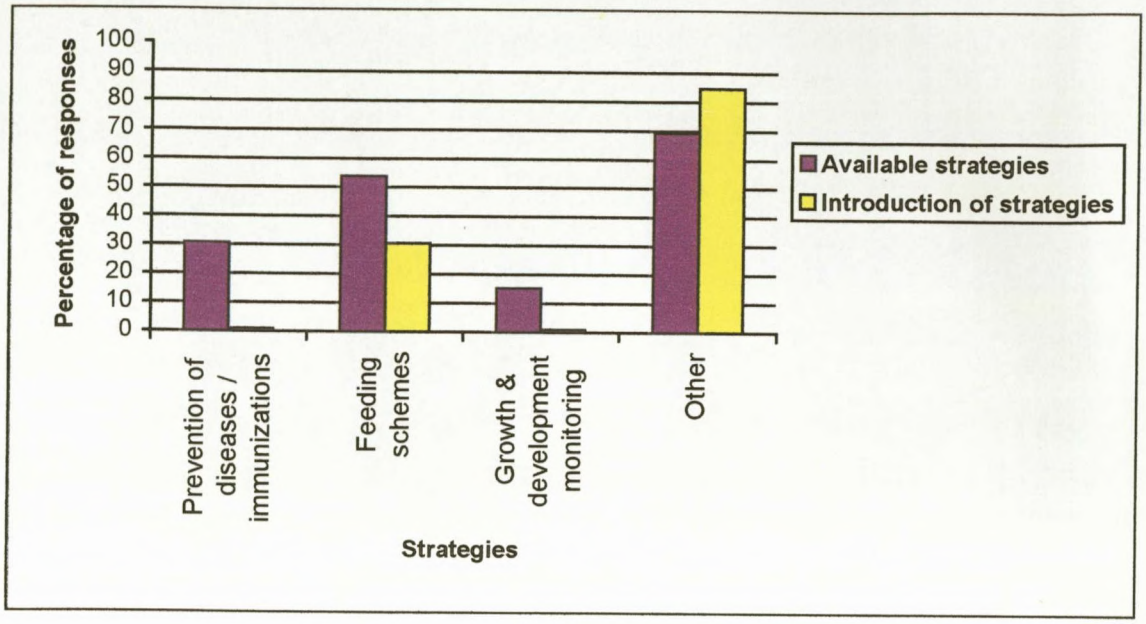

Figure 3. Strategies for the management of HIV infection

Question 27. What medications are available in your clinic to treat children who are symptomatic of HIV infection?

N = 13

This question was posed in response to the statements by nurses, prior to the study, saying that there was nothing that could be done for children who were HIV positive (Section 1.5) this question was posed. Question 27 was an attempt to determine if nurses knew what medications could be used to treat children with HIV and once again corroborate existing knowledge of known interventions. Further questions were asked to establish if the medications were available in the clinics (Question 61). The responses from these two questions were combined and it is in this light that Figure 4 must be viewed.

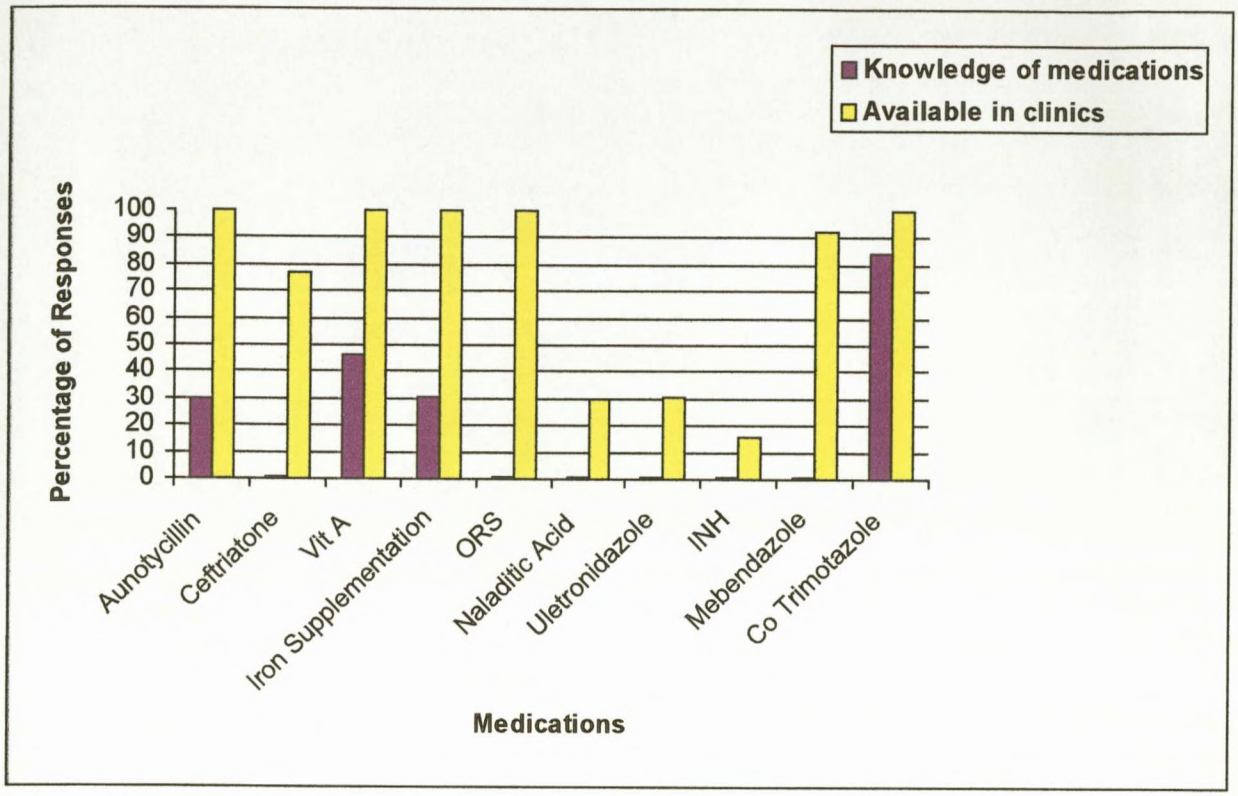

Figure 4. Knowledge of medications compared to medications available in clinics.

The medications used in this figure have been taken from the IMCI algorithm. Although they are used to treat children who are not HIV infected, they also play a large role in the management of children who are HIV infected by treatment of opportunistic diseases, nutritional interventions and prophylaxis against diseases.

When viewing Figure 4, it is important to note that the availability as depicted in this figure only indicates drugs that were 'always' available in the clinics. If for any reason, the drug had not been available, it was not included in the bar chart. Table 12 depicts the drugs that were not always available.

In viewing Figure 4 it is apparent that nurses in the sample do not have the background knowledge about HIV and its management, and possibly for this reason, are not effective in managing children who are symptomatic of HIV infection. Only 30.8% of respondents mentioned Amoxycillen while it was available in the clinics all (100%) of the time. Vitamin A was mentioned by 46.2% of respondents and was available 100% of the time. Iron supplementation was mentioned by 38.5% of the respondents and was also always available. The majority of nurses (84.6%) in the sample knew about Co-Trimoxazole which was always (100%) available in the clinics. Nurses did not mention Ceftriaxone for the use of serious disease (Appendix 1), oral rehydration solution for the treatment of diarrhoea and dehydration (Section 2.8.1 and 2.8.5), Naladixic Acid and Metronidazole for the treatment of diarrhoeal pathogens (Section 2.8.1 and 2.8.5), INH for the management and prevention of TB (Section 2.8.1.3) and Mebendazole for the treatment of intestinal parasites (Section 2.8.4).

Question 28. What support systems are available through your clinic for families of children who are symptomatic of HIV infection?

N = 13

This question was asked in an attempt to find out what was available to families affected by and infected with HIV. The answers that the respondents gave were not evaluated against set criteria drawn from the literature, as has been the case in the previous questions. During the analysis of the data, the responses were grouped and Figure 5 is a representation of the data.

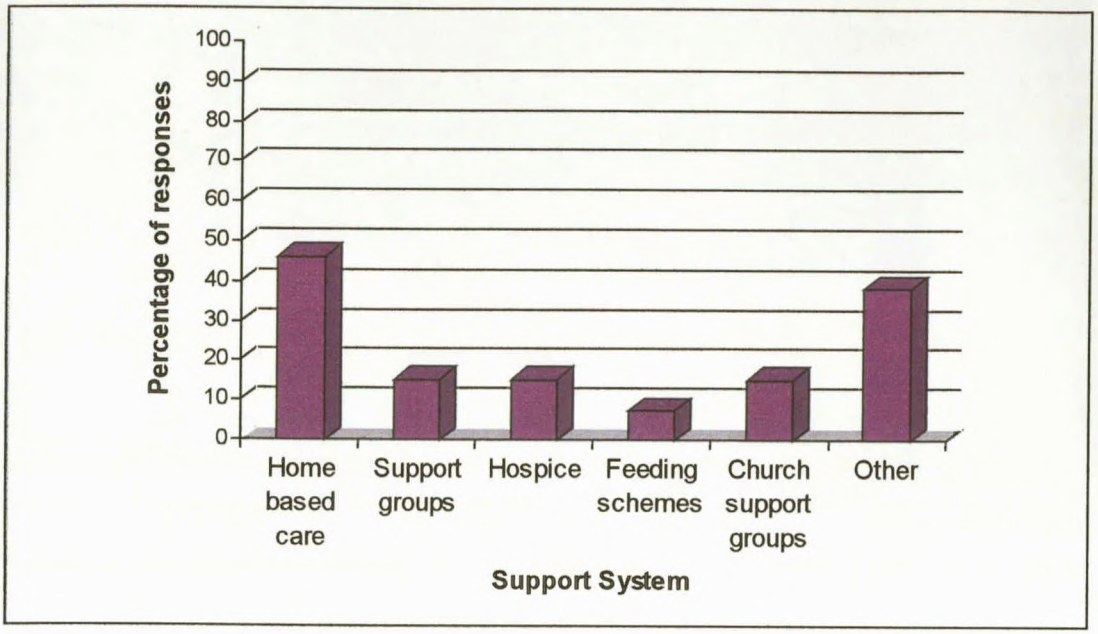

Figure 5. Support system available in clinics

Although home based care is available in approximately half (46.2%) of clinics, the home based care is not provided by the clinic nurses. From the discussions about home based care it was apparent that this support system was provided by community health workers. In some clinics there was interaction between the community health workers who provided the home based care, while other clinics had little knowledge of what type of support was provided. In one area, 'hospice' work was being undertaken and once again it was not clear what this consisted of. This hospice work appeared to be in addition to the work of the community health worker who provided the home based care, although as said, the actual support was not well known. The nurses said the community health workers visited regularly and helped the family to look after the sick person. It was encouraging to find that home based care had been introduced into approximately half of the communities (46.2%) but the researcher

acknowledges that more needs to be done in order to provide this support to all communities.

Support groups were only mentioned by 15.4% of respondents. Support groups have a large role to play in many areas of the management of patients with HIV, especially in view of the stigma attached to the disease (Section 2.6.3). This is also one area that nurses can play a role without the use of medications. From this small study, it is evident that in many areas, the establishment of support groups is not happening and innovative ways to address this should be sought.

Question 29. What social service grants are available to families of children who are symptomatic of HIV infection?

N = 13

Table 11. Frequency tabulations for HIV matters

N = 13

Item	No. of responses (n)	%
Knowledge of grants available		
Nil known	9	69.2
Available through Social Welfare Department	4	30.8
Total	13	100
Tell fathers about HIV in their children		
Yes	11	84.6
No	2	15.4
Total	13	100

In posing this question, the researcher wanted to assess the respondents knowledge of the grants available as well as to find out whether the respondent knew how to access that grant (Section 2.8.2). The majority of nurses (69.2%) in the sample did not

know of any grants that are available to assist families with HIV, while 30.8% knew that these grants could be accessed through the social workers. Only one respondent said she was aware of a single patient who had been successful in receiving money following the application for a grant. Although 30.8% knew about the grants, none (0%) knew how to access them. They all told of the difficulties due to a lack of social workers and the infrequent visits these social workers paid to the clinics. This money is needed for the purchasing of food for families with HIV thus preventing malnutrition (Section 2.8.2).

Question 30. What strategies do you think should be introduced into your clinic to manage children who are symptomatic of HIV infection?

N = 13

This question has been reported on in conjunction with Question 28.

Question 31. Do you think nurses should tell fathers that their children are possibly symptomatic of HIV infection?

N = 13

Question 32. Explain.

n = 13

As a result of the gender issues alluded to in Section 2.6.3, the researcher wanted to gauge the feeling of the nurses regarding telling fathers about HIV infection in their children as well as the openness of nurses to talk to males regarding HIV. The

responses were that 84.6% of nurses felt that fathers should be told that their children were HIV positive, while 15.4% said they should not be told. They also qualified their statement by saying that the telling of fathers about their HIV positive children would depend on whether the mother wanted the father told, whether the father could be found or even if there was evidence of paternity as some mothers did not know who the fathers were. Some nurses felt that mothers were too afraid to tell the fathers about HIV in their children and therefore it became the responsibility of the nurses.

The overall result of this question was somewhat surprising in the light of the previous data about not talking to mothers (Question 14). The responses to this question seems to suggest that nurses are more willing to talk to fathers than mothers and in the experience of the researcher this is not actually so. However, closer inspection of the results reveal that the nurses who are talking to the mothers about HIV are the ones who are advocating the fathers be told. The cross tabulation shows that 88.9% (8) of nurses who tell mothers about HIV in children, felt that fathers should be told if their children where symptomatic of HIV infection (Table 12). Interestingly, 27.3% (3) of those who said that fathers should be told are not telling mothers that their children could be symptomatic of HIV infection. Nevertheless, there does not seem to be a statistically significant relationship between these two variables because the chi-square indicated Pearson's value at .410 which is not significant at the .05 level of confidence, probably due to the small sample size.

Table 12. Cross tabulation between nurses that tell mothers about HIV in their children and nurses who think fathers should be told about HIV in their children

	Communicating to fathers		
Communicating to mother	Yes	No	Total
Yes - Count	8	1	9
% within communicating to mothers	88.8%	11.1%	100.0%
% within communicating to fathers	72.7%	50.0%	69.2%
% of total	61.5%	7.7%	69.2%
No - Count	3	1	4
% within communicating to mothers	75.0%	25.0%	100.0%
% within communicating to fathers	27.3%	50.0%	30.8%
% of total	23.1%	7.7%	30.8%
Total – Count	11	2	13
% within communicating to mothers	84.6%	15.4%	100.0%
% within communicating to fathers	100.0%	100.0%	100.0%
% of total	84.6%	15.4%	100.0%

Question 33. What role do you think you have (as a primary health care nurse) in reducing the stigma associated with being HIV positive?

N = 13

In the light of the stigma associated with HIV (Section 2.6.3), the researcher wanted to assess whether nurses firstly associated HIV with stigma and secondly how they thought of addressing the stigma. One respondent said she was not aware of any stigma while others spoke of openness in talking about HIV. Two respondents spoke of strict confidentiality and not writing HIV on clinic charts. In the experience of the researcher, when a child is classified as 'possibly symptomatic of HIV infection' the mother is told that this could be a possible classification and that it needed to be checked out. As mentioned by some respondents to Question 15, nurses do occasionally shift this responsibility to the doctor. In the view of the researcher, each

time a nurse displays fear or unwillingness to discuss HIV with patients, it sends wrong messages that perpetuates the secrecy and stigma associated with HIV infection.

Question 34. Has any person close to you personally been diagnosed with HIV infection?

N = 13

Question 35. If yes, how did you feel about it?

N = 13

These questions were included to gauge the extent to which nurses in the sample had been exposed to HIV out of the workplace, how they coped away from work dealing with this and some of the precautions that they took at home to prevent becoming infected with HIV.

Clearly, the majority (84.6%) of the nurses in the sample had some family member who had either been diagnosed with HIV infections or were symptomatic of HIV infection. When dealing with some of the feelings provoked by this they said:

- "I pity him a lot, but I cannot tell him to go for testing";
- "my heart is very sore .. I saw her dying";
- "I felt very bad .. I knew he was going to die";
- "I could not believe it, it was so bad"; and,
- "my sister had HIV and when her husband found out that he had infected her, he shot himself".

Only one nurse was able to draw on her training and said that initially she had been very shocked but later was able to comfort and support the rest of the family. However, it could also be argued that because of their emotional involvement, as mentioned above, it would be harder for the nurses to provide support and information to the family. The researcher feels that if nurses in this sample are unable provide education and support to their own families, they probably could not provide it for their patients.

Table 13. Frequency tabulations for issues relating to death and dying

N = 13

Item	No. of Responses (n)	%
Family member with HIV		
Yes	11	84.6
No	2	15.4
Total	13	100
Discuss death and dying at home		
Yes	11	84.6
No	2	15.4
Total	13	100
Discuss death and dying with patients		
Yes	3	23.1
No	10	76.9
Total	13	100
Worry about own death		
Yes	8	61.5
No	5	38.6
Total	13	100
Worry about becoming infected with HIV		
Yes	11	84.6
No	2	15.4
	13	
Total		100

Question 36. Do you ever discuss death and dying at home with your family?

N = 13

Question 37. Explain.

N = 13

Question 38. Do you ever discuss death and dying with your patients?

N = 13

Question 39. Explain.

N = 13

As discussed in Chapter Two (Section 2.6.2), nurses' attitudes to death and their own death anxiety play a role in open discussion of death. The above questions were asked in an attempt to determine if the nurses in the sample felt comfortable to talk about death either at home or at work. The responses for Questions 36 and 38 are combined in Figure 6 and show that although many nurses (84.6%) do discuss death at home, a possible indication of comfort with the subject, many nurses (76.9%) do not discuss death with patients.

A Pearson's chi-square test was conducted in an attempt to establish relatedness or independence between personal experience with HIV (Question 34) and nurses talking to clients about death and dying. The Pearson's value was .709 with the significance of .400 which is above the alpha level of .05 indicating no significance or relationship.

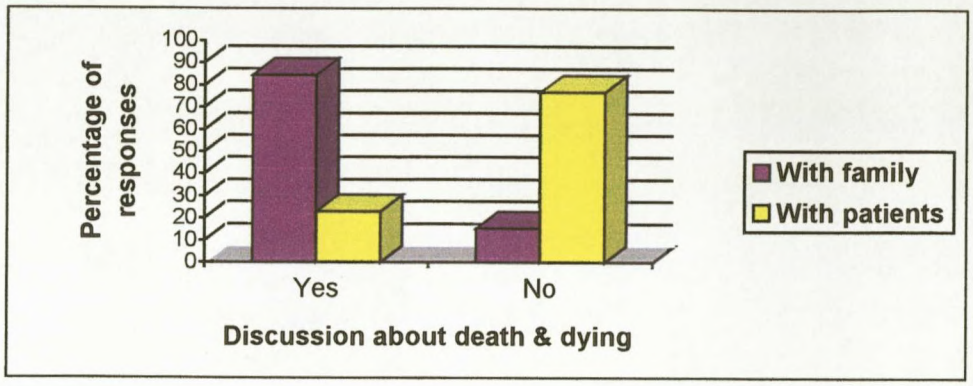

Figure 6. Nurses' discussions about death and dying with family and patients

The reasons for not discussing death with patients were that it was too painful for some nurses, others said they themselves were frightened to talk about it and did not want to frighten the mothers, while others said they would rather just give them hope. One nurse again made reference to a cultural belief that if you said somebody was going to die, it was tantamount to wishing them to die and you were bewitching them. Another nurse spoke openly about the amount of time that a discussion about death took, time which the nurse could not spare when consulting in a busy clinic. Traditionally, in the nursing profession, caring has been the main focus. In the light of the medical model of health in the form of diagnosis and treatment now occupying most of nursing practice in the primary health settings, curing illness is a task undertaken daily. It is therefore not surprising to the researcher that nurses spend so little time with patients who are dying. This is substantiated by Carr and Merriman (1996) as discussed in Section 2.6.2.

Question 40. Do you ever worry about your own death?

N = 13

Question 41. Explain.

n = 11 (2 nurses did not respond)

Anticipating one's own death, fear of the process of dying and the fear of the death of a close significant other all contribute to an individuals attitude to death (Section 2.6.2). It was with these concepts in mind that many of the above questions were posed. In this study, 61.5% of respondents were afraid of dying which corroborates the work done by Neimeyer (1994) and Demmer (2000). They cited fear of leaving loved ones behind, especially if they were children as well as a fear of the dying process itself. Two respondents said they had seen others die and did not want to die the same way. The nurses who were not afraid of dying (6) had indicated that they were Christians and as such believed in eternal life and for this reason, were not afraid of dying.

Although Questions 34 through 41 hint at a problem within the realm of death and dying, it has not been adequately investigated in this study. Nurses are not spending time with patients, preparing them for dying. They are not preparing families for dying. Some studies have suggested that courses on death and dying can play a role in improving the attitudes of health personnel to death and dying (Kaye, Gracely and Loscalzo, 1994) while others refute this (Hainsworth, 1996). Despite these apparent contradictions, the researcher feels that something should be done to address the lack of support given to patients who are dying. In this context, patients with HIV infection must be adequately supported.

Question 42. Do you ever worry about becoming infected with HIV?

N = 13

Question 43. Explain.

n = 11

Table 14. Cross tabulations between nurses own death anxiety and fear of becoming infected with HIV.

	HIV anxiety		
Own death anxiety	Yes	No	Total
Yes			
Count	7	1	8
% within Own Death Anxiety	87.8%	12.5%	100%
% within HIV Anxiety	63.6%	50.0%	61.5%
Total	53.8%	7.7%	61.5%
No			
Count	4	1	5
% within Own Death Anxiety	80.0%	20.0%	100.0%
% within HIV Anxiety	36.4%	50.0%	38.5%
Total	30.8%	7.7%	38.5%
Total			
Count	11	2	13
% within Own Death Anxiety	84.6%	15.4%	100.0%
% within HIV Anxiety	100.0%	100.0%	100.0%
Total	84.6%	15.4%	100.0%

The cross tabulations shows that 87.8% of nurses who feared their own death, also feared becoming infected with HIV, while 36.4% of nurses who did not fear their own death, nevertheless feared becoming infected with HIV. However, there does not appear to be a statistically significant relationship between nurses own death anxiety and their HIV anxiety, as, when conducting a Pearson's chi-square the Pearson's value was found to be 133 with a significance of .715 which is above the significance level of .05 indicating no relationship. This is once again, possibly due to the small sample size.

Question 44. What do you (in the course of your work) do to prevent this happening?

N = 13

Question 45. What do you do (at home) to prevent this happening?

N = 13

The following questions were posed to determine the level of knowledge about precautionary measures that can be taken to prevent becoming infected with HIV. As a result of the majority of nurses (84.6%) of nurses expressing fear about becoming infected with HIV, the researcher expected to find a high level of knowledge about ways in which to prevent this happening.

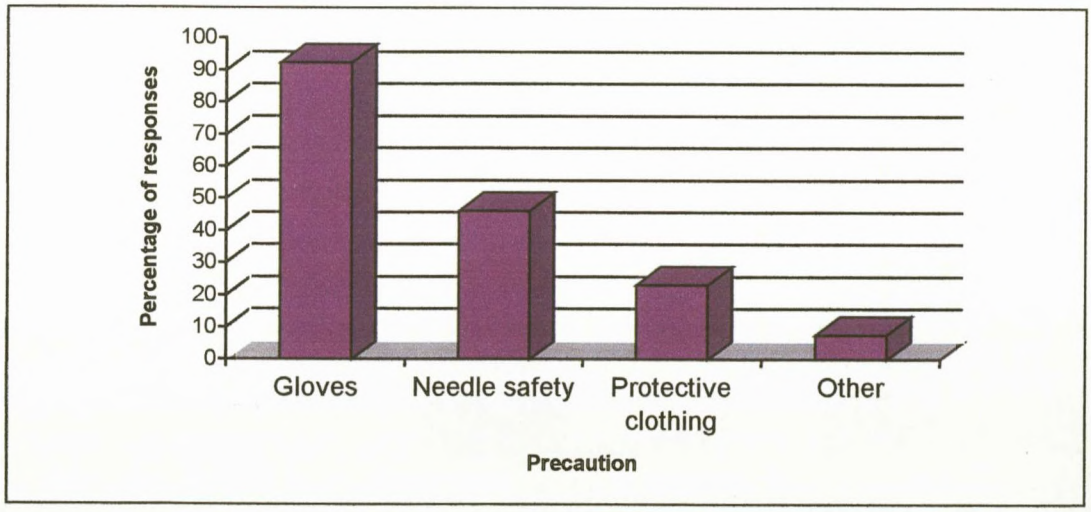

Figure 7. Precautions taken by nurses at work

Figure 7 indicates the responses that were given in response to this question. It must be noted that should the nurse not have mentioned a particular method of prevention, this did not necessarily mean that it did not exist as this was not checked out by the

researcher. This merely gives and indication of the level of knowledge of the nurses in the sample about the precautions that are taken in the workplace to prevent the spread of HIV infection. The responses were measured against universal precautions shown to be effective against the spread of HIV infection.

Although the majority of nurses in the sample (92.2%) did attempt to reduce the risk of contracting HIV infections by the use of gloves, only 46.2% said that they adhered to all the precautions associated to needles and sharps. One nurse in the study said she had previously sustained a 'needlestick' injury and taken a course of anti-retroviral medications. One nurse said she avoided giving injections as it was seen as a dangerous practice in the light of the HIV pandemic. The management of waste products and large spills of blood did not feature in the responses that were given to this question, leading the researcher to conclude that they were not practiced regularly.

More concerning though, was the responses to the types of precautions taken at home to prevent the spread of HIV infection. Only 15.4% of nurses in the sample said they would use gloves at home, despite 84.6% having had a family member with HIV infection. While 15.4% made reference to the use of condoms, they said that they would like to insist that condoms are used, but in reality, if their husbands did not want to use them, there was little they could do. Two of the respondents were elderly and by virtue of being widowed, admitted to not being sexually active.

Question 46. What causes HIV infection?

N = 13

Question 47. How is HIV transmitted?

N = 13

Question 48. Who gets HIV infection?

N = 13

Once again questions 46 to 48 were included to determine the level of knowledge of the respondents. The data from Question 46 shows that only 53.8% of respondents cited the human immunodeficiency virus as the cause of HIV and AIDS. Others mentioned negligence, unfaithfulness, sex, needlepricks and contact with HIV infected people as the cause of HIV. One nurse admitted that she did not know the cause of HIV. In the view of the researcher this is an indictment on the level of knowledge of nurses within the sample. Initially, the researcher thought this low level of knowledge could be attributed to the confusion around the issue of causation of HIV/AIDS which was publicized in the media in 2001. The State Presidents stance was that poverty, unemployment, poor living conditions etc. caused AIDS (Section 2.6.3). However, the responses made did not correlate to the Presidents and therefore the researcher must assume that the Presidents stance did not influence the responses made in this study.

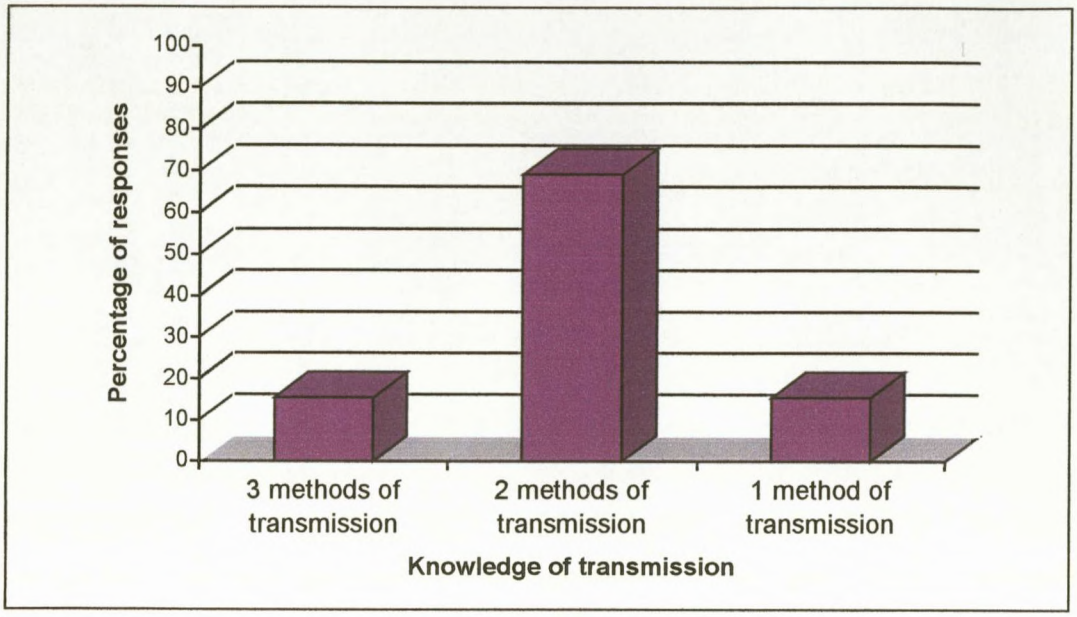

Figure 8. Level of knowledge about the transmission of HIV

The level of knowledge about the transmission of HIV was evaluated by how many nurses from the sample knew the three most common methods of transmission (Section 2.2.2). Once again, in the light of the previous data, it was not surprising that only 15.4% of respondents quoted all three well known methods of transmission, namely sexual, when infected blood is passed directly into the body of an uninfected person and mother to child transmission. However, 69.2% of respondents named two methods of transmission while a further 15.4% only gave one method of transmission of HIV infection as shown in Figure 8. The majority of nurses in the sample (92.3%) agreed that everyone/anyone can get HIV infection.

The researcher concludes from the responses to Questions 46-48 that a lack of knowledge of HIV exists. As the third objective of the study was to determine the factors that influence the use of the HIV portion of the algorithm, the researcher

proposes that the lack of knowledge about HIV is one of the factors that influence the use of the HIV algorithm. It is the view of the researcher that the poor performance in the accuracy with which the HIV algorithm was used and the extent to which the algorithm is used to guide management decisions, can be attributed to their lack of knowledge of HIV.

Question 49. Should all children be tested for HIV infection?

N = 13

Question 50. Explain.

n = 12

Table 15. Frequency tabulation for testing of children for HIV

Item	No. of Responses (n)	%
Should all children be tested for HIV		
Yes	5	38.5
No	8	61.5
Total	13	100

Testing of infants for HIV infection has been problematic as discussed in Section 2.3. Firstly, the tests used on adults are not suitable for testing of children. Secondly, mothers must give permission for the testing of infants for HIV infection and therefore must be pre and post-test counseled (Section 2.5). Although these questions do not specifically test the knowledge of the above statements, they do hint at whether the nurses' in the sample have considered some of these problems. Clearly some nurses had considered these problems as 61.5% said that all children should not be

tested for HIV infection. Explanations recounted included that it was not necessary, that they needed the mothers permission to do so, that the mothers needed to be counseled before testing and that it was only necessary to test children if they were showing signs of illness. It was distressing to hear one respond by saying that if we test all children we will find out how many are HIV positive. In the view of the researcher, this nurse missed the point. It does not matter how many children are HIV positive, what is important is that we can manage them effectively.

Question 51. Do you feel confident to counsel mothers before and after testing for HIV?

N = 13

Question 52. Explain.

N = 13

Question 53. Have you had any training in counselling skills?

N = 13

Question 54. Explain.

N = 13

Question 55. Do you feel the need for further counselling?

N = 13

Question 56. Explain.

N = 13

Question 57. What do you think counselling entails?

N = 13

Table 16. Frequency tabulation for counselling

Item	No. of Responses (n)	%
Confident to counsel		
Yes	9	69.2
No	4	30.8
Total	13	100
Any counselling training		
Yes	5	38.5
No	8	61.5
Total	13	100
Need further counselling training		
Yes	13	100
No	0	0
Total	13	100
Counsel for other conditions		
Yes	12	92.3
No	1	7.7
Total	13	100

Given that a large proportion of nurses in the services trained some time ago when counselling and especially HIV counselling was not a requirement, it was thought by the researcher that nurses may not feel comfortable to counsel for HIV. With this in mind, the researcher posed the above questions. In response, 69.2% of respondents said they felt comfortable counselling for HIV testing despite only 38.5% having undergone any counselling training. The 69.2% of respondents appear to mirror's the results in Question 11 where respondents (69.2%) said they had told mothers that their children were symptomatic of HIV infection thus validating this response. A

Pearson's chi-square test was conducted showing a Pearson's value of .090 with a significance level of .764. At the 95% level of confidence this indicates no significance or relatedness. Cross tabulations were conducted and appear in Table 17.

Table 17. Cross tabulation between confident to counsel and communicating to mothers about HIV.

	Confident to counsel		
Communicate to mothers about HIV	Yes	No	Total
Yes			
Count	6	3	9
% within communicating to mother	66.7%	33.3%	100.0%
% within confident to counsel	66.7%	75.0%	69.2%
% of total	46.2%	23.1%	69.2%
No			
Count	3	1	4
% within communicating to mother	75.0%	25.0%	100.0%
% within confident to counsel	33.3%	25.0%	30.8%
% of total	23.1%	7.7%	30.8%
Total			
Count	9	4	13
% within communicating to mother	69.2%	30.8%	100.0%
% within confident to counsel	100.0%	100.0%	100.0%
% of total	69.2%	30.8%	100.0%

Table 17 indicates that 66.7% of nurses who indicated that they were confident to counsel for HIV testing also told mothers that their children were symptomatic of HIV infection (Question 11). However, it is interesting to note 33.3% of nurses who had said that they did not feel confident to counsel for HIV testing had told mothers that their children were symptomatic of HIV infection. In contrast, 33.3% of nurses who said that they were confident to counsel for HIV testing had not told mothers that their children could be HIV positive. However, it must be noted in this respect, that they

may not have told a mother that her child was symptomatic of HIV infection because the nurse had genuinely not classified any child as symptomatic of HIV infection.

To test whether nurses who did not tell mothers about a child being symptomatic when they should have done so (Question 14) were confident to counsel, a cross tabulation test was conducted between the variables confident to counsel and 'not communicate HIV status". These are shown in Table 18.

Table 18. Cross tabulation between confident to counsel and not communicated HIV status

	Not Communicated HIV		
Confident to counsel	Yes	No	Total
Yes			
Count	4	5	9
% within confident to counsel	44.4%	55.6%	100.0%
% within not communicated HIV	57.1%	83.3%	69.2%
% of Total	30.8%	38.5%	69.2%
No			
Count	3	1	4
% within confident to counsel	75.0%	25.0%	100.0%
% within not communicated HIV	42.9%	16.7%	30.8%
% of Total	23.1%	7.7%	30.8%
Total			
Count	7	6	13
% within confident to counsel	53.8%	46.2%	100.0%
% within not communicated HIV	100.0%	100.0%	100.0%
% of Total	53.8%	46.2%	100.0%

Table 18 shows that for those nurses who said they were confident to counsel for HIV status 44.4% had admitted the did not tell a mother that her child may be symptomatic of HIV infection while 55.6% had said that they had not missed an opportunity to tell a mother that her child was symptomatic of HIV infection.. However, 75% of nurses who said they were not confident to counsel for HIV testing, had also not told a mother that her child was possibly symptomatic of HIV infection when they should

have done so. This would imply that by increasing the confidence of nurses to counsel for HIV testing (and therefore increase her knowledge about HIV as alluded to in Section2.5) one would then increase the likelihood that she would tell the mother that her child was symptomatic of HIV infection. Still, it must be remembered that the sample size is small and therefore the results must be treated with caution.

In the light of this it was disturbing to note the lack of counseling skills training that had taken place in the regions where this study was undertaken. The researcher would have thought that given the scope of the problem (Section 2.2.3) this would have been deemed to be important and therefore steps would have been taken to address this issue. All nurses (100%) said that further counseling skills were needed.

The responses to the question of what the nurse thought counseling entailed were varied and once again show a lack of knowledge. They included:

- a way of telling the person about HIV so they are not shocked;
- telling the person what you will do (take blood) and then telling them about the result;
- giving information about HIV so that they can understand it;
- giving knowledge about HIV, talking about fears and expectations and then only take blood if the person agrees; and,
- moral support, reassurance and education.

Although many of the responses given by the nurses covered some aspects of pre-test counselling, no nurse acknowledged that pre-test counselling was a process. The process includes nurses identifying patients knowledge, beliefs, attitudes and

misconceptions about the disease, correcting these through the giving of information, identifying risk factors relating to HIV, motivating the patient to change risk behaviors, considering the possibility of both a positive and negative test result and helping the client to emotionally deal with each eventuality. (Section 2.5) Given that this study has identified a lack of knowledge in the respondents, the researcher questions the knowledge and information given to patients during counseling.

Question 58. Do you counsel for any other conditions in the course of your everyday work?

N = 13

Question 59. Explain.

N = 13

The majority of nurses who responded to these questions (92.3%) regularly counsel for other conditions in the course of their everyday work. Nurses said they counseled for chronic conditions, sexually transmitted infections, trauma, social problems, etc. Although not specifically sought in the study, the manner in which this question was answered led the researcher to believe that nurses' equated counseling with talking to the patient and giving a set of orders. For example, when counselling a hypertensive patient the nurses tend to say "Don't eat red meat or loose weight". For this reason, the researcher assumes that nurses in this sample do not fully understand the term 'counsel'. As counseling forms a large part of the management of diseases in general, and HIV disease in particular, it is one area of training that needs attention.

Question 60. What do you understand by the term confidentiality?

N = 13

Although not specifically related to the stigma associated with HIV disease, the researcher wanted to find out if issues relating to confidentiality played a role in the interpretation of stigma. This question was poorly constructed, as the answers given to it did not link it to the stigma associated with HIV, as the researcher wanted. However, it did show clearly that all nurses in the sample (100%) thought that secrecy and confidentiality were one and the same thing in accordance with the given definition of the Oxford Advanced Learners Dictionary (1999: 241). Although it can be argued that secrecy and stigma are linked, in this study, the link was vague.

Question 61. State whether your clinic stocks the following medications.

N = 13

Question 62. State if your clinic stocks the following immunizations.

N = 13

Table 19. Frequency tabulations for medications available in clinics to manage HIV infection

Item	No. of Responses	%
Amoxycillin		
Always	13	100
Sometimes	0	0
Seldom	0	0
Never	0	0
Total	13	100
Ceftriaxone		
Always	10	76.9
Sometimes	3	23.1
Seldom	0	0
Never	0	0
Total	13	100
Vitamin A		
Always	13	100
Sometimes	0	0
Seldom	0	0
Never	0	0
Total	13	100
Iron		
Always	13	100
Sometimes	0	0
Seldom	0	0
Never	0	0
Total	13	100
Naladixic Acid		
Always	5	38.5
Sometimes	8	61.5
Seldom	0	0
Never	0	0
Total	13	100
Metronidazole		
Always	11	84.6
Sometimes	2	15.4
Seldom	0	0
Never	0	0
Total	13	100
INH		
Always	2	15.4
Sometimes	5	38.5
Seldom	6	46.2
Never	0	0

Total	13	100
Mebendazole		
Always	12	92.3
Sometimes	1	7.7
Seldom	0	0
Never	0	0
Total	13	100
Oral Rehdration Solution		
Always	13	100
Sometimes	0	0
Seldom	0	0
Never	0	0
Total	13	100
Co-Trimoxazole		
Always	13	100
Sometimes	0	0
Seldom	0	0
Never	0	0
Total	13	100

Comment has been made about question 61 in relation to question 27. However, the researcher felt that further comment was necessary about the lack of some medications in clinics. Nurses in the study said that Ceftriaxone (76.9%%), Naladixic Acid (38.5%), Metronidazole (84.6%), INH (15.4%) and Mebendazole (92.3%) was not available in the clinics all of the time. In the light of this, the researcher is not surprised at the lack of knowledge regarding the treatment and prevention of TB as alluded to in question 25. Clinic management is a vital part of the IMCI approach (Chapter One) and therefore these problems need to be addressed.

Of the immunizations that were not available regularly, BCG (92.3%) was said to have previously run out, although the supply had now been sorted out.

Table 20. Frequency tabulations for immunizations available in clinics

Item	No. of Responses	%
BCG		
Always	12	92.3
Sometimes	1	7.7
Seldom	0	0
Never	0	0
Total	13	100
TOPV		
Always	13	100
Sometimes	0	0
Seldom	0	0
Never	0	0
Total	13	100
DPT		
Always	13	100
Sometimes	0	0
Seldom	0	0
Never	0	0
Total	13	100
Hib		
Always	13	100
Sometimes	0	0
Seldom	0	0
Never	0	0
Total	13	100
HBV		
Always	13	100
Sometimes	0	0
Seldom	0	0
Never	0	0
Total	13	100
Measles		
Always	13	100
Sometimes	0	0
Seldom	0	0
Never	0	0
Total	13	100
DT		
Always	13	100
Sometimes	0	0
Seldom	0	0
Never	0	0
Total	13	100

Question 63. Do you weigh all children under the age of 5 years who attend your clinic?

N = 13

Question 64. Explain.

N = 13

All nurses in the sample (100%) said that children under the age of 5 years were all weighed when they came to the clinic. However in the observation phase of the study, it was determined that nurses were unable to accurately interpret the weights, which resulted in incorrect classifications of the nutritional state of children. With this in mind, it is imperative that nurses are given the skills to interpret the weights of children in order to be able to determine the correct classifications of nutritional state of children.

Table 21. Frequency tabulations about testing

N = 13

Item	No. of Responses (n)	%
Facilities for testing at the clinic		
Yes	4	30.8
No	9	69.2
Total	13	100
Do mothers go for testing if referred		
Yes	2	22.2
No	7	77.8
Total	9	100 (a)

(a) % calculated for a total of 9 respondents

Question 65. Do you have facilities for HIV testing at your clinic?

N = 13

Question 66. If no, do you have access to testing for HIV near your clinic? Where do you refer children for testing?

n = 9

Question 67. Do mothers generally go for testing of their children if they have been refereed?

n = 9

Question 68. Explain.

n = 9

As stated previously when discussing questions 49 and 50, testing of infants and children for HIV is specialized and needs to be approached with care (Sections 2.3 and 2.5). In view of this, the researcher genuinely wanted to see if testing was being done in the clinic and if not, where the testing took place. Testing for HIV was available in 30.8% of the clinics in the sample. The test that was available was a rapid ELISA test and as mentioned (Section 2.3) this test is not suitable for the testing of young children. For this reason the researcher concludes that no clinics in the study were providing testing for young children on-site.

In the clinics where testing was available, two of the respondents said they tested children in their own clinic using the 'rapid' test, clearly indicating their lack of knowledge about testing of children for HIV.

For those who did not have testing available on-site, either blood was taken at the clinic and then sent to the hospital or the child was referred to the hospital. As some of the clinics in the sample were a fair distance from the hospitals, the researcher could understand the reluctance to send children to hospital for testing. Nurses spoke of the cost of transport, the lack of transport and the problems of leaving other children at home as some of the problems mothers face when they are referred to the hospital for blood tests. These problems obviously play a role in whether the mothers actually take their children to be tested and only 22.2% of respondents to this question said confidently that mothers generally did take their children to the hospitals when they were referred for testing.

Question 69. Are there any cultural factors that impact on mothers going for HIV testing?

N = 13

Question 70. Explain.

n = 0

In response to this question, no nurses had knowledge about cultural factors that would prevent a mother going for a HIV test. One nurse said she thought that people belonging to the Jehovah Witness faith did not like their blood being tested but was

not sure. Although this particular question did not reveal any specific knowledge of cultural issues in relation to testing, the researcher was interested to learn of the cultural issue with reference to talking about dying. In responding to Questions 21 and 38, one nurse spoke of the belief that when you talk to a patient about dying, you are almost wishing the patient to die. This is known as "thakathe". The researcher believes that this bewitching could play a role in mothers taking their children for testing. Therefore, this phenomenon should be further investigated in relation to the clinic nurses and HIV.

Question 71. Is there any support system presently operating in your clinic that addresses the needs of the staff?

N = 13

Question 72. Explain.

n = 2

Question 73. Do you feel there is a need for a support system for staff?

N = 13

Question 74. Explain.

N = 13

Table 22. Frequency tabulations about support systems

N = 13

Item	No. of Responses (n)	%
Support systems presently operating		
Yes	2	15.4
No	7	53.8
Did not know	4	30.8
Total	13	100
Support system needed in clinic		
Yes	13	100
No	0	0
Total	13	100

All the nurses in this study (100%) were women. As women have many roles, not only at work but also at home, this can be very stressful (Section 2.11.2). Ferguson (1993) has postulated that nurses often feel powerless and this is especially evident the closer the nurse is to direct patient care. As nurses working in primary health care clinics provide direct patient care, the researcher wanted to know if nurses were assisted, in any way, to deal with both the stress and the feelings of powerlessness, hence the above questions.

The findings of these questions left no doubt that nurses' in this study, were not catered for in terms of support. Only 15.4% of respondents told of support through church groups and 'village counsellors', while 53.8% said they had no support at all. A small proportion of respondents (30.8%) said that they did not know of any support systems available and for this reason the researcher must assume these nurse are not benefiting from them, although this was not checked out. There could well have been some form of support system that was not known to the respondents. All nurses' in

the study (100%) felt that there was a need for a support system for clinic staff and some of the suggestions were as follows:

- regular meetings with staff from other clinics to talk about problems;
- regular meetings within the clinic to discuss problems – although some nurses expressed concern about discussing problems as they felt this may impact on their remuneration packages or promotions;
- a specially designated person who is not part of the clinic staff, to regularly conduct interview and discuss problems relating to both work and home problems; and,
- a clinical psychologist who would attend to the clinic staff, possibly once a month, to address problems at work and at home.

If one looks at this question in relation to the question about the number of patients seen daily, it is little wonder that nurses may overestimate their workload. Seemingly, little is being done to support nurses in clinics. Management at clinic level must address this before nurses are lost as a result. However, it would be remiss of the researcher not to point out that in many instances nurses themselves can establish support groups. Nurses must take responsibility for their own health and establishing support groups and identifying support people are well within capabilities of nurses.

Question 75. How do you think you performed in the observations phase of the study?

n = 8

Question 76. Would you like to know how you performed in the observations phase of the study.

n = 8

These two questions were posed as an opportunity for the researcher to give feedback to the nurses who participated in the observation phase of the study about their clinical performances. The responses nurses gave about their own performance in the observation phase were not recorded as the researcher felt they fell outside of the objectives for the study and could potentially be study on their own. All the nurses who participated in the study received feedback on their strong and weak areas by the research assistant.

4.4 CONCLUSION

This study was carried out in order to evaluate the use of the HIV portion of the IMCI algorithm by IMCI nurses, in selected clinics, in KwaZulu Natal. In doing this, three questions were asked. Were nurses using the HIV algorithm, and if so, were they using it accurately, were they using the HIV algorithm to guide their management decisions and what factors were influencing the use of the HIV algorithm.

In this chapter, these questions were answered. From the data, it is clear that nurses in the sample were not accurate when using the HIV portion of the algorithm to assess and classify sick children. As a result, the HIV portion of the algorithm did not guide the decisions regarding the management of sick children. In addition, the knowledge

of the respondents about interventions was also poor thus contributing to their poor management of children with HIV infection.

Other factors that appeared to have an influence on the management of HIV infection in children was their lack of general knowledge about the disease itself, the spread of the disease, the testing of children for the disease and interventions (medications, prophylaxis, strategies and support) which could all play a role in improving the quality of life for these children and their families. While factors such as burnout, lack of support and lack of basic education must play a role in the poor performance of nurses in this study and although not excusable, must be remembered.

Many IMCI nurses remain fearful of not only their own death but also of talking to their clients about death. This impacts of their ability and the extent to which they use the HIV portion of the algorithm to guide decisions regarding the management of sick children. When seen in conjunction with the lack of support for staff, support systems need to be established to address fears and therefore allow a more open approach to the management of children with HIV infection.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 INTRODUCTION

The purpose of this chapter is to give an overview of the findings of this study in relation to the study objectives. It is important that research be used to influence practice and for this reason recommendations relating to both IMCI training and practice are made. In addition, recommendations for further research have been identified and are discussed.

5.2 OVERVIEW OF MAJOR FINDINGS

The study was conducted in two phases with each phase revealing both strengths and weaknesses. During the observation phase the general perception was one of inaccuracy in the use of the HIV portion of the IMCI algorithm. As the accuracy with which the algorithm is applied, impacts on the extent to which the HIV portion of the algorithm is used, this objective is answered by the poor performance that was observed. This trend is concerning in view of the high prevalence of HIV in the KwaZulu Natal area. As shown in the literature review of Chapter Two, much can be done for children who are HIV positive. However, in view of the limited resources to effectively identify HIV infected children using the conventional methods, these children must be identified from symptomatology. In the opinion of the researcher this is not being regularly undertaken, and if it is being done, many practitioners are

acting intuitively rather than following a set of well researched and proven clinical guidelines.

While undertaking this study, it became evident to the researcher, that the evaluation form used to evaluate the IMCI nurses during training and at the completion of the training did not specifically identify the deviation from the actual algorithm. Although when using the evaluation form, the training team suggest marking deviations from the algorithm in a footnote (Section 3.3.1.1), in the experience of the researcher and research assistant, this was not effective. The second evaluation form used in this study appeared to be more specific in identifying deviations from the algorithms. The researcher questions whether the use of this evaluation form during training could have masked existing problems that were then compounded after training was completed.

The second phase of the study was in-depth interviews where knowledge, attitudes and perceptions of the participants were explored. This was undertaken to identify possible reasons that could influence the use of the HIV portion of the algorithm as set out in the third objective. The researcher tentatively identifies some of the possible reasons that would impact on the use of the algorithm below.

Despite both general nursing training and IMCI training having been undertaken by the participants in this study, in the view of the researcher, there is still a lack of scientific based knowledge pertaining to HIV and AIDS. Many participants were unable to clearly see the importance of the role they personally had to play in the morbidity and mortality associated with HIV in children as a result of their basic lack

of knowledge. They appeared to equate the management of HIV in children only with the giving of Co-Trimoxazole for the prevention of PCP. No participant acknowledged the use of immunizations, despite them being available in the clinics, as an important strategy to reduce morbidity and mortality in HIV infected children. Similarly, monitoring of growth and development, early diagnosis of all infections and prompt treatment, as well as prophylactic treatment for other diseases such as TB were not seen as strategies for the management of HIV infection. Emphasis had been place on home-based care and church/religious organizations by the participants, which in the view of the researcher, implied terminal care. When asked regarding feelings about talking to mothers with children who were symptomatic of HIV infection, the overall response seemed to be one of sadness and hopelessness. It is the researcher's standpoint that more emphasis must be placed on the positive role health workers has with regards to HIV infection.

The researcher cautiously proposes that the fear of death and the fear of contracting HIV infection may play a small role in clinic nurses addressing HIV infection in their clients. However, the researcher feels that the role that culture and tradition plays when addressing issues pertaining to death, is far more likely to influence whether a nurse discusses death or a disease leading to death. It is the notion of the researcher that perhaps the reasons for speaking to patients in clinics about death and 'dread disease' need to be further explored within the context of the different cultures.

Despite the majority of participants having had personal experience with HIV infection, they appeared unable to comfort and support their families. Even though many participants had personal experience with HIV, the scope of the HIV problem

was well known to all participants and many nurses feared contracting HIV many nurses did not take adequate precautions to protect themselves against the disease. All participants were complying with some form of universal precautions within the work situations, but the majority of participants did not take any precautions at home. This could be suggestive of an inability to fully understand the whole concept as to how HIV is spread and who gets HIV infection. The researcher proposes that, despite the small number of participants who participated in the in-depth interviews, this is a phenomenon that is widespread among nurses in KwaZulu Natal.

Although the researcher thought that supervision or follow-up visits following the IMCI course were possibly underprovided, this was not shown in the study. However, despite the majority of IMCI nurses having had supervisory visits, poor performance in the use of the IMCI approach was evident. This, according to the researcher, could be attributed to the quality of the supervisory visits. The researcher is aware of and commends the initiative instituted in KwaZulu Natal to train and equip supervisors in order to supervise. However, the researcher thinks that this initiative needs to be cascaded to the entire province as a matter of urgency.

It is the belief of the researcher that the workload, the lack of support systems in the clinic and the perceived lack of resources available at the clinic level all impact negatively on the morale of nurses and therefore on their practice. The many interventions used to manage children who are HIV infected could diminish nurses' attention to some interventions and therefore negate their effectiveness. This is similar to the vertical programmes such as GOBIFFF and which the IMCI programme was developed to address (Section 1.1).

5.3 RECOMMENDATIONS

5.3.1 RECOMMENDATIONS FOR TRAINING

In view of the high prevalence of HIV infection in South Africa and KwaZulu Natal in particular, the researcher suggests that an education drive to elevate the level of knowledge of all health workers be undertaken immediately. It is possible that much of this knowledge may be gleaned from the media or is anecdotal. However, it may also be possible that training has taken place on HIV but has not been effective. Nurses working in primary health clinics are the first health workers consulted when patients become ill. If they do not have the knowledge to undertake the function of accurately assessing and classifying (diagnosing) and treating illness, they are not fulfilling the charge for which they are employed. Similarly, it is the responsibility of management to ensure that all nurses have the knowledge and the ability to apply that knowledge in order to provide a high quality of care to sick clients. With this in mind, the researcher proposes this educational drive to augment nurses' knowledge about HIV/AIDS.

The educational drive could be undertaken in two ways. The first could be a distance based short course that all nurses working in primary health care settings must undertake as a requirement for continued employment. The other recommendation is that a system be established as a requirement of sustained employment all nurses must generate a certain number of points towards a 'continuing educational' requirement in which they attend instruction which provides skills and knowledge pertaining to the field in which they practice. An HIV short course can be used to generate points

towards this requirement. This course should not only cover pre and post-test counselling, but also all the interventions that have an impact to improve the standard of living for HIV infected people.

The state of nutrition plays a vital role identifying and managing children who are symptomatic of HIV infection. In view of this, the researcher recommends that all nurses who undertake the IMCI training should also undertake a short course dealing specifically with infant nutrition, growth and development monitoring, interpretation of 'Road to Health' charts, malnutrition and interventions. This should be ideally undertaken the month prior to IMCI training so that the IMCI training then augments and extends the knowledge of the IMCI nurse. This course could be allocated points for the continuing education requirements as discussed above. Formal evaluation on completion of the course is vital. It is also important to re-evaluate this course annually. Failure to comprehend and apply the knowledge in this course must have implications for employment prospects as nutrition and monitoring of nutrition unpins all child health and especially the health of HIV infected children.

In terms of recommendations regarding the actual IMCI training, the researcher is aware that the sequencing of the algorithm played some role in the overall clinical performance of IMCI trained nurses as discussed in Section 4.2.2. In the view of the researcher, it would be presumptuous to recommend re-organization of the sequencing of the algorithm and for this reason, the researcher has recommended that nutrition be addressed prior to the commencement of the IMCI training. With regards to the presence of danger signs, the researcher concurs that they should be sought first. However, perhaps assessment for the danger signs need to be worded differently.

Many nurses did not overtly check for the danger sign 'lethargic or unconscious'. The research assistant assumed that this was as a result of the child being awake and sitting. Perhaps the wording within the training document could read, 'if the child is not awake or playing, check for lethargy or unconscious'.

Given the high prevelance of HIV in KwaZulu Natal and the fact that this study clearly shows that the questions that give entry into the HIV algorithm are not asked, the researcher recommends that all children be assessed for symptomatic HIV infection each time they come to the clinic. In doing so, the researcher hopes the IMCI nurses will grow accustomed to dealing with HIV as they have when dealing with cough and diarrhoea. Hopefully, this will improve not only the accuracy with which IMCI nurses assess and classify these children, but also the manner in which they manage children with HIV infection

The evaluation forms used both during and after the IMCI training need be adapted in order for them to be more specific in identifying problems encountered by IMCI nurses during the IMCI training.

5.3.2 RECOMMENDATIONS FOR PRACTICE

In all health care facilities it is the management who is responsible for employing nurses who will provide the highest possible quality of care to their clients. For this reason, management has a responsibility to ensure that all nurses who are employed have the knowledge and skill in order to provide this care. The researcher recommends that a system of ongoing assessment of knowledge and skills be a

requirement of employment. This could take the form of an annual assessment of clinical skills undertaken by an independently appointed body (e.g. WHO or a Non-Governmental Organisation). The reason for proposing an independent body undertaking this function is rooted in the results of the study where supervision had taken place but did not influence the performance of the nurses. In addition to the clinical skills evaluation, a written assessment should be undertaken to assess knowledge of current up-to-date information. This would ensure that not only are clients receiving the highest quality of care, but also that all nurses remain enlightened about the latest developments in their field of nursing. If there is a real commitment to the provision of both safe and high quality of care for our patients, this should be seen as a priority.

In view of this, the researcher proposes that the updating of all nurses be a requirement of all health facilities in order to allow them to provide health care. This recommendation could be linked to the recommendation for training where continuous educational programmes be established and presented with numerical points counting towards a goal standard or required points. This must be seen as the responsibility for both the nurses and the employing body.

Nurses who participated in this study all indicated that they received very little support at work and when they did receive support it was from religious organizations. Burnout is a very real phenomenon. In addition, all participants in this study were female. Although not actively sought, the majority of the participants indicated that they had families and children. With this in mind, the researcher assumes that these participants face all the problems and emotional distress associated

with being wives, mothers and income generators. Add to this, the physical and emotional problems of dealing with sick people for at least eight hours a day the researcher concludes that burnout and stress among these participants is high. The researcher tentatively suggests that this occurrence is similar in all clinics in KwaZulu Natal. For this reason, the researcher recommends that a nurse support system be established in each district as a matter of urgency. This support system should not be management-linked to prevent nurses' fears of problems discussed influencing future employment and promotions. Social workers or clinical psychologists who would address the needs of the staff regularly could be appointed.

5.3.3 RECOMMENDATIONS FOR FURTHER RESEARCH

Should any of the above recommendations be implemented, the researcher believes that their effectiveness should be evaluated and assessed after a few years. This could be especially valuable in terms of the training programmes and short courses for both the 'Road to Health Card' and the HIV course. With a better understanding of both these aspects, the researcher would like to believe the accuracy with which not only the HIV portion of the algorithm is used, but the entire algorithm. This however, needs to be tested.

One of the recommendations in this study is that a new evaluation form be developed. In doing this, the researcher hoped problems that nurses experience during the IMCI training would be identified early and corrected. However this improvement needs to be shown and for this reason the researcher proposes that a further study, similar to this one, be conducted in a few years time.

The supervisory training initiative needs to be evaluated to determine whether an improvement has been shown in the clinical practice, of IMCI nurses in particular and all nurses in general, as a result of more goal directed and specific supervision.

Many nurses estimated a heavy workload that was not checked out against the actual number of patients recorded in the clinic register during this study. When discussing this with the Maternal, Child and Women's Health Department, it was felt that this perceived workload maybe an overestimation of the actual workload of nurses in clinics. However, the researcher's noted during the study that many of the clinics were very busy, with patients queuing from early morning to late afternoon. This may have been due to poor work organisation methods. However, the workload of nurses working in primary health clinics needs to be evaluated in order to prevent burnout, stress and poor morale that has been linked to overload.

5.4 CONCLUSION

An overview of the study has been discussed in this chapter and recommendations arising out of the study discussed. Many of the recommendations are linked and should be seen as a fusion of approaches that will not only improve the quality of care to our patients, but also give nurses the knowledge and skills to be effective practitioners. This could also improve nurses' morale thereby relieving distress. Nurses are the health services greatest assets. They need to be acknowledged for their importance and valued for their contribution to the health care of all South Africans.

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INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS

CHART BOOKLET

SICK CHILD
AGE 2 MONTHS UP TO 5 YEARS

World Health Organization
Division of Child Health
and Development (CHD)

unicef

ASSESS AND CLASSIFY THE SICK CHILD

TREAT THE CHILD

TREAT THE CHILD, continued

COUNSEL THE MOTHER

SICK YOUNG INFANT
AGE 1 WEEK UP TO 2 MONTHS

ASSESS, CLASSIFY AND TREAT THE SICK YOUNG INFANT

ASSESS AND CLASSIFY THE SICK CHILD AGE 2 MONTHS UP TO 5 YEARS

ASSESS

CLASSIFY

IDENTIFY TREATMENT

DO A RAPID APPRAISAL OF ALL WAITING CHILDREN:

ASK THE MOTHER WHAT THE CHILD'S PROBLEMS ARE Determine if this is an initial or follow-up visit for this problem
- If follow-up visit, use the follow-up instructions on pp. 15 - 17.
- If initial visit, assess the child as follows:

CHECK FOR GENERAL DANGER SIGNS

ASK:
- Is the child able to drink or breastfeed?
- Does the child vomit everything?
- Has the child had convulsions during this illness? (If convulsing now – see p.11)

LOOK:
- Look at the child carefully: Is the child
  a) lethargic or
  b) unconscious.

A child with any danger signs requires urgent attention: complete the assessment, start with pre-referral treatment and refer urgently

USE ALL BOXES THAT MATCH THE CHILD'S SYMPTOMS AND PROBLEMS TO CLASSIFY THE ILLNESS.

THEN ASK ABOUT MAIN SYMPTOMS:

Does the child have cough or difficult breathing?

IF YES, ASK:
- For how long?

LOOK, LISTEN, FEEL:
- Count the breaths in one minute.
- Look for chest indrawing.
- Look and listen for stridor or wheeze.

CHILD MUST BE CALM

Classify COUGH or DIFFICULT BREATHING

- Has there been a hospital admission with chest infection during the past 3 months?
  If yes

Consider HIV infection. See page 7

RESPIRATORY RATE

If the child is:	Fast breathing is:
2 months up to 12 months	50 or more breaths per minute
12 months up 5 years	40 or more breaths per minute

SIGNS	CLASSIFY AS	TREATMENT (Urgent pre-referral treatments are in bold print.)
• Any general danger sign or • Chest indrawing or • Stridor in calm child.	SEVERE PNEUMONIA OR VERY SEVERE DISEASE	➢ Give first dose of ceftriaxone IM. (p. 11) ➢ Give nebulised adrenaline if stridor is present (p.11) ➢ Give oxygen (p. 8) ➢ If wheezing treat for wheezing (p 8) ➢ Refer URGENTLY to hospital and keep child warm. ➢ Treat for and to prevent low blood sugar (p 12)
• Fast breathing.	PNEUMONIA	➢ Give amoxycillin for 5 days. (p 8) ➢ If wheezing, treat for wheeze see (p 8) ➢ Soothe the throat and relieve the cough (p.10) ➢ Advise mother when to return immediately. (p. 21) ➢ Follow-up in 2 days ➢ If coughing for more than 21 days refer.
• No signs of pneumonia or very severe disease.	NO PNEUMONIA: COUGH OR COLD	➢ If wheezing, treat for wheeze (p. 8) ➢ Soothe the throat and relieve cough with a safe remedy. ➢ If coughing more than 21 days, refer for assessment for TB or asthma. ➢ Advise mother when to return immediately. (p. 21) ➢ Follow-up in 5 days if not improving or starts wheezing.

Does the child have diarrhoea?

IF YES, ASK:

- For how long?
- Is there blood in the stool?
- What treatment is the mother giving?
- Have there been more than two episodes of diarrhoea requiring medical care in the past three months?
- Has there been an episode of persistent diarrhoea in past three months?

If yes

Consider HIV infection
See page 7

LOOK AND FEEL:

- Look at the child's general condition.
  Is the child:
  Lethargic or unconscious?
  Restless and irritable?
- Look for sunken eyes
- Look for dry mouth
- Offer the child fluid.
  Is the child:
  Not able to drink or drinking poorly?
  Drinking eagerly, thirsty?
- Pinch the skin of the abdomen.
  Does it go back:
  slowly?
  or very slowly? (more than 2seconds

Classify DIARRHOEA

for DEHYDRATION		
Two of the following signs: • Lethargic or unconscious • Sunken eyes • Not able to drink or drinking poorly • Skin pinch goes back very slowly.	**DIARRHOEA WITH SEVERE DEHYDRATION**	➢ **Commence fluid for severe dehydration (Plan C p.14) and refer URGENTLY to hospital with mother for continued management** ➢ **Advise the mother to continue breastfeeding**
Two of the following signs: • Restless, irritable • Sunken eyes • Dry mouth • Drinks eagerly, thirsty • Skin pinch goes back slowly.	**DIARRHOEA WITH SOME DEHYDRATION**	➢ Give fluid and food for some dehydration (Plan B p.13) ➢ Follow-up in 2 days if not improving. ➢ Advise mother when to return immediately. ➢ **If child also has a severe classification: Refer URGENTLY to hospital with mother giving frequent sips of ORS on the way.** ➢ **Advise the mother to continue breastfeeding.**
• Not enough signs to classify as severe or some dehydration.	**NO VISIBLE DEHYDRATION**	➢ Give fluid and food to treat for diarrhoea at home (Plan A p.13) ➢ Advise mother when to return immediately (p. 21) ➢ Follow-up in 5 days if not improving.
and if diarrhoea 14 days or more		
• Dehydration present or • No dehydration but weight loss on RTHC	**SEVERE PERSISTENT DIARRHOEA**	➢ **Treat for dehydration before referral unless the child has another severe classification.** ➢ **Refer to hospital**
• No dehydration	**PERSISTENT DIARRHOEA**	➢ Advise the mother feeding a child who has persistent diarrhoea to give at least one extra meal per day and replace milk with amasi or yoghurt (see p.19) ➢ Follow-up in 5 days. ➢ Give vitamin A for treatment (p.9)
and if blood in stool		
• Dehydration present or • Child is below the age of 12 months	**SEVERE DYSENTERY**	➢ **Treat for dehydration if present** ➢ **Refer URGENTLY to hospital with mother giving frequent sips of ORS on the way**
• Blood in the stool	**DYSENTERY**	➢ Treat for 5 days with nalidixic acid (p.8) ➢ Follow-up in 2 days.

Does the child have fever?

(by history or temperature 37.5°C or above)

IF YES ASK:
Has the child visited a malaria area in the last month?

Decide malaria risk present or not?

THEN ASK:

- For how long?
- If more than 7 days, has fever been present every day?

LOOK AND FEEL:

- Look or feel for bulging fontanelle.
- Look for stiff neck
- Do malaria rapidest if malaria risk present
- Look for any other cause of fever

Has the child had fever for a month or more?

If yes

Consider HIV infection see page 7

Classify FEVER

No Malaria Risk

• Any general danger sign or • Bulging fontanelle or • Stiff neck.	**VERY SEVERE FEBRILE DISEASE OR MENINGITIS**	➢ **Give first dose of ceftriaxone iml. (p.10)** ➢ **Treat the child for and to prevent low blood sugar (p12).** ➢ **Give one dose of paracetamol in clinic for high fever (38°C or above)** ➢ **Refer URGENTLY to hospital**
• No severe signs • Fever other cause	**FEBRILE ILLNESS**	➢ Give paracetamol in clinic for high fever (38°C or above). ➢ Look for any other cause of fever and treat as appropriate ➢ If fever is present every day for more than 7 days, refer for assessment. ➢ Advise mother when to return immediately. (see p. 21) ➢ Follow-up in 2 days if fever persists.

Malaria Risk Present

• Any general danger sign or • Stiff neck or • Bulging fontanelle	**VERY SEVERE FEBRILE DISEASE, MENINGITIS OR SEVERE MALARIA.**	➢ **Give co-artemether for severe malaria if child is over one year and rapidtest is positive (p.9)** ➢ **Give first dose ceftriaxone iml. (p. 12)** ➢ **Treat the child to prevent low blood sugar (p 12)** ➢ **Give one dose of paracetamol in clinic for high fever** ➢ **Refer URGENTLY**
Malaria rapid test positive or unavailable	**MALARIA**	➢ Treat with co-artemether if malaria rapidtest positive and child is over one year (p 9) ➢ REFER all children under the age of one year with positive malaria rapidtest ➢ If malaria rapidtest unavailable refer to appropriate facility for testing ➢ Give paracetamol in clinic for high fever (38°C or above) (p 9) ➢ If fever is present every day for more than 7 days, refer for assessment. ➢ Advise mother when to return immediately (p. 21) ➢ Follow-up in 2 days if fever persists.
Malaria rapid test negative	**FEVER MALARIA UNLIKELY**	➢ Give paracetamol in clinic for high fever (38°C or above) (p. 9) ➢ Look for any other cause of fever and treat as appropriate ➢ If fever is present every day for more than 7 days, refer for assessment. ➢ Advise mother when to return immediately. ➢ Follow-up in 2 days if fever persists.

Does the child have an ear problem?

IF YES, ASK:

- Is there ear pain?
- Is there ear discharge?
- If yes, for how long?

LOOK AND FEEL:

- Look for pus draining from the ear.
- Feel for tender swelling behind the ear.

Is there a chronic ear discharge (more than 14 days)?

If yes → Consider HIV infection See page 7

Classify EAR PROBLEM

• Tender swelling behind the ear.	**MASTOIDITIS**	➢ **Give first dose of ceftriaxone Iml. (p 11)** ➢ **Give first dose of paracetamol for pain. (p 9)** ➢ **Refer URGENTLY to hospital.**
• Pus is seen draining from the ear and discharge is reported for less than 14 days, or • Ear pain.	**ACUTE EAR INFECTION**	➢ Give amoxycillin for 5 days. (p 8) ➢ Dry the ear by wicking.(p.10) ➢ Follow up in 2 days if pain persists. ➢ Give paracetamol for pain. (p 9) ➢ Follow up in 5 days if discharge persists
• Pus is seen draining from the ear and discharge is reported for 14 days or more.	**CHRONIC EAR INFECTION**	➢ Teach the mother to dry the ear by wicking (p. 10) ➢ Follow up in 2 weeks.
No ear pain and no pus seen draining from the ear.	**NO EAR INFECTION**	No additional treatment.

THEN CHECK FOR MALNUTRITION AND ANAEMIA

LOOK AND FEEL:

- Determine weight for age by plotting on the RTHC. Is weight below the third centile?
- Look at the weight gain from the shape of the curve Is the weight gain poor? (curve flattening) Is there weight loss?
- Look for palmar pallor. Is it: Severe palmar pallor? Some palmar pallor?
- Check the haemoglobin (Hb) level if pallor is present (if available)
- Look for oedema of both feet.
- Look for visible severe wasting.

- Is weight below the third centile?
- Is weight gain poor?
- In there weight loss?

If yes → Consider HIV infection. See page 7

Classify NUTRITIONAL STATUS

NORMAL HAEMOGLOBIN FOR AGE

2 -12 MTHS > 10 g/dl

1-5 years > 12 g/dl

• Visible severe wasting or • Severe palmar pallor or • Hb < 6,0 g/dl or • Oedema of both feet	**SEVERE MALNUTRITION OR SEVERE ANAEMIA**	➢ **Give double dose Vitamin A for treatment (p. 9) if no preventive dose given in the past month** ➢ **Treat the child for and to prevent low blood sugar (p12)** ➢ **Refer URGENTLY to hospital.** ➢ **Keep the child warm on the way**
• Some palmar pallor or • Hb low on age chart but more than 6 g/dl or • low weight for age (below third centile) or • Poor weight gain/ weight loss	**ANAEMIA OR LOW WEIGHT**	➢ Assess the child's feeding & counsel the mother about feeding(p 18 - 20) ◦ If feeding problem, follow-up in 5 days. (p18-20) ◦ If no feeding problem follow up after 14 days. ◦ Give mebendazole if child is 1 year or older and has not had a dose in the previous 6 months. (p 11) ◦ Give Vitamin A for prevention if not given during past 6 months ➢ If pallor: Check haemoglobin if available ◦ Give iron. (p 9) ◦ Give oral antimalarial if high malaria risk (p 11). ◦ Follow-up in 14 days. ➢ Advise mother when to return immediately. (p. 21) ➢ If low weight for age, follow-up in 14 days ➢ If poor weight gain, follow-up in 14 days
• Not low weight for age and no other signs of malnutrition.	**NO ANAEMIA AND NOT LOW WEIGHT**	➢ If child is less than 2 years old, assess the child's feeding and counsel the mother on feeding .(see pp. 18 and ,19) ➢ If feeding problem, follow-up in five days ➢ Give mebendazole if child is 1 year or older and has not had a dose for 6 months ➢ From the age of 6 months, give Vitamin A for prevention if no dose given for the past 6 months (pg 9)

THEN CHECK THE CHILD'S IMMUNISATION STATUS

IMMUNISATION SCHEDULE:

AGE	VACCINE		
Birth	BCG	OPV-0	
6 weeks	DPT+HIB-1	OPV-1	Hep B1
10 weeks	DPT+HIB-2	OPV-2	Hep B2
14 weeks	DPT+HIB-3	OPV-3	Hep B3
9 months			Measles 1
18 months	DPT-4	OPV-4	Measles 2
5 years	DT	OPV-5	

ASSESS OTHER PROBLEMS:

MAKE SURE CHILD WITH ANY GENERAL DANGER SIGN IS REFERRED after first dose of an appropriate antibiotic and other urgent treatments.

THEN CONSIDER SYMPTOMATIC HIV INFECTION

Consider symptomatic HIV infection in a sick child if:

- the answer was 'yes' to one of the HIV related questions while the child is being assessed
- if the child has a history of TB or shingles (herpes zoster)
- if a parent or sibling is known to be HIV positive.

ASK:

- Has the child had a chest infection requiring hospital admission in the past 3 months? (p 2)
- Has the child had two or more episodes of diarrhoea in the past 3 months? (p 3)
- Has the child had any episode of persistent diarrhoea (diarrhoea lasting 14 days or more) in the past 3 months? (p 3)
- Has the child had fever for one month or more? (p 4)
- Does the child have a poor appetite?
- Has the child chronic ear infection (ear discharge for more than 14 days)? (p 5)
- Does the child have history or evidence of past or present herpes zoster*?
- Is there history or evidence of severe seborrheic dermatitis?
- Does the child have history of past or present TB?
- Is a parent or sibling known to have TB ?
- Is a parent or sibling known to be HIV positive?

THEN LOOK AND FEEL:

- Is the child's weight below the 3rd centile?
- Does the child have poor weight gain according to history or the RTHC?
- Any enlarged lymph glands in more than one of the following sites: neck, axillae, groins?
- Is there oral thrush which extends to the back of the mouth or throat?

Classify as suspected symptomatic HIV infection if:

⇒ The answer is yes to any three of these questions.

SUSPECTED SYMPTOMATIC HIV INFECTION

- Refer the mother and child to hospital if there is a severe classification

or

- Counsel the mother and refer for HIV testing

or

- Counsel and take blood for HIV testing at the clinic
- Arrange for post-test counselling
- Arrange for ongoing follow-up visits for the child after post test counselling is completed
- Initiate treatment according to classification
- Counsel the mother on the management of the child (p 18)
- With the mother's consent inform the community health worker and / or a local support group.
- If the mother refuses an HIV test, discuss carefully with her the reasons for this and the child may be offered cotrimoxazole empirically

* Herpes zoster is a rash consisting of small and very painful blisters, which usually occur on one side of the face or trunk .

TREAT THE CHILD

CARRY OUT THE TREATMENT STEPS IDENTIFIED ON THE *ASSESS AND CLASSIFY* CHART

TEACH THE MOTHER TO GIVE ORAL DRUGS AT HOME

Follow the instructions below for every oral drug to be given at home.
Also follow the instructions listed with each drug's dosage table.

- **Determine the appropriate drugs and dosage for the child's age or weight.**
- **Tell the mother the reason for giving the drug to the child.**
- **Demonstrate how to measure a dose.**
- **Watch the mother practise measuring a dose by herself.**
- **Ask the mother to give the first dose to her child.**
- **Explain carefully how to give the drug.**
- **Advise the mother to store the drugs safely.**
- **Explain that all the oral drug tablets or syrups must be used to finish the course of treatment, even if the child gets better.**
- **Check the mother's understanding before she leaves the clinic.**

FOR PNEUMONIA and ACUTE EAR INFECTION , GIVE AMOXYCILLIN

AGE	WEIGHT	AMOXYCILLIN SYRUP (125 mg per 5 ml) Give three times daily for 5 days
2 to 12 months	4-5 kg	2,5 ml
	>5– 10 kg	5 ml
12 months to 5 years	>10– 14 kg	5 ml
	>14-20 kg	10 ml

FOR DYSENTERY GIVE NALIDIXIC ACID

AGE or WEIGHT	NALIDIXIC ACID SUSPENSION (250 mg / 5 ml.) Give four times daily for 5 days
12-24 months (7- <15kg)	2.5 ml
2-5 years (15- <20kg)	5 ml

ASSESS, CLASSIFY AND TREAT FOR WHEEZING

ASK: Is this the first episode of wheezing?

YES

FIRST EPISODE OF WHEEZE

- SEVERE PNEUMONIA OR VERY SEVERE DISEASE + Wheeze give:
  Salbutamol via spacer or nebuliser
  Ceftriaxone IMI (p11)
  First dose oral prednisone
  Oxygen
  Refer urgently to hospital repeating salbutamol before departure
- PNEUMONIA or NO PNEUMONIA:COUGH OR COLD + Wheeze:
  Give salbutamol via spacer or nebuliser.
  Continue with salbutamol via spacer 3 times a day for 5 days

NO

RECURRENT WHEEZE *

- SEVERE PNEUMONIA OR VERY SEVERE DISEASE + Wheeze give: **Salbutamol via spacer or nebuliser**
  Ceftriaxone IM (p.11)
  First dose oral prednisone
  Oxygen
  Refer to hospital urgently. Repeating salbutamol before departure.
- PNEUMONIA or NO PNEUMONIA:COUGH OR COLD + Wheeze give: Salbutamol via spacer or nebuliser three times daily until assessment
  Oral Prednisone for three days
  Refer for assessment — non-urgent (see below)

RAPID-ACTING BRONCHODILATOR

- Salbutamol MDI (100ug/puff) 5 puffs, using spacer
- Nebulised salbutamol (2,5ml nebule) : dilute 0,5ml in 2ml

OXYGEN

Oxygen should be given to all children with severe pneumonia with or without a wheeze.

Use nasal prongs or cannulae with flow rate of 2 L/min

AGE	PREDNISONE 2mg/kg/day Once daily for three days
2-12 months (4- <10kg)	2-4 tablets
1-5 years (10- <20kg)	6-8 tablets

Non urgent referral for assessment of wheeze IF:

- More than one attack per week
- Frequent cough or wheeze at night
- One previous admission for wheezing

⇒ **One or more of the above = recurrent wheeze**

⇒ None of the above = first episode

TEACH THE MOTHER TO GIVE ORAL DRUGS AT HOME

Follow the instructions below for every oral drug to be given at home.
Also follow the instructions listed with each drug's dosage table.

➢Give Paracetamol for High Fever (38.0°C or higher) or Ear Pain

- Give Paracetamol every 6 hours until high fever or ear pain is gone.
- Tepid sponging can also be used to bring down the temperature

PARACETAMOL		
AGE or WEIGHT	SYRUP (120 mg / 5 ml)	TABLET (500 mg)
2 months up to 3 years (4 - <14	5 ml	
3 years up to 5 years (14 - <23 kg)	5 - 10 ml	1/2

➢ Give Metronidazole

- Second line drug for dysentery. Prescribe for suspected amoebic dysentery if the number of stools is the same or fever persists after two days of treatment with nalidixic acid

AGE	METRONIDAZOLE SUSPENSION (200mg/5ml)
1-3 years	2.5- 5mls three times daily for 5days
4-5 years	2.5– 5mls four times daily for 5 days

➢ Give Cotrimoxazole

- To symptomatic HIV positive children 5 days a week to prevent pneumonia
- To children of HIV infected mothers from the age of 6 weeks

AGE	CO-TRIMOXAZOLE SYRUP Once daily five days a week
6 weeks upto 6 months	2.5mls
All ages	5mls

➢Give Vitamin A

- Give Vitamin A every six months for *prevention* from the age of 6months to all children
- Give a double dose if Vitamin A is being given for *treatment*.
- Cut open the capsule and give drops

AGE	DOSE	VITAMIN A CAPSULES
		100 000 IU
6-12 months	100 000 IU	1 capsule
Over 12 months	200 000 IU	2 capsules

➢ Give Iron

- Give two doses daily for a total of 2 months (p 17)
  - 5mg/kg/day elemental iron

AGE or WEIGHT	IRON SYRUP Ferrous gluconate (kiddivite) TWICE DAILY
2 months up to 4 months (4 - <6 kg)	2.5 ml
4 months up to 24 months (6 - <15 kg)	5 ml
2-5 years (15 - 23 kg)	10ml

➢ Give Co-artemether for Malaria

- Give the first dose of co-artemether in the clinic and observe for one hour
- If patient vomits within an hour repeat the dose
- Second dose should be taken at home 8 hours later
- Then twice daily for further two days
- Co-artemether should be taken with food
- Refer all children under one year to hospital for malaria treatment

WEIGHT (age)	CO-ARTEMETHER DOSE	TOTAL NUMBER OF TABLETS
10 – 15kg (1-5 years)	1 tablet	6
Over 15kg	2 tablets	12

TEACH THE MOTHER TO TREAT LOCAL INFECTIONS AT HOME

- **Explain to the mother what the treatment is and why it should be given.**
- **Describe the treatment steps listed in the appropriate box.**
- **Watch the mother as she does the first treatment in the clinic (except remedy for cough or sore throat).**
- **Tell her how often to do the treatment at home.**
- **If needed for treatment at home, give mother a small bottle of gentian violet or nystatin.**
- **Check the mother's understanding before she leaves the clinic.**

Treat the symptomatic HIV positive child

- Give co-trimoxazole five days a week for prophylaxis (p 9)
- Arrange regular monthly follow-up for ongoing treatment, growth monitoring and support for the family
- Build up the child's nutritional state: this is a very important part of the management.
  - Give vitamin A supplement every 6 months from the age of 6months and record on RTHC (p 9)
  - Assess feeding and counsel the mother about any feeding problems
  - Check and record the weight every month, refer the child if there is weight faltering despite adequate diet
- Look for thrush on every visit and treat accordingly
- Keep to the immunisation schedule but avoid BCG
- If there is a new problem assess and classify as at an initial visit and treat accordingly
- Counsel the mother about her own health
- Refer mother and child to a support group if available

Clear the Ear by Dry Wicking

- Dry the ear at least 3 times daily
  - Roll clean absorbent cloth or soft, strong tissue paper into a wick.
  - Place the wick in the child's ear.
  - Remove the wick when wet.
  - Replace the wick with a clean one and repeat these steps until the ear is dry.
  - The ear should not be plugged between dry moppings

Treat for Mouth Ulcers with Gentian Violet

- Treat for mouth ulcers twice daily.
  - Wash hands.
  - Wet a clean soft cloth with salt water and use it to wash the child's mouth.
  - Paint the mouth with 0,5 % gentian violet. (GV)
  - Wash hands again

Treat for Thrush with Nystatin or GV

- Clean the mouth as for Mouth Ulcers as above
- Instill nystatin 1ml four times a day and avoid feeding for 20 minutes after medication or treat with GV as above
- If breastfed advise mother to wash breasts after feeds. If bottle fed advise change to cup and spoon
- If severe, recurrent or pharyngeal thrush refer for HIV testing (see page 7)

Soothe the Throat, Relieve the Cough with a Safe Remedy

- Safe remedies to recommend:
  - Breastmilk for exclusively breastfed infant.
  - Honey and lemon
- Harmful remedies to discourage:
  - Herbal smoke inhalation.
  - Vicks® drops by mouth

GIVE THESE TREATMENTS IN CLINIC ONLY

- Explain to the mother why the drug is given.
- Determine the dose appropriate for the child's weight (or age).
- Use a sterile needle and sterile syringe. Measure the dose accurately.

Give An Intramuscular Antibiotic

FOR CHILDREN BEING REFERRED URGENTLY WHO CANNOT TAKE AN ORAL ANTIBIOTIC:
Give first dose of intramuscular **ceftriaxone** and refer child urgently to hospital.

- Dose of ceftriaxone is 50mg per kilogram
- Dilute 250mg vial with 1ml of sterile water

AGE	WEIGHT	Dose Ceftriaxone/mg	Dose Ceftriaxone/mls
2 – 4months	4 – <6kg	250mg	1.0
4 – 12months	6 – <10kg	500mg	2.0
1 – 3yrs	10 – <15kg	750mg	3.0
3-5years	15 – 19kg	1g	4.0

IF REFERRAL IS NOT POSSIBLE OR DELAYED:

- Repeat the ceftriaxone injection every 24 hours
- **Where there is a strong suspicion of MENINGITIS (if there is a stiff neck or bulging fontanelle) the dose may be doubled**

Give Mebendazole or Albendazole

- Give 500 mg mebendazole (or 400mg albendazole) as a single dose in clinic if:
  - the child is 1 year of age or older, and
  - the child has not had a dose in the previous 6 months.

Give Nebulised Adrenaline to a child with Stridor

- Add 1ml of 1:1000 adrenaline (one vial) to 1ml of saline and give as a nebuliser
- Repeat every 20 minutes until the child is transferred

Treat To Stop a Convulsion

- Turn the child on his side and clear the airway.
- Avoid putting things in the mouth while he is convulsing.
- Give 0.5mg/kg diazepam injection solution per rectum using a small syringe without a needle (like a tuberculin syringe) or using a catheter
- Check the blood sugar level and treat accordingly. (p. 12)
- If convulsions have not stopped after 10 minutes, repeat diazepam dose.
- Give oxygen and REFER.

➢ Treat the Child to Prevent Low Blood Sugar

➢ **If the child is able to breastfeed:**

Ask the mother to breastfeed the child.

➢ **If the child is not breastfed or not able to breastfeed but is able to swallow:**

Give expressed breastmilk or a breastmilk substitute.
If neither of these is available, give sugar water.
Give 30-50 ml of milk or sugar water before departure.

To make sugar water: Dissolve 4 level teaspoons of sugar (20 grams) in a 200-ml cup of clean water.

➢ **If the child is not able to swallow:**

Insert nasogastric tube and check the position of the tube
Give 50 ml of milk or sugar water by nasogastric tube.

➢ Treat the child for low blood sugar. (Hypoglycaemia)

➢ **Hypoglycaemia must be suspected in any infant or child that**

- is convulsing or has loss of consciousness for which there is no obvious cause;
- has a rectal temperature below 35,5°C;
- is drowsy and sweating;
- is lethargic, floppy or jittery — particularly when less than 2 months old.

➢ Children with kwashiorkor are particularly likely to be hypoglycaemic

➢ **Whenever hypoglycaemia is suspected confirm this using blood glucose testing strips. If the blood sugar is less than**
3 mmol in a child or
2.5 mmol in a young infant,
the child has hypoglycaemia and should be given the following treatment:

➢ **TREATMENT**

- Give 10% Glucose 10ml / kg by nasogastric tube or
- Give the same amount slowly intravenously if a line is available.
- Keep warm.

GIVE EXTRA FLUID FOR DIARRHOEA AND CONTINUE FEEDING

(See FOOD advice on COUNSEL THE MOTHER chart)

➢Plan A: Treat for Diarrhoea at Home

Counsel the mother on the 3 Rules of Home Treatment:
Give Extra Fluid, Continue Feeding, When to Return

1. GIVE EXTRA FLUID (as much as the child will take)

➢ **TELL THE MOTHER:**
- Breastfeed frequently and for longer at each feed.
- If the child is exclusively breastfed, sugar-salt solution (SSS) in addition to breastmilk.
- If the child is not exclusively breastfed, give one or more of the following: SSS solution, food-based fluids such as soft porridge, amasi (maas) or ORS.

It is especially important to give ORS at home when:
- the child has been treated with Plan B or Plan C during this visit.
- the child cannot return to a clinic if the diarrhoea gets worse.

➢ **TEACH THE MOTHER HOW TO MIX AND GIVE SSS or ORS.**

➢ **SHOW THE MOTHER HOW MUCH FLUID TO GIVE IN ADDITION TO THE USUAL FLUID INTAKE:**

Up to 2 years	50 to 100 ml after each loose stool
2 years or more	100 to 200 ml after each loose stool

Tell the mother to:
- Give frequent small sips from a cup.
- If the child vomits, wait 10 minutes. Then continue, but more slowly.
- Continue giving extra fluid until the diarrhoea stops.

⇒ **NB ORS is mixed with the contents of the sachet to *correct* dehydration.**
SSS is the solution to be used at home to *prevent* dehydration

2. *CONTINUE FEEDING*

3. *WHEN TO RETURN*

} **See *COUNSEL THE MOTHER* chart (pp 18-20)**

➢Plan B: Treat for Some Dehydration with ORS

Give in clinic recommended amount of ORS over 4-hour period

➢ **DETERMINE AMOUNT OF ORS TO GIVE DURING FIRST 4 HOURS.**

AGE*	Up to 4 months	4 months up to 12 months	12 months up to 2 years	2 years up to 6 years
WEIGHT	< 6 kg	6 - < 10 kg	10 - < 12 kg	12 - 19 kg
In ml	200 - 400	400 - 700	700 - 900	900 - 1400

** Use the child's age only when you do not know the weight. The approximate amount of ORS required (in ml) can also be calculated by multiplying the child's weight in kg times 75 (75mls/kg). One teacup is approximately 200mls*

➢ **SHOW THE MOTHER HOW TO GIVE ORS SOLUTION.**
- Give frequent small sips from a cup.
- If the child vomits, wait 10 minutes. Then continue, but more slowly.
- Continue breastfeeding whenever the child wants.
- If the child wants more ORS than shown, give more.

➢ **AFTER 4 HOURS:**
- Reassess the child and classify the child for dehydration.
- Select the appropriate plan to continue treatment.
- Begin feeding the child in clinic.

➢ **IF THE MOTHER MUST LEAVE BEFORE COMPLETING TREATMENT:**
- Show her how to prepare ORS solution at home.
- Show her how much ORS to give to finish 4-hour treatment at home.
- Give her instructions how to prepare SSS for use at home.
- Explain the 3 Rules of Home Treatment:

1. *GIVE EXTRA FLUID*
2. *CONTINUE FEEDING*
3. *WHEN TO RETURN*

} **See Plan A for recommended fluids and See *COUNSEL THE MOTHER* chart (pp 18 - 20)**

GIVE EXTRA FLUID FOR DIARRHOEA AND CONTINUE FEEDING

(See FOOD advice on COUNSEL THE MOTHER chart)

➢ *Plan C: Treat for Severe Dehydration Quickly*

➢ **FOLLOW THE ARROWS. IF ANSWER IS "YES", GO ACROSS. IF "NO", GO DOWN.**

START HERE

Can you give intravenous (IV) fluid immediately? — YES →

- **Start IV fluid immediately.** If the child can drink, give ORS by mouth while the drip is set up. Give 100 ml/kg Ringer's Lactate Solution (or, if not available, normal saline), divided as follows:

AGE	First give	Then give
Infants (under 12 months)	1 hour*	5 hours
Children (12 months up to 5 years)	30 minutes*	2 1/2 hours

**Repeat once if radial pulse is weak or not detectable.*

- **Arrange urgent referral to hospital for further management**
- **Reassess the child every 1- 2 hours while awaiting transfer.** If hydration status is not improving, give the IV drip more rapidly.
- Also give ORS (about 5 ml/kg/hour) as soon as the child can drink: usually after 3-4 hours (infants) or 1-2 hours (children) or by naso-gastric tube.
- Reassess an infant after after 3 hours if he is still at the clinic. Classify dehydration. Then choose the appropriate plan (A, B, or C) to continue treatment.

NO ↓

Is IV treatment available nearby (within 30 minutes)? — YES →

- **Refer URGENTLY to hospital for IV treatment.**
- If the child can drink, provide the mother with ORS solution and show her how to give frequent sips during the trip or give ORS by naso-gastic tube.

NO ↓

Are you trained to use a naso-gastric (NG) tube for

NO ↓

Can the child

NO ↓

Refer URGENTLY to hospital for IV or NG treatment

YES →

- **Start rehydration by tube (or mouth) with ORS solution:** give 20 ml/kg/hour for 6 hours (total of 120 ml/kg).
- **Arrange urgent referral to hospital for further management**
- **Reassess the child every 1-2 hours while waiting transfer:**
  -If there is repeated vomiting or abdominal distension, give the fluid more slowly.
- After 6 hours reassess the child if he is still at the clinic. Classify dehydration. Then choose the appropriate plan (A, B, or C) to continue treatment.

NOTE:

- If the child is not referred to hospital, observe the child at least 6 hours after rehydration to be sure the mother can maintain hydration giving the child ORS solution by mouth.

IMMUNISE EVERY SICK CHILD, AS NEEDED

GIVE FOLLOW-UP CARE

Care for the child who returns for follow-up using ALL the boxes that match child's previous classifications.
If the child has any new problem, assess, classify and treat the new problem as on the *ASSESS AND CLASSIFY* chart.

➢ PNEUMONIA

After 2 days:

Check the child for general danger signs. Assess the child for cough or difficult breathing. } See ASSESS & CLASSIFY p2

Ask:
- Is the child breathing slower?
- Is there less fever?
- Is the child eating better?

Treatment:

- **If chest indrawing or a general danger sign**, give a dose of ceftriaxone IMI. Then REFER **URGENTLY to hospital.**
- **If breathing rate, fever and eating are the same, or worse REFER.** (unless the child has not been taking the antibiotics correctly)
- **If breathing slower, less fever, or eating better,** complete the 5 days of antibiotic.
- **Remind the mother to give one extra meal daily for a week.**

➢ PERSISTENT DIARRHOEA

After 5 days:
Ask:
- Has the diarrhoea stopped?
- How many loose stools is the child having per day?

Treatment:

- **If the diarrhoea has not stopped (child is still having 3 or more loose stools per day),** do a full reassessment of the child. Treat for any dehydration present. Then refer to hospital.
- **If the diarrhoea has stopped (child having less than 3 loose stools per day),** tell the mother to follow the usual feeding recommendations for the child's age but to **give one extra meal every day for one week.**
- **NB Attention to the diet is an essential part of the management of the child with persistent diarrhoea.**

➢ DYSENTERY

After 2 days:

Assess the child for diarrhoea. > *See ASSESS & CLASSIFY p3*
Ask:
- Are there fewer stools?
- Is there less blood in the stool?
- Is there less fever?
- Is there less abdominal pain?
- Is the child eating better?

Treatment:

- If the child is **dehydrated,** treat for dehydration (pp 13 and 14) and refer to hospital
- **If number of stools, blood in the stools, fever, abdominal pain, or eating is worse or the child is vomiting everything REFER.**
- **If the number of stools is the same or fever persists** add metronidazole to the treatment. Give it for 5 days. Advise the mother to return in 2 days.
- **If fewer stools, less fever, less abdominal pain, and eating better,** continue giving nalidixic acid until finished.

Ensure that – the mother understands the oral rehydration method fully
—the mother understands the need for an extra meal each day for a week.

➢ WHEEZING

- **After 2 days:** If not improved or worse REFER
- **After 5 days:** If still wheezing REFER
- If no wheezing give salbutamol to be given via a spacer at home at the onset of a wheezing attack. Return to the clinic if not improved within 4 hours.

GIVE FOLLOW-UP CARE

- **Care for the child who returns for follow-up using all the boxes that match the child's previous classifications.**
- **If the child has any new problem, assess, classify and treat the new problem as on the *ASSESS AND CLASSIFY* chart.(p. 4)**

MALARIA or FEVER- MALARIA UNLIKELY (Malaria risk present)

If fever persists after 2 days, or returns within 14 days:
Do a full reassessment of the child. > *See ASSESS & CLASSIFY (p 4)*
Assess for other causes of fever.

Treatment:

- **If the child has any general danger sign, bulging fontanelle or stiff neck**, treat as VERY SEVERE FEBRILE DISEASE. (p 4)
- **If the child has any cause of fever other than malaria**, provide treatment.
- **If malaria rapidtest was negative at the initial visit** and there is no other cause for the fever, repeat the test. If positive, treat with co-Artem. If rapidtest is negative refer the child to hospital.
- **If malaria rapidtest was positive at initial visit** and fever persists or recurs refer the child to hospital

FEBRILE ILLNESS (No malaria risk)

If fever persists after 2 days:
Do a full reassessment of the child. > *See ASSESS & CLASSIFY (p. 4)*
Assess for other causes of fever. (See foot-note p.4)

Treatment:

- **If the child has any general danger sign or stiff neck or bulging fontanelle**, treat as for VERY SEVERE FEBRILE DISEASE. (p 4)
- **If the child has any identified cause of fever** provide treatment.
- **If no other cause of fever is found** refer to hospital.
- **If fever has been present for 7 days**, refer for assessment.

THE SYMPTOMATIC HIV POSITIVE CHILD

- Provide ongoing management for the HIV positive child as described on TREAT THE CHILD chart (p 10)
- Give cotrimoxazole five days per week for long term prevention of pneumonia (p9).
- See the child regularly (every month if possible) as agreed with the mother to provide treatment, growth monitoring and support
- Identify and manage any feeding problems. Common feeding problems include poor appetite and mouth sores (p20).
- Look for thrush and treat (p10). Teach the mother to identify thrush at home so that it can be treated immediately
- Encourage the mother to involve the rest of the family in the care of the child
- Refer to support groups in the community if these are available
- Refer the child for home care when necessary
- Monitor the health of the mother and advise her about safer sexual practices and family planning
- If the mother becomes pregnant again discuss with her the choices with regard to continuing the pregnancy and appropriate feeding choice to reduce transmission of HIV to the new baby

GIVE FOLLOW-UP CARE

- **Care for the child who returns for follow-up using all the boxes that match the child's previous classifications.**
- **If the child has any new problem, assess, classify and treat for the new problem as on the *ASSESS AND CLASSIFY* chart.**

EAR INFECTION

After 2 days for acute ear infection if pain persists or after five days if discharge persists
After two weeks for a chronic ear infection :

Reassess for ear problem. > *See ASSESS & CLASSIFY chart. (p. 5)*
Measure the child's temperature.

Treatment:

- If there is **tender swelling behind the ear or high fever (38°C or above)**, refer URGENTLY to hospital.
- **Acute ear infection: if ear pain or discharge** persists, treat with 5 more days of amoxycillin. Continue wicking the ear. Follow-up in 5 days.
- **Chronic ear infection:** Check that the mother is wicking the ear correctly. Encourage her to continue. Return for review after 2 weeks.
- **If no ear pain or discharge**, praise the mother for her careful treatment. If she has not yet finished the 5 days of amoxycillin, tell her to use all of it before stopping.

FEEDING PROBLEM

After 5 days:

Reassess feeding. > *See questions on the COUNSEL chart (p 18)*
Ask about any feeding problems found on the initial visit.

- Counsel the mother about any new or continuing feeding problems. (p 20) If you counsel the mother to make significant changes in feeding, ask her to bring the child back again.
- If the child is low weight for age, ask the mother to return in another 14 days to measure the child's weight gain.

PALLOR

After 14 days:

- Check haemoglobin, **if less than at previous visit REFER.**
- **If the haemoglobin is static or has improved** continue to give iron. Advise mother to return after 14 days for more iron.
- Continue giving iron every day for 2 months.
- If the haemoglobin has not improved or the child has palmar pallor after one month, refer for assessment

LOW WEIGHT

After 14 days:

Weigh the child and determine if the child is still low weight for age.
Reassess feeding. > *See questions on the COUNSEL chart. (p 18)*

TREATMENT:

- If the child is **no longer low weight for age and is gaining weight well**, praise the mother and encourage her to continue.
- If the child is still **low weight for age but gaining weight**, counsel the mother about any feeding problem found. Ask the mother to return again after 2 weeks. Continue to see the child monthly until the child is feeding well and gaining weight regularly or is no longer low weight for age. Also ask about poor appetite. (see p 20)
- **If the child has failed to gain weight or has lost weight, refer the child. Consider** HIV infection. (p 7)

Exception:
If you do not think that feeding will improve, refer the child.

IF ANY MORE FOLLOW-UP VISITS ARE NEEDED BASED ON THE INITIAL VISIT OR THIS VISIT, ADVISE THE MOTHER OF THE **NEXT FOLLOW-UP VISIT**
ALSO, ADVISE THE MOTHER **WHEN TO RETURN IMMEDIATELY (P: 21)**

COUNSEL THE MOTHER

➢ Assess the Feeding of Sick Children under 2 years (or if anaemia or low weight)

Ask questions about the child's usual feeding and feeding during this illness. Compare the mother's answers to the ***Feeding Recommendations*** for the child's age on p 19

ASK -

➢ Do you breastfeed your child?
- How many times during the day?
- Do you also breastfeed during the night?

➢ Does the child take any other food or fluids?
- What food or fluids?
- How many times per day?
- What do you use to feed the child?
- **If low weight for age:** How large are servings? Does the child receive his own serving? Who feeds the child and how?

➢ During this illness, has the child's feeding changed? If yes, how?

CONTINUED on pp. 19 and 20

➢ Counsel the mother of a symptomatic HIV positive child

➢ Reassure her that with the help of the clinic staff and the community support group much can be done to improve and maintain the child's health. Reassure her that confidentiality will be respected.

➢ Determine the mother's HIV status and give advice regarding future pregnancies, 'safe' sex and early treatment of STD's.

➢ Ensure good nutrition:
- continue breastfeeding
- give frequent nutritious meals
- replace cow's milk with amasi

➢ Advise regarding protection against infection: avoid contact with anyone with a respiratory infection or diarrhoea.

➢ Feeding Advice for the HIV Positive Mother who has Chosen Not to Breastfeed

➢ Ensure that there is an adequate supply of breastmilk substitutes.

➢ Ensure that it is an appropriate substitute.

➢ Ensure that the milk is prepared correctly and hygienically.

➢ Use a cup and a spoon rather than a bottle and demonstrate how to feed.

➢ Ensure that the mother knows how to clean utensils adequately

➢ Ensure that the mother understands that the prepared feed must be finished within an hour after preparation.

FEEDING RECOMMENDATIONS IN SICKNESS AND IN HEALTH

Up to 4 Months of Age

- Breastfeed as often as the child wants, day and night, at least 8 times in 24 hours.
- Do not give other foods or fluids.

4 Months up to 6 Months

- Breastfeed as often as the child wants, day or night, at least 8 times in 24 hours.
- Only if the child is not gaining weight adequately, add complementary foods (listed under 6 months up to 12 months)

Give these foods 1 or 2 times per day after breastfeeding.

6 Months up to 12 Months

- Breastfeed as often as the child wants.
- Give adequate servings of: Porridge with added oil, peanut butter or ground peanuts, margarine, mashed banana and chicken, beans, full cream milk, fruit and vegetables, spinach, mashed avocado or family food.

THE CHILD SHOULD EAT AT LEAST THREE TIMES PER. (if not breastfed should eat at least 5 times daily)

12 Months up to 2 Years

- Breastfeed as often as the child wants.
- Give adequate servings of: Porridge with added oil, peanut butter or ground peanuts, margarine and chicken, beans, full cream milk, fruit and vegetables, mashed avocado or banana , canned fish or family food.

THE CHILD SHOULD EAT AT LEAST FIVE TIMES PER DAY.

2 Years and Older

- Give family foods at 3 meals each day. Also, twice daily, give nutritious food between meals, such as bread with peanut butter or Marmite, fresh fruit or full cream milk.

Feeding Recommendations For a Child Who Has PERSISTENT DIARRHOEA

- If still breastfeeding, give more frequent, longer breastfeeds, day and night.
- If taking other milk:
  - replace with increased breastfeeding OR
  - replace with fermented milk products, such as amasi(maas) or yoghurt OR
  - replace half the milk with nutrient-rich semisolid food (like mashed fruit or vegetables.)
- For other foods, follow feeding recommendations for the child's age.

REMEMBER TO ENCOURAGE FEEDING DURING ILLNESS AND TO ADVISE TO GIVE AN EXTRA MEAL A DAY FOR ONE WEEK AFTER AN ILLNESS.

➢ Counsel the Mother About Feeding Problems

If the child is not being fed as described in the above recommendations, counsel the mother accordingly.
In addition:

➢ If the mother reports difficulty with breastfeeding, assess breastfeeding. (See *YOUNG INFANT p. 29*)
As needed, show the mother correct positioning and attachment for breastfeeding.

➢ If the child is less than 4 months old and is taking other milk or foods

- Build mother's confidence that she can produce all the breastmilk that the child needs
- Suggest giving more frequent, longer breastfeeds day or night, and gradually reducing other milk or foods.
- If other milk needs to be continued, counsel the mother to:
  - Breastfeed as much as possible, including at night.
  - Make sure that other milk is a locally appropriate breastmilk substitute.
  - Make sure other milk is correctly and hygienically prepared and given in adequate amounts.
  - Finish prepared milk within an hour.

➢ If the mother is using a bottle to feed the child:

- Recommend substituting a cup for bottle.
- Show the mother how to feed the child with a cup.

➢ If the child is not being fed actively, counsel the mother to:

- Sit with the child and encourage eating.
- Give the child an adequate serving in a separate plate or bowl.

➢ If the child is not feeding well during illness, counsel the mother to:

- Breastfeed more frequently and for longer if possible.
- Use soft, varied, appetizing, favourite food to encourage the child to eat as much as possible, and offer frequent small feedings.
- Clear a blocked nose with saline drops if it interferes with feeding.
- Expect that appetite will improve as child gets better.

➢ Follow-up any child with a feeding problem in 5 days.
If no improvement consider symptomatic HIV infection. (p 7)

If the child has a poor appetite:

- Plan small frequent meals.
- Give milk rather than other fluids except where there is diarrhoea with some dehydration
- Give foods with a high energy content.
- Give snacks between meals.
- Check for oral thrush or mouth ulcers.
- Consider HIV If the appetite remains persistently poor.

If the child has mouth sores: (p10)

- Recommend soft foods that don't burn the mouth e.g. eggs, mashed potatoes, pumpkin or avocado.
- Chop foods finely.
- Give cold drinks or crushed ice, if available.
- Avoid spicy, salty and rough foods.

FLUID

➢ Advise the Mother to Increase Fluid During Illness

FOR ANY SICK CHILD:

- ➢ Breastfeed more frequently and for longer at each feed.
- ➢ Increase fluid. For example, give soft porridge, amasi, SSS or clean water.

FOR CHILD WITH DIARRHOEA:

- ➢ Giving extra fluid can be lifesaving. Give fluid according to Plan A or Plan B on *page 13*.

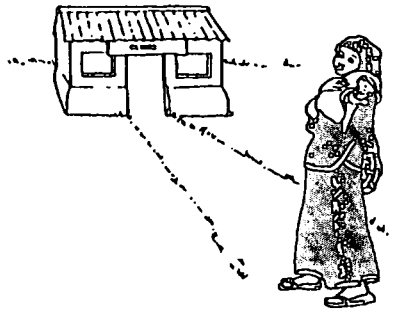
➢ Advise the Mother When to Return to Health Worker

FOLLOW-UP VISIT

Advise the mother to come for follow-up at the earliest time listed for the child's problems.

If the child has:	Return for follow-up in:
PNEUMONIA DYSENTERY MALARIA, FEBRILE ILLNESS, If fever persists WHEEZING	2 days
PERSISTENT DIARRHOEA CHRONIC EAR INFECTION FEEDING PROBLEM ANY OTHER ILLNESS, If not improving	5 days
PALLOR	14 days
LOW WEIGHT FOR AGE - but no feeding problem	14 days

NEXT WELL-CHILD VISIT
Advise mother when to return for next immunisation according to immunisation schedule.



WHEN TO RETURN IMMEDIATELY

Advise mother to return immediately if the child has any of these signs:	
Any sick child	◦ Not able to drink or breastfeed ◦ Becomes sicker ◦ Develops a fever
If child has NO PNEUMONIA: COUGH OR COLD, return if:	◦ Fast breathing ◦ Difficult breathing ◦ Wheezing
If child has Diarrhoea, return if:	◦ Blood in stool ◦ Vomiting everything ◦ Drinking poorly

ASSESS, CLASSIFY AND TREAT THE SICK YOUNG INFANT
AGE 1 WEEK UP TO 2 MONTHS

ASSESS

CLASSIFY

IDENTIFY TREATMENT

DO A RAPID APRAISAL OF ALL WAITING CHILDREN

ASK THE MOTHER WHAT THE YOUNG INFANT'S PROBLEMS ARE

- Determine if this is an initial or follow-up visit for this problem.
  - If follow-up visit, use the follow-up instructions on page 30
  - If initial visit, assess the young infant as follows:

USE ALL BOXES THAT MATCH INFANT'S SYMPTOMS AND PROBLEMS TO CLASSIFY THE ILLNESS.

CHECK FOR POSSIBLE BACTERIAL INFECTION

ASK:

- Has the infant had convulsions?
- Has the infant had any attacks where he stops breathing, becomes stiff and becomes blue (ie apnoea)?
- Is the infant taking feeds well?
- Is the child irritable or lethargic?

LOOK, LISTEN, FEEL:

- Is the baby convulsing now?
- Count the breaths in one minute. Repeat the count if elevated.
- Look for severe chest indrawing.

} YOUNG INFANT MUST BE CALM

- Look for nasal flaring.
- Listen for grunting.
- Look and feel for full or bulging fontanelle.
- Look at the umbilicus. Is it red or draining pus? Does the redness extend to the skin?
- Measure temperature (or feel for fever or low body temperature).
- Look for skin pustules. Are there many or severe pustules?
- Look for pus draining from the eye or ear.
- See if the young infant is lethargic or unconscious.
- Look at the young infant's movements. Are they less than normal?

Classify ALL YOUNG INFANTS

SIGNS	CLASSIFY AS	TREATMENT
• Convulsing or • Previous Convulsions or • Fast breathing (60 breaths per minute or more) or • Severe chest indrawing or • Nasal flaring or • Grunting or • Bulging fontanelle or • Pus draining from the eye or ear or • Umbilical redness extending to the skin and/or draining pus or • Fever (37.5°C axilla or above or feels hot) or low body temperature (less than 35.5°C axilla or feels cold) or • Many or severe skin pustules or • Lethargic or unconscious or • Less than normal movement or apnoea attacks or • Jaundice getting worse or still present after 2weeks or • Not taking feeds	**POSSIBLE SERIOUS BACTERIAL INFECTION**	➢ **Give diazepam rectally if convulsing at present (see p. 10)** ➢ **Give oxygen for respiratory distress and for convulsions** ➢ **Give first dose of im ceftriaxone (see p 26)** ➢ **Treat for and to prevent low blood sugar. (see p. 12)** ➢ **Advise mother how to keep the infant warm on the way to the hospital.** ➢ **Refer URGENTLY to hospital.**
• Red umbilicus • Skin pustules.	**LOCAL BACTERIAL INFECTION**	➢ Give amoxycillin for five days ➢ Teach the mother to treat local infections at home. ➢ Advise mother to give home care for the young infant. ➢ Follow-up in 2 days.

THEN ASK:
Does the young infant have diarrhoea?

IF YES, ASK:

- For how long?
- Is there blood in the stool?

LOOK AND FEEL:

- Look at the young infant's general condition. Is the infant:
  - -Lethargic or unconscious?
  - -Restless and irritable?
- Look for sunken eyes.
- Pinch the skin of the abdomen. Does it go back:
  - -Very slowly (longer than 2 seconds)?
  - -or Slowly?

Classify DIARRHOEA

for DEHYDRATION		
Two of the following signs: • Lethargic or unconscious • Sunken eyes • Skin pinch goes back very slowly.	**DIARRHOEA WITH SEVERE DEHYDRATION**	➢ **Refer URGENTLY to hospital with intravenous infusion (see plan C p.14) and mother giving frequent sips of ORS on the way if possible.** ➢ **Give the first dose of ceftriaxone IMI** ➢ **Advise the mother to continue breastfeeding** ➢ **Keep the child warm.**
Two of the following signs: • Restless, irritable • Sunken eyes • Skin pinch goes back slowly.	**DIARRHOEA WITH SOME DEHYDRATION**	➢ Give fluid for some dehydration (Plan B p.13) ➢ **If infant also has POSSIBLE SERIOUS BACTERIAL INFECTION:-** **Refer URGENTLY to hospital** **Keep warm, with mother giving frequent sips of ORS on the way** **Give first dose ceftriaxone IMI** **Advise mother to breastfeed.**
• Not enough signs to classify as some or severe dehydration.	**NO VISIBLE DEHYDRATION**	➢ Give fluids to treat for diarrhoea at ➢ Home (Plan A). p. 13 ➢ Follow up in 2 days. ➢ If exclusively breastfed do not give other fluids except SSS
and if diarrhoea 14 days or more		
•Diarrhoea lasting 14 days or more.	**SEVERE PERSISTENT DIARRHOEA**	➢ **If the young infant is dehydrated, treat for dehydration before referral unless the infant has also POSSIBLE SERIOUS BACTERIAL INFECTION.** ➢ **Refer to hospital and keep warm.**
and if blood in stool		
• Blood in the stool.	**POSSIBLE SERIOUS ABDOMINAL PROBLEM**	➢ **Refer URGENTLY to hospital** ➢ **Keep warm on the way to hospital**

THEN CHECK FOR FEEDING PROBLEM OR LOW WEIGHT:

ASK:

- Is there any difficulty feeding?
- Is the infant breastfed?
- If yes,how many times in 24 hours?
- Does the infant usually receive any other foods or drinks?
  If yes, how often?

LOOK, LISTEN,FEEL:

- Plot the weight on the RTHC to determine the weight for age.

IF AN INFANT: **Has any difficulty feeding,**
Is breastfeeding less than 8 times in 24 hours,
Is taking any other foods or drinks, or
Is low weight for age,

AND

Has no indications to refer urgently to hospital:

THEN ASSESS BREASTFEEDING

- Has the infant breastfed in the previous hour?

If the infant has not fed in the previous hour, ask the mother to put her infant to the breast. Observe the breastfeed for 4 minutes.

(If the infant was fed during the last hour, ask the mother if she can wait and tell you when the infant is willing to feed again.)

- Is the infant able to attach?
  no attachment at all *not well attached* *good attachment*

TO CHECK ATTACHMENT, LOOK FOR:

- *Chin touching breast*
- *Mouth wide open*
- *Lower lip turned outward*
- *More areola visible above than below the mouth*

(All these signs should be present if the attachment is good.)

Is the infant suckling effectively (that is, slow deep sucks, sometimes pausing)?
not suckling at all *not suckling effectively* *suckling effectively*

- Clear a blocked nose with saline drops if it interferes with breastfeeding.
- Look for ulcers or white patches in the mouth (thrush).

Classify FEEDING

• Not able to feed or • No attachment at all or • Not suckling at all.	**NOT ABLE TO FEED - POSSIBLE SERIOUS BACTERIAL INFECTION**	**➢ Give first dose of ceftriaxone IMI.** **➢ Treat to prevent low blood sugar. (p. 12)** **➢ Advise the mother how to keep the young infant warm on the way to the hospital.** **➢ Refer URGENTLY to hospital.**
• Not well attached to breast or • Not suckling effectively or • Less than 8 breastfeeds in 24 hours or • Receives other foods or drinks or • Low weight for age or • Weight gain is unsatisfactory or • Thrush (ulcers or white patches in mouth)	**FEEDING PROBLEM OR LOW WEIGHT**	➢ Advise the mother to breastfeed as often and for as long as the infant wants, day and night. ◦ If not well attached or not suckling effectively, teach correct positioning and attachment. ◦ If breastfeeding less than 8 times in 24 hours, advise to increase frequency of feeding. ➢ If receiving other foods or drinks, counsel mother about breastfeeding more, reducing other foods or drinks, and using a cup. ◦ If not breastfeeding at all: - Refer for breastfeeding counselling and possible relactation. - Advise about correctly preparing breastmilk substitutes and using a cup. -If an HIV positive mother has chosen not to breast feed give feeding advice (p.18) ➢ If thrush, teach the mother to treat for thrush at home. (p 28) ➢ Advise mother to give home care for the young infant. (p 29) ➢ Follow-up any feeding problem or thrush in 2 days.
• Not low weight for age and no other signs of inadequate feeding.	**NO FEEDING PROBLEM**	➢ Advise mother to give home care for the young infant. (p. 29) ➢ Praise the mother for feeding the infant well.

THEN CHECK IF THE YOUNG INFANT HAS ANY SPECIAL RISK FACTORS

IF

- the infant was premature or low birth weight
- there was birth asphyxia
- the infant is not breastfed
- the mother is a young adolescent
- the mother is known to be HIV positive
- there is severe socioeconomic deprivation

} This infant is at high risk and should be followed up every week for a month to ensure that there are no feeding problems and the child is gaining weight well Refer to an appropriate support group if possible.

THEN CHECK THE YOUNG INFANT'S IMMUNISATION STATUS:

IMMUNISATION SCHEDULE:

AGE	VACCINE		
Birth	BCG	OPV-0	
6 weeks	DPT+HIB-1	OPV-1	Hep B 1
10 weeks	DPT+HIB-2	OPV-2	Hep B 2

- **Give all missed doses on this visit.**
- **Include sick babies and those without a RTHC**
- **If the child has no RTHC, issue a new one to-day.**

ASSESS OTHER PROBLEMS

ASSESS THE MOTHER'S HEALTH NEEDS eg. Nutritional status and anaemia, contraception etc. Check hygiene practises (Also see p.22)

TREAT THE YOUNG INFANT AND COUNSEL THE MOTHER

Treat LOCAL BACTERIAL INFECTION with Amoxycillin syrup

AMOXYCILLIN SYRUP Give three times a day for five days	
AGE or WEIGHT	Amoxycillin Syrup 125 mg in 5 ml
Birth up to 1 month (< 3 kg)	1.25 ml
1 month up to 2 months (3-4 kg)	2.5 ml

Treat POSSIBLE SERIOUS BACTERIAL INFECTION with Intramuscular Ceftriaxone

- Give first dose of intramuscular Ceftriaxone
- The dose of Cefriaxone is 50mg per kilogram
- Dilute 250mg vial with 1ml of sterile water

WEIGHT	Ceftriaxone 250mg in 1ml
2 -3 kg	0.5 ml
>3 - 5 kg	1 ml

TREAT THE YOUNG INFANT AND COUNSEL THE MOTHER

➢ To Treat for Diarrhoea, See TREAT THE CHILD, pp 13 and 14

If there is DIARRHOEA WITH SEVERE DEHYDRATION or DIARRHOEA WITH SOME DEHYDRATION, see chart p13.
If there is "severe dehydration" commence intravenous rehydration, give the first dose of ceftriaxone IMI and REFER urgently. (p.14)

➢ Immunise Every Sick Young Infant, as Needed.

➢ Teach the Mother to treat Local Infections At home

- ➢ Explain how the treatment is given.
- ➢ Watch her as she does the first treatment in the clinic.
- ➢ Tell her to do the treatment twice daily.

➢ Treat for Eye Infection with Chloramphenicol Eye Ointment

- ➢ The mother should wash hands before and after treatment
- ➢ The eyes must be cleaned with a clean cloth then
- ➢ Chloramphenicol eye ointment is instilled inside the lower eyelid

} four times per day

➢ To Treat for Skin Pustules or Umbilical Infection

The mother should:

- ➢ Wash hands
- ➢ Gently wash off pus and crusts with soap and water
- ➢ Dry the area
- ➢ Paint with polyvidone iodine lotion or gentian violet
- ➢ Wash hands

➢ Treat for Thrush with Nystatin or Gentian Violet

The mother should:

- ➢ Wash hands
- ➢ Wash mouth with clean soft cloth wrapped around the finger and wet with salt water
- ➢ Give nystatin 1 ml 4 times a day or paint with diluted 0.5% gentian violet
- ➢ Wash hands
- ➢ Advise the mother on breast care
- ➢ Check bottle or other utensil in use for hygiene.

TREAT THE YOUNG INFANT AND COUNSEL THE MOTHER

➢ Teach Correct Positioning and Attachment for Breastfeeding

- ➢ the mother must be seated comfortably
- ➢ Show the mother how to hold her infant
  - with the infant's head and body straight
  - facing her breast, with infant's nose opposite her nipple
  - with infant's body close to her body
  - supporting infant's whole body, not just neck and shoulders.
- ➢ Show her how to help the infant to attach. She should:
  - touch her infant's lips with her nipple
  - wait until her infant's mouth is opening wide
  - move her infant quickly onto her breast, aiming the infant's lower lip well below the nipple.
- ➢ Look for signs of good attachment and effective suckling. If the attachment or suckling is not good, try again.
- ➢ If the baby is not being breastfed see p. 20

➢ Advise Mother to Give Home Care for the Young Infant

1. FLUIDS Breastfeed frequently, as often and for as long as the infant wants, day or night, during sickness and health.

2. WHEN TO RETURN
Follow-up Visit

If the infant has:	Return for follow-up in:
◦ LOCAL BACTERIAL INFECTION ◦ ANY FEEDING PROBLEM ◦ THRUSH	2 days
◦ LOW WEIGHT FOR AGE	7 days

When to Return Immediately:

Advise the mother to return immediately if the young infant has any of these signs:

- ➢ Breastfeeding poorly or drinking poorly
- ➢ Becomes sicker
- ➢ Develops a fever
- ➢ Fast breathing
- ➢ Difficult breathing
- ➢ Blood in stool
- ➢ Vomits everything
- ➢ Irritable or lethargic

3. MAKE SURE THAT THE YOUNG INFANT IS KEPT WARM AT ALL TIMES.
In cool weather cover the infant's head and feet and dress the infant with extra clothing.

GIVE FOLLOW-UP CARE FOR THE SICK YOUNG INFANT

If there is a new problem- assess, classify and treat the new problem as on the ASSESS AND CLASSIFY chart

➢ *LOCAL BACTERIAL INFECTION*

After 2 days:
Look at the umbilicus. Is it red or draining pus? Does redness extend to the skin?
Look at the skin pustules. Are there many or severe pustules?

Treatment:

- If **redness remains or is worse**, refer to hospital.
- If **pus develops** refer to hospital
- If **redness is improved**, tell the mother to continue giving the 5 days of antibiotic and continue treating for the local infection at home.

➢ *THRUSH*

After 2 days:
Look for white patches in the mouth (thrush).
Reassess feeding. > See "Then Check for Feeding Problem or Low Weight" above. See p. 25.

- If **thrush is worse** check that treatment is being given correctly, consider HIV (p 7)
- If the infant has **problems with attachment or suckling**, refer to hospital.
- If thrush is the same or better, and the baby is feeding well , continue with nystatin (or gentian violet) for a total of 5 days.

GIVE FOLLOW-UP CARE FOR THE SICK YOUNG INFANT

➢ FEEDING PROBLEM

After 2 days:
Reassess feeding. > See "Then Check for Feeding Problem or Low Weight" above. (p 25)
Ask about any feeding problems found on the initial visit.

- **Counsel the mother about any new or continuing feeding problems. If you counsel the mother to make significant changes in feeding, ask her to bring the young infant back again after 5 days.**
- **If the young infant is low weight for age, ask the mother to return after a further 5 days after the initial visit to measure the young infant's weight gain.**
- **If the young infant has lost weight, refer the child.**

Exception:
If you do not think that feeding will improve, refer the child.

➢ LOW WEIGHT

After 7 days:
Weigh the young infant and determine if the infant is still low weight for age.
Reassess feeding. > See "Then Check for Feeding Problem or Low Weight" above.

- **If the infant is no longer low weight for age, praise the mother and encourage her to continue.**
- **If the infant is still low weight for age, but is gaining weight, praise the mother. Ask her to have her infant weighed again within 14 days or when she returns for immunisation., whichever is the earlier.**
- **If the infant is still low weight for age and still has a feeding problem REFER.**

Exception:
If you do not think that feeding will improve, or if the young infant has lost weight, refer to hospital.

Appendix 2

Participant No .....

Checklist for monitoring outpatient sessions
Sick child age 2 months to 5 years

	Observations	1	2	3	4	5	6	7	8	9	10
	Child's age in months										
	Danger sign										
Cough	Severe pneumonia very severe d										
	Pneumonia										
	No pneumonia cough or cold										
Diarrhoea	Severe dehydration										
	Some dehydration										
	No visible dehydration										
	Severe persistent										
	Persistent										
	Dysentery										
Fever	V severe febrile disease/meningitis										
	Fever other cause										
Malaria	V severe disease/meningitis/malaria										
	Malaria										
	Fever malaria unlikely										
Measles	Severe complicated measles										
	Measles with eye/ear complications										
	Measles										
Ear problem	Mastoiditis										
	Acute ear infection										
	Chronic ear infection										
	No ear infection										
Malnutrition	Severe malnutrition/anaemia										
Anaemia	Anaemia/Low weight										
	No anaemia / not low weight										
Other	Suspected symptomatic of HIV										
	Any other problem										
	Immunisation checked										
	Counselled when to return										
Treat	Oral drugs										
	Plan A										
	Plan B										
	Local infections										
Counsel feeding	Asks feeding questions										

Appendix 3 Participant ..... Case .....

EVALUATION FOR IMCI CONSULTATION

Child under the age of 5 years	Tick	Comment
Mother / caregiver greeted – particulars established		
Child's problem established		
Danger signs		
◦ Not able to drink		
◦ Vomits everything		
◦ Convulsions now or with this illness		
◦ Lethargic or unconscious		
Cough or difficult breathing		
◦ For how long?		
◦ Count breaths for one minute		
◦ Chest in-drawing		
◦ Stridor or wheeze		
◦ Previous chest infection in last 3 months		
Classify		
Diarrhoea		
◦ For how long?		
◦ Is there blood in the stools?		
◦ Treatment given?		
◦ General condition – lethargic or unconscious or		
◦ Restless and irritable		
◦ Sunken eyes		
◦ Dry mouth		
◦ Offer fluid – drinks poorly, eagerly/thirsty, normal		
◦ Skin pinch – slow, very slow, normal		
◦ Two previous episodes of diarrhoea in last 3 months		
◦ One episode of persistent diarrhoea in last 3 months		
Classify		
Fever		
◦ Decide malaria risk		
◦ For how long?		
◦ If more than 7 days, has it been present every day?		
◦ Bulging fontanelle		
◦ Stiff neck		
◦ Malaria rapid test if malaria risk present		
◦ Other cause of fever		
◦ Has the child had fever for more than 1 month?		
Classify		
Ear problem		
◦ Is there ear pain?		

○ Is there ear discharge?		
○ For how long?		
○ Look for pus from the ear		
○ Feel for tender swelling behind the ear		
Classify		
Malnutrition and Anaemia		
○ Determine weight for age (RTHC)		
○ Check growth curve		
○ Look for palmar pallor		
○ Check Hb if pallor present		
○ Check oedema of feet		
○ Look for signs of visible severe wasting		
○ Is the weight below 3rd centile?		
○ Is weight gain poor?		
○ Is there weight loss?		
Classify		
Check immunisation status		
Assess other problems		
Consider symptomatic HIV infection		
○ Recent chest infection in last 3 months		
○ Two or more episodes of diarrhoea in last 3 months		
○ Persistent diarrhoea in last 3 months		
○ Fever for one month or more		
○ Does the child have poor appetite?		
○ Chronic ear infection		
○ Evidence of present or past herpes zoster		
○ History or evidence of severe seborrheic dermatitis		
○ History of past or present TB		
○ Parent or sibling known to have TB		
○ Parent or sibling known to have HIV		
○ Weight below 3rd centile		
○ Poor weight gain according to RTHC		
○ Enlarged lymph glands in more than one site		
○ Oral thrush that extends to the back of the throat		
Classify		
Assess feeding if anaemic or malnourished or if child below 2 years old		
Correct overall classifications		
Appropriate treatment		
Appropriate counselling / health education		
Appropriate follow up		
Appropriate recording		

Comments

Appendix 4

Participant No .....

Checklist for monitoring outpatient sessions
Sick child age 2 months to 5 years

	Observations	1	2	3	4	5	6	7	8	9	10
	Child's age in months										
	Danger sign										
Cough	Severe pneumonia very severe d										
	Pneumonia										
	No pneumonia cough or cold										
Diarrhoea	Severe dehydration										
	Some dehydration										
	No visible dehydration										
	Severe persistent										
	Persistent										
	Dysentery										
Fever	V severe febrile disease/meningitis										
	Fever other cause										
Malaria	V severe disease/meningitis/malaria										
	Malaria										
	Fever malaria unlikely										
Measles	Severe complicated measles										
	Measles with eye/ear complications										
	Measles										
Ear problem	Mastoiditis										
	Acute ear infection										
	Chronic ear infection										
	No ear infection										
Malnutrition	Severe malnutrition/anaemia										
Anaemia	Anaemia/Low weight										
	No anaemia / not low weight										
Other	Suspected symptomatic of HIV										
	Any other problem										
	Immunisation checked										
	Counselled when to return										
Treat	Oral drugs										
	Plan A										
	Plan B										
	Local infections										
Counsel feeding	Asks feeding questions										
	Identifies feeding problems										
	Counsels on feeding problems										

Appendix 5 Participant ..... Case .....

EVALUATION FOR IMCI CONSULTATION

Child under the age of 5 years	Tick	Comment
Mother / caregiver greeted – particulars established		
Child's problem established		
Danger signs		
◦ Not able to drink		
◦ Vomits everything		
◦ Convulsions now or with this illness		
◦ Lethargic or unconscious		
Cough or difficult breathing		
◦ For how long?		
◦ Count breaths for one minute		
◦ Chest in-drawing		
◦ Stridor or wheeze		
◦ Previous chest infection in last 3 months		
Classify		
Diarrhoea		
◦ For how long?		
◦ Is there blood in the stools?		
◦ Treatment given?		
◦ General condition – lethargic or unconscious or		
◦ Restless and irritable		
◦ Sunken eyes		
◦ Dry mouth		
◦ Offer fluid – drinks poorly, eagerly/thirsty, normal		
◦ Skin pinch – slow, very slow, normal		
◦ Two previous episodes of diarrhoea in last 3 months		
◦ One episode of persistent diarrhoea in last 3 months		
Classify		
Fever		
◦ Decide malaria risk		
◦ For how long?		
◦ If more than 7 days, has it been present every day?		
◦ Bulging fontanelle		
◦ Stiff neck		
◦ Malaria rapid test if malaria risk present		
◦ Other cause of fever		
◦ Has the child had fever for more than 1 month?		
Classify		
Ear problem		
◦ Is there ear pain?		
◦ Is there ear discharge?		
◦ For how long?		
◦ Look for pus from the ear		
◦ Feel for tender swelling behind the ear		
Classify		
Malnutrition and Anaemia		
◦ Determine weight for age (RTHC)		
◦ Check growth curve		
◦ Look for palmar pallor		
◦ Check Hb if pallor present		

◦ Check oedema of feet		
◦ Look for signs of visible severe wasting		
◦ Is the weight below 3rd centile?		
◦ Is weight gain poor?		
◦ Is there weight loss?		
Classify		
Check immunisation status		
Assess other problems		
Consider symptomatic HIV infection		
◦ Recent chest infection in last 3 months		
◦ Two or more episodes of diarrhoea in last 3 months		
◦ Persistent diarrhoea in last 3 months		
◦ Fever for one month or more		
◦ Does the child have poor appetite?		
◦ Chronic ear infection		
◦ Evidence of present or past herpes zoster		
◦ History or evidence of severe seborrheic dermatitis		
◦ History of past or present TB		
◦ Parent or sibling known to have TB		
◦ Parent or sibling known to have HIV		
◦ Weight below 3rd centile		
◦ Poor weight gain according to RTHC		
◦ Enlarged lymph glands in more than one site		
◦ Oral thrush that extends to the back of the throat		
Classify		
Assess feeding – Asks feeding, identifies problems		
Correct overall classifications		
Appropriate treatment		
Appropriate counselling about feeding		
Appropriate follow up		
Appropriate recording		

Comments

Appendix 6

QUESTION / INTERVIEW GUIDE

Section 1.

1. For how long have you been a registered nurse?

0 months – 24 months (2 years)	25 months – 60 months (5 years)	61 months – 10 years	More than 10 years

2. Have you received any primary health care training (other than IMCI training)?

Yes	No

3. If yes, what training have you received?

Training course	Institution/In service	Dates

4. How long ago did you do your IMCI training?

0 – 6 months	6 months – 1 year	1 year – 2 years	More than 2 years

5. How many patients, on average, do you see every day in your clinic?

0 – 30	31 – 40	41 – 50	More than 50

6. How many paediatric patients, on average, do you see every day in your clinic?

0 – 20	21 – 30	31 – 40	More than 40

7. Have you previously had to tell a mother / caregiver that her child may possibly be symptomatic of HIV infection?

Yes	No

8. If yes, what was the mothers' / caregivers reaction to this?

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9. How did you feel about telling the mother / caregiver that her child may possibly be symptomatic of HIV infections?

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10. Has there been a time that you should have spoken to a mother / caregiver about the possibility of her child being symptomatic of HIV infection and you did not do so?

Yes	No

11. If yes, why did you not talk to the mother / caregiver about the possibility that her child may be symptomatic of HIV infections?

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.....

12. Do you think mothers' / caregivers want to know if their children are possibly symptomatic of HIV infections?

Yes	No

13. Explain.

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14. Do you think that mothers' / caregivers may suspect that their children may be HIV positive?

Yes	No

15. Explain.

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16. Do you think that mothers' who are told that their children are possibly symptomatic of HIV infection will conclude that they are HIV infected?

Yes	No

17. How do you think the mothers will react to the knowledge that they were possibly HIV positive?

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.....

18. Will this reaction of the mothers be problematic to you?

Yes	No

19. Explain.

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20. What role do you think you could play in the reduction in the mortality rate of children who are symptomatic of HIV infection?

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.....

21. What role do you think you could play in the morbidity associated with children who are symptomatic of HIV infection?

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22. What strategies are available in your clinic to manage children who are symptomatic of HIV infection?

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23. What medications are available in your clinic to treat children who are symptomatic of HIV infection?

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24. What support systems are available through your clinic for families of children who are symptomatic of HIV infection?

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25. What social service grants are available to families of children who are symptomatic of HIV infection?

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26. What strategies do you think should be introduced into your clinic to manage children who are symptomatic of HIV infection?

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.....

27. Do you think nurses should tell fathers that their children are possibly symptomatic of HIV infection?

Yes	No

28. Explain.

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.....

29. What role do you think you have in reducing the stigma associated with being HIV positive?

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.....
.....

30. Has any person close to you personally been diagnosed with HIV infection?

Yes	No

31. If yes, how did you feel about it?

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.....
.....

32. Do you ever discuss death and dying at home with your family?

Yes	No

33. Explain.

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.....
.....

34. Do you ever discuss death and dying with your patients?

Yes	No

35. Explain.

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.....

36. Do you ever worry about your own death?

Yes	No

37. Explain.

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.....

38. Do you ever worry about becoming infected with HIV?

Yes	No

39. Explain.

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40. What do you (at work) do to prevent this happening?

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41. What do you do (at home) to prevent this happening?

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42. What causes HIV infection?

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43. How is HIV transmitted?

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44. Who gets HIV infection?

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45. Should all children be tested for HIV infection?

Yes	No

46. Explain.

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.....

47. Do you feel confident to counsel mothers before and after testing for HIV?

Yes	No

48. Explain.

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.....

49. Have you had any training in counselling skills?

Yes	No

50. Explain.

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.....

51. Do you feel the need for further training in counselling skill?

Yes	No

52. Explain.

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.....

53. What do you think HIV counselling entails?

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.....

54. Do you counsel for any other conditions in the course of your everyday work?

Yes	No

55. Explain.

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.....

56. What do you understand by the term confidentiality?

.....
.....
.....
.....
.....

57. State whether your clinic stocks the following medications.

	Yes	No
Amoxycillin		
Ceftriaxone		
Vit A supplementation		
Iron supplementation		
ORS		
Nalidixic Acid		
Metronidazole		
INH		
Mebendazole		
Co-Trimoxazole		

58. State if your clinic stocks the following immunisations.

	Yes	No
BCG		
TOPV		
DPT		
HIB		
HBV		
Measles		
DT		

59. Do you weigh all children under the age of 5 years who attends you clinic?

Yes	No

60. Explain.

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.....

61. Do you have facilities for HIV testing at your clinic?

Yes	No

62. If no, do you have access to testing for HIV near your clinic? Where do you refer children for testing?

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.....
.....

63. Do mothers/caregivers generally go for testing of their children if they have been referred?

Yes	No

64. Explain.

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.....
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.....

65. Are there any cultural factors / issues that impact on mothers/caregivers going for HIV testing?

Yes	No

66. Explain.

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.....

67. Is there any support system presently operating in your clinic that addresses the needs of the staff?

Yes	No

68. Explain.

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.....

69. Do you feel there is a need for a support system for staff?

Yes	No

70. Explain.

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.....

71. How do you think you did in the observation part of the study?

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.....
.....
.....
.....

72. Would you like to know how you performed in the observations part of the study?

Yes	No

73. If yes, at this stage the researcher will provide feedback about the observations previously undertaken by the research assistant.

THANK YOU FOR YOUR CO-OPERATION AND YOUR TIME.

Appendix 7

QUESTION / INTERVIEW GUIDE

Section 1.

1. For how long have you been a registered nurse?

Actual .....

2. Have you received any primary health care training (other than IMCI training)?

Yes	No

3. If yes, what training have you received?

Training course	Institution/In service	Dates

4. How long ago did you do your IMCI training?

0 – 6 months	6 months – 1 year	1 year – 2 years	More than 2 years

5. Do you use the IMCI approach when consulting with children?

Always	sometimes	Never

6. If not always, explain.

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.....
.....
.....
.....

7. Have you been visited by an IMCI supervisor?

Yes	No

8. If yes, how many times?

.....

9. How many patients, on average, do you see every day in your clinic?

0 – 30	31 – 40	41 – 50	More than 50

10. How many paediatric patients, on average, do you see every day in your clinic?

0 – 20	21 – 30	31 – 40	More than 40

Section 2

11. Have you previously had to tell a mother / caregiver that her child may possibly be symptomatic of HIV infection?

Yes	No

12. If yes, what was the mothers' / caregivers reaction to this?

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13. How did you feel about telling the mother / caregiver that her child may possibly be symptomatic of HIV infections?

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14. Has there been a time that you should have spoken to a mother / caregiver about the possibility of her child being symptomatic of HIV infection and you did not do so?

Yes	No

15. If yes, why did you not talk to the mother / caregiver about the possibility that her child may be symptomatic of HIV infections?

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.....
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.....

16. Do you think mothers' / caregivers want to know if their children are possibly symptomatic of HIV infections?

Yes	No

17. Explain.

.....
.....
.....
.....
.....

18. Do you think that mothers' / caregivers may suspect that their children may be HIV positive?

Yes	No

19. Explain.

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.....
.....
.....
.....

20. Do you think that mothers' who are told that their children are possibly symptomatic of HIV infection will conclude that they (the mothers) are HIV infected?

Yes	No

21. How do you think the mothers will react to the knowledge that they (the mothers) were possibly HIV positive?

.....
.....
.....
.....
.....

22. Will this reaction of the mothers be problematic to you?

Yes	No

23. Explain.

.....
.....
.....
.....
.....

24. What role do you think you (as a primary health care nurse)could play in the reduction in the mortality rate of children who are symptomatic of HIV infection ?

.....
.....
.....
.....
.....

25. What role do you think you (as a primary health care nurse) could play in the morbidity (amount of disease) associated with children who are symptomatic of HIV infection?

.....
.....
.....
.....
.....

26. What strategies are available in your clinic to manage children who are symptomatic of HIV infection?

.....
.....
.....
.....
.....

27. What medication are available in your clinic to treat children who are symptomatic of HIV infection?

.....
.....
.....
.....
.....

28. What support systems are available through your clinic for families of children who are symptomatic of HIV infection?

.....
.....
.....
.....
.....

29. What social service grants are available to families of children who are symptomatic of HIV infection?

.....
.....
.....
.....
.....

30. What strategies do you think should be introduced into your clinic to manage children who are symptomatic of HIV infection?

.....
.....
.....
.....
.....

31. Do you think nurses should tell fathers that their children are possibly symptomatic of HIV infection?

Yes	No

32. Explain.

.....
.....
.....
.....
.....

33. What role do you think you have (as a primary health care nurse) in reducing the stigma associated with being HIV positive?

.....
.....
.....
.....
.....

34. Has any person close to you personally been diagnosed with HIV infection?

Yes	No

35. If yes, how did you feel about it?

.....
.....
.....
.....
.....

36. Do you ever discuss death and dying at home with your family?

Yes	No

37. Explain.

.....

.....

.....

38. Do you ever discuss death and dying with your patients?

Yes	No

39. Explain

.....

.....

.....

.....

.....

39. Do you ever worry about your own death?

Yes	No

40. Explain.

.....

.....

.....

.....

.....

41. Do you ever worry about becoming infected with HIV?

Yes	No

42. Explain.

.....

.....

.....

.....

.....

43. What do you (in the course of your work) do to prevent this happening?

.....

.....

.....

.....

.....

44. What do you do (at home) to prevent this happening?

.....

.....

.....

.....

.....

45. What causes HIV infection?

.....

.....

.....

.....

.....

46. How is HIV transmitted?

.....
.....
.....
.....
.....

47. Who gets HIV infection?

.....
.....
.....
.....
.....

48. Should all children be tested for HIV infection?

Yes	No

49. Explain.

.....
.....
.....
.....
.....

50. Do you feel confident to counsel mothers before and after testing for HIV?

Yes	No

51. Explain.

.....
.....
.....
.....
.....

52. Have you had any training in counselling skills?

Yes	No

53. Explain.

.....
.....
.....
.....
.....

54. Do you feel the need for further training in counselling skill?

Yes	No

55. Explain.

.....
.....
.....
.....
.....

56. What do you think HIV counselling entails?

.....
.....
.....
.....
.....

57. Do you counsel for any other conditions in the course of your everyday work?

Yes	No

58. Explain.

.....
.....
.....
.....
.....

59. What do you understand by the term confidentiality?

.....
.....
.....
.....
.....

60. State whether your clinic stocks the following medications.

	Always	Sometimes	Seldom	Never
Amoxycillin				
Ceftriaxone				
Vit A supplementation				
Iron supplementation				
ORS				
Nalidixic Acid				
Metronidazole				
INH				
Mebendazole				
Co-Trimoxazole				

61. State if your clinic stocks the following immunisations.

	Always	Sometimes	Seldom	Never
BCG				
TOPV				
DPT				
HIB				
HBV				
Measles				
DT				

62. Do you weigh all children under the age of 5 years who attends you clinic?

Yes	No

63. Explain.

.....
.....
.....

.....
.....

64. Do you have facilities for HIV testing at your clinic?

Yes	No

65. If no, do you have access to testing for HIV near your clinic? Where do you refer children for testing?

.....
.....
.....
.....
.....

66. Do mothers/caregivers generally go for testing of their children if they have been referred?

Yes	No

67. Explain.

.....
.....
.....
.....
.....

68. Are there any cultural factors / issues that impact on mothers/caregivers going for HIV testing?

Yes	No

69. Explain.

.....
.....
.....
.....
.....

70. Is there any support system presently operating in your clinic that addresses the needs of the staff?

Yes	No

71. Explain.

.....
.....
.....

72. Do you feel there is a need for a support system for staff?

Yes	No

73. Explain.

.....
.....
.....
.....
.....

74. How do you think you did in the observation part of the study?

.....
.....
.....
.....
.....

75. Would you like to know how you performed in the observations part of the study?

Yes	No

76. If yes, at this stage the researcher will provide feedback about the observations previously undertaken by the research assistant.

THANK YOU FOR YOUR CO-OPERATION AND YOUR TIME.

Appendix 8

Dr L Nkonzo Mthembu
Director: HRD
Department of Health
Private Bag X9051
Pietermaritzburg
3200

29.06.01

Dear Dr Nkonzo Mthembu

RE: REQUEST TO UNDERTAKE STUDY IN DEPARMENT OF HEALTH CLINICS.

TITLE: AN EVALUATION OF THE USE OF THE HUMAN IMMUNO-DEFICIENCY VIRUS PORTION OF THE INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS ALGORITHM BY NURSES IN SELECTED PRIMARY HEALTH CARE CLINICS IN KWAZULU NATAL.

I am a professional nurse presently registered with Technikon Natal in a Masters Degree: Nursing programme. As a requirement for this degree I am required to undertake a research project. I am also employed by Technikon Natal as a lecturer and course co-ordinator for the Bachelor of Technology Degree: Nursing: Primary Health Care.

In collaboration with the Maternal and Child Health Department, Primary Health Care Training Department and the Integrated Management of Childhood Illness Initiative I have identified a research topic that I would like to undertake. The aim of the study is to evaluate the use of the HIV portion of the IMCI algorithm by IMCI trained nurses working in primary health care clinics in KwaZulu Natal. In doing this study I hope to identify problems nurses experience in the use of the HIV portion of the algorithm, as well as factors that influence its use. The results of this study could be useful to the present IMCI training team when refining the IMCI training.

The study methodology involves a research assistant who will evaluate the use of the IMCI algorithm by IMCI nurses as they consult with sick children as part of their normal routine in the clinics. This research assistant is knowledgeable and skilled in the use of the IMCI algorithm as she is an existing member of the IMCI training team in KwaZulu Natal. For this reason as far as I can determine, there will be no risk to either the sick children or the IMCI trained nurses participating in the study. In addition, there should be no delay in the service provided in the clinics, as the research assistant will observe the IMCI nurse as she carries out her normal daily duties. I will personally be present in the clinics during the evaluation phase of the study. My involvement will be the request of permission from each of the participating IMCI nurses as well as from the mothers of the children seeking health care. Confidentiality will be assured. This will be done by neither the names nor diagnosis of the children appearing on any documentation relating to the study. In addition, the names of the IMCI nurses participating in the study will not be revealed in the documentation or the names of the clinics in which the study has been undertaken. No participant will be coerced to participate in the study.

Following the completion of the evaluation phase of the study, I personally will carry out in-depth interviews with each of the selected IMCI trained nurses. These interviews will last approximately 45 minutes and will be scheduled to take place at a time that is convenient to the IMCI nurses selected in the sample.

I wish to conduct the study in clinics in the Bergville, Ngwelazana and Murchison areas. The period in which the study is undertaken is dependant on when permission is granted. Hopefully the data collection phase will be carried out during the months of July and August 2001. On completion of the study, the results will be forwarded to you directly. In addition, the results will be made available to the Department of Maternal and Child Health, KwaZulu Natal as well as the existing task team presently involved in IMCI training. I will be writing to request permission for the study from the Regional Directors in each of the districts once I have permission from your office.

This study carries the approval of Technikon Natals' Ethics Committee.

I have enclosed a full research proposal with evaluation tools for your records. As these clinics are all under the jurisdiction of the Department of Health, KwaZulu Natal, I wish to formally request permission to undertake the research project in the above clinics.

Yours truly,

.....
RESEARCHER: JL Haskins

.....
SUPERVISOR: Dr L Grainger

Appendix 9. Uthukela District

Mrs L Brysiewicz
Regional Director
Department of Health
Private Bag X9051
Pietermaritzburg
3200

Dear Mrs Brysiewicz

RE: REQUEST TO UNDERTAKE STUDY IN DEPARMENT OF HEALTH CLINICS.

TITLE: AN EVALUATION OF THE USE OF THE HUMAN IMMUNO-DEFICIENCY VIRUS PORTION OF THE INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS ALGORITHM BY NURSES IN SELECTED PRIMARY HEALTH CARE CLINICS IN KWAZULU NATAL.

I am a professional nurse presently registered with Technikon Natal in a Masters Degree: Nursing programme. As a requirement for this degree I am required to undertake a research project. I am also employed by Technikon Natal as a lecturer and course co-ordinator for the Bachelor of Technology Degree: Nursing: Primary Health Care.

In collaboration with the Maternal and Child Health Department, Primary Health Care Training Department and the Integrated Management of Childhood Illness Initiative I have identified a research topic that I would like to undertake. The aim of the study is to evaluate the use of the HIV portion of the IMCI algorithm by IMCI trained nurses working in primary health care clinics in KwaZulu Natal. In doing this study I hope to identify problems nurses experience in the use of the HIV portion of the algorithm, as well as factors that influence its use. The results of this study could be useful to the present IMCI training team when refining the IMCI training.

The study methodology involves a research assistant who will evaluate the use of the IMCI algorithm by IMCI nurses as they consult with sick children as part of their normal routine in the clinics. This research assistant is knowledgeable and skilled in the use of the IMCI algorithm as she is an existing member of the IMCI training team in KwaZulu Natal. For this reason as far as I can determine, there will be no risk to either the sick children or the IMCI trained nurses participating in the study. In addition, there should be no delay in the service provided in the clinics, as the research assistant will observe the IMCI nurse as she carries out her normal daily duties. I will personally be present in the clinics during the evaluation phase of the study. My involvement will be the request of permission from each of the participating IMCI nurses as well as from the mothers of the children seeking health care. Confidentiality will be assured. This will be done by neither the names nor diagnosis of the children appearing on any documentation relating to the study. In addition, the names of the IMCI nurses participating in the study will not be revealed in the documentation or the names of the clinics in which the study has been undertaken. No participant will be coerced to participate in the study.

Following the completion of the evaluation phase of the study, I personally will carry out in-depth interviews with each of the selected IMCI trained nurses. These interviews will last approximately 45 minutes and will be scheduled to take place at a time, which is convenient to the IMCI nurses selected in the sample.

I wish to conduct the study in clinics in the Bergville, Ngwelazana and Murchison areas. The period in which the study is undertaken is dependant on when permission is granted. Hopefully the data collection phase will be carried out during the months of July and August 2001. On completion of the study, the results will be forwarded to you directly. In addition, the results will be made available to the Department of Maternal and Child Health, KwaZulu Natal as well as the existing task team presently involved in IMCI training.

I have enclosed a full research proposal with evaluation tools for your records. As some of these clinics are under the jurisdiction of the Department of Health, KwaZulu Natal, in your region I wish to formally request permission to undertake the research project in the above clinics.

Yours truly,

.....	.....
RESEARCHER: JL Haskins	SUPERVISOR: Dr L Grainger

Appendix 10 Port Shepstone District

Dr Alan Mitchell
Regional Director
Department of Health

Dear Dr Mitchell

RE: REQUEST TO UNDERTAKE STUDY IN DEPARMENT OF HEALTH CLINICS.

TITLE: AN EVALUATION OF THE USE OF THE HUMAN IMMUNO-DEFICIENCY VIRUS PORTION OF THE INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS ALGORITHM BY NURSES IN SELECTED PRIMARY HEALTH CARE CLINICS IN KWAZULU NATAL.

I am a professional nurse presently registered with Technikon Natal in a Masters Degree: Nursing programme. As a requirement for this degree I am required to undertake a research project. I am also employed by Technikon Natal as a lecturer and course co-ordinator for the Bachelor of Technology Degree: Nursing: Primary Health Care.

In collaboration with the Maternal and Child Health Department, Primary Health Care Training Department and the Integrated Management of Childhood Illness Initiative I have identified a research topic that I would like to undertake. The aim of the study is to evaluate the use of the HIV portion of the IMCI algorithm by IMCI trained nurses working in primary health care clinics in KwaZulu Natal. In doing this study I hope to identify problems nurses experience in the use of the HIV portion of the algorithm, as well as factors that influence its use. The results of this study could be useful to the present IMCI training team when refining the IMCI training.

The study methodology involves a research assistant who will evaluate the use of the IMCI algorithm by IMCI nurses as they consult with sick children as part of their normal routine in the clinics. This research assistant is knowledgeable and skilled in the use of the IMCI algorithm as she is an existing member of the IMCI training team in KwaZulu Natal. For this reason as far as I can determine, there will be no risk to either the sick children or the IMCI trained nurses participating in the study. In addition, there should be no delay in the service provided in the clinics, as the research assistant will observe the IMCI nurse as she carries out her normal daily duties. I will personally be present in the clinics during the evaluation phase of the study. My involvement will be the request of permission from each of the participating IMCI nurses as well as from the mothers of the children seeking health care. Confidentiality will be assured. This will be done by neither the names nor diagnosis of the children appearing on any documentation relating to the study. In addition, the names of the IMCI nurses participating in the study will not be revealed in the documentation or the names of the clinics in which the study has been undertaken. No participant will be coerced to participate in the study.

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I have enclosed a full research proposal with evaluation tools for your records. As some of these clinics are under the jurisdiction of the Department of Health, KwaZulu Natal, in your region I wish to formally request permission to undertake the research project in the above clinics.

Yours truly,

.....	.....
RESEARCHER: JL Haskins	SUPERVISOR: Dr L Grainger

Appendix 11 Empangeni Health District

Miss DD Msomi
Regional Director
Department of Health

Dear Miss Msomi

RE: REQUEST TO UNDERTAKE STUDY IN DEPARMENT OF HEALTH CLINICS.

TITLE: AN EVALUATION OF THE USE OF THE HUMAN IMMUNO-DEFICIENCY VIRUS PORTION OF THE INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS ALGORITHM BY NURSES IN SELECTED PRIMARY HEALTH CARE CLINICS IN KWAZULU NATAL.

I am a professional nurse presently registered with Technikon Natal in a Masters Degree: Nursing programme. As a requirement for this degree I am required to undertake a research project. I am also employed by Technikon Natal as a lecturer and course co-ordinator for the Bachelor of Technology Degree: Nursing: Primary Health Care.

In collaboration with the Maternal and Child Health Department, Primary Health Care Training Department and the Integrated Management of Childhood Illness Initiative I have identified a research topic that I would like to undertake. The aim of the study is to evaluate the use of the HIV portion of the IMCI algorithm by IMCI trained nurses working in primary health care clinics in KwaZulu Natal. In doing this study I hope to identify problems nurses experience in the use of the HIV portion of the algorithm, as well as factors that influence its use. The results of this study could be useful to the present IMCI training team when refining the IMCI training.

The study methodology involves a research assistant who will evaluate the use of the IMCI algorithm by IMCI nurses as they consult with sick children as part of their normal routine in the clinics. This research assistant is knowledgeable and skilled in the use of the IMCI algorithm as she is an existing member of the IMCI training team in KwaZulu Natal. For this reason as far as I can determine, there will be no risk to either the sick children or the IMCI trained nurses participating in the study. In addition, there should be no delay in the service provided in the clinics, as the research assistant will observe the IMCI nurse as she carries out her normal daily duties. I will personally be present in the clinics during the evaluation phase of the study. My involvement will be the request of permission from each of the participating IMCI nurses as well as from the mothers of the children seeking health care. Confidentiality will be assured. This will be done by neither the names nor diagnosis of the children appearing on any documentation relating to the study. In addition, the names of the IMCI nurses participating in the study will not be revealed in the documentation or the names of the clinics in which the study has been undertaken. No participant will be coerced to participate in the study.

Following the completion of the evaluation phase of the study, I personally will carry out in-depth interviews with each of the selected IMCI trained nurses. These interviews will last approximately 45 minutes and will be scheduled to take place at a time that is convenient to the IMCI nurses selected in the sample.

I wish to conduct the study in clinics in the Bergville, Ngwelazana and Murchison areas. The period in which the study is undertaken is dependant on when permission is granted. Hopefully the data collection phase will be carried out during the months of July and August 2001. On completion of the study, the results will be forwarded to you directly. In addition, the results will be made available to the Department of Maternal and Child Health, KwaZulu Natal as well as the existing task team presently involved in IMCI training.

I have enclosed a full research proposal with evaluation tools for your records. As some of these clinics are under the jurisdiction of the Department of Health, KwaZulu Natal, in your region I wish to formally request permission to undertake the research project in the above clinics.

Yours truly,

.....	.....
RESEARCHER: JL Haskins	SUPERVISOR: Dr L Grainger

Appendix 12.

PROVINCE OF KWAZULU-NATAL

DEPARTMENT OF HEALTH

ISIFUNDAZWE SAKWAZULU-NATALI

UMNYANGO WEZEMPILO

PROVINSIE KWAZULU-NATAL

DEPARTEMENT VAN GESONDHEID

NATALIA
330 LONGMARKET STREET
PIETERMARITZBURG

Telephone : 033-3952111
Ucingo :
Telefoon :

Fax : 033-3945868
Feksi :
Faks :

Private Bag : X 9051
Isikhwama Seposi : Pietermaritzburg
Privaatsak : 3200

Reference: Research
Enquiries: Dr L.L. Nkonzo-Mtembu
Extension: 2275

Date: 20 July 2001

Ms J.L. Haskins
Technikon Natal
P.O. Box 953
DURBAN
4000

PERMISSION TO CONDUCT RESEARCH

Topic: EVALUATION OF THE USE OF HIV PORTION OF THE INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS ALGORITHM BY NURSES IN SELECTED PRIMARY HEALTH CARE CLINICS IN KWAZULU-NATAL

Thank you for taking interest in undertaking the above-stated research.

Permission to do the research is granted. This office will appreciate a copy of the approval of your research by the ethical committee.

Thank you.

HRD DIRECTOR

Mkhize_evaluation

Appendix 13.

PROVINCE OF KWAZULU-NATAL | ISIFUNDAZWE SAKWAZULU-NATALI | PROVINSIE KWAZULU-NATALIE

HEALTH SERVICES | EZEMPILO | GESONDHEIDSDIENSTE

PORT SHEPSTONE UGU HEALTH REGIONAL DIRECTOR'S OFFICE

ENQ: Ms N. R. SOKHULU
TEL: 039-6826452
FAX: 039-6826296
E.Mail: h993880@dohho.kzntl.gov.za

PRIVATE BAG X 735
PORT SHEPSTONE
4240

21 September 2001

TO:

Ms J. L. HASKINS

TECHNKON NATAL

PERMISSION TO UNDERTAKE RESEARCH PROJECT ON IMCI UGU DISTRICT CLINICS

With reference to the above matter:-
Authority is being granted to visit the UG District clinics to undertake research project on IMCI.

We hope that this study will contribute to improvement of quality care in our District.

Thank You

Ms N. R. SOKHULU
DDN

Appendix 14.

PROVINCE OF KWAZULU-NATAL
DEPATRMENT OF HEALTH

ISIFUNDAZWE SAKWAZULU-NATALI
UMNYANGO WEZEMPILO

PROVINSIE KWAZULU-NATAL
DEPARTEMENT VAN GESONDHEID

TEL: 036 - 488 1570
FAX: 036 - 488 1156

EMMAUS HOSPITAL
PRIVATE BAG X16
WINTERTON
3340

Att: Dr B Gaede
Research & Development Team
uThukela District
14 September 2001

Ms Lyn Haskins
Department of Community Nursing, Technikon Natal
PO Box 953
Durban
4000
Fax: 031 204 2039

Dear Ms Haskins

Re: Your Research Proposal

Thank you for submitting your proposal for research, titled "An evaluation of the use of the human immuno-deficiency virus portion of the integrated management of childhood illness algorithm by nurses in selected primary health care clinics in Kwa-Zulu Natal".

In our Research & Development Team we reviewed your proposal with interest. We would like to express our support for your study.

Your research would complement some of the research we are doing (including into the community component of IMCI) as well as some proposed IMCI research in the District. Your research also impacts considerably on both the training and the supervision of IMCI practitioners and as such we are also very interested in your findings. Would it be possible to let us have copies of your work once the study is completed? We would very much appreciate this.

We were very impressed by your protocol and wish you all the best for the study.

Please arrange your visits through Mrs. Irene Maphalala at the District Office, with whom you have already been communicating.

Kind regards.

Dr Bernhard Gaede
cc. DMT, Irene Maphalala

Appendix 15

PROVINCE OF KWAZULU – NATAL HEALTH SERVICES

ISIFUNDAZWE SAKWAZULU-NATALI EZEMPILO

PROVINSIE VAN KWAZULU-NATAL GESONDHEIDSDIENSTE

EMPANGENI HEALTH REGION – H

TELEPHONE : 035 787 0162
UCINGO : 035 787 2008
TELEFOON : 035 787 2675

FAX: 035 787 0175
FAKSI: 035 772 6113
FAKS:

PRIVATE BAG X20034
ISIKWAMASEPOSI:EMPANGENI
PRIVAAT SAK: 3880

E – MAIL ADDRESS: H002170@dohho.kzntl.gov.za

ENQ : D D MSOMI DATE : 2001 – 09 - 21 REF.

To: Lynn Haskens
NATAL TECHNIKON

RESEARCH EMPANGENI DISTRICT: BY NURSES IN KZN: J HASKENS.

EVALUATION OF THE HIV PORTION THE IMCI ALGORITHM.

Permission is hereby given to Ms Haskens to conduct research in our clinics on the topic stated above.

We look forward to the report of this survey to improve Health service delivers in our District.

Thank you,

D D MSOMI
REGIONAL DIRECTOR

Appendix 16

SUBJECT INFORMATION SHEET

TITLE: AN EVALUATION OF THE USE OF THE INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS ALGORITHM BY NURSES IN SELECTED PRIMARY HEALTH CARE CLINICS IN KWAZULU NATAL

Dear IMCI trained nurse

I am presently involved in a research project in order to complete a Masters Degree of Technology: Nursing through Technikon Natal. The study that I am undertaking is an evaluation of the use of the IMCI approach when IMCI trained nurses' consult with sick children in their own clinics. The purpose of the study is to identify any problems that IMCI nurses may have with regards to the use of the IMCI approach in order to adapt and refine the IMCI training to overcome these problems.

Three districts in KwaZulu Natal have been purposively selected for the study. Your name was selected randomly from the IMCI trained nurses in your region of KZN and I am writing to inform you about the study and request that you participate in it. There are 4 IMCI nurses selected in each district. Should you agree to participate in this study, you will be allocated a number by myself and thereafter your name will not appear on any documentation or in the final report. This will be done to protect your identity and maintain confidentiality. The researcher will be the only person who will have access to the names and allocated numbers. A research assistant will complete the evaluation forms. These forms will then be handed over to the researcher and thereafter the research assistant will then have no further contact with the forms. You will be required to give written consent to participate in the study. Should you decide not to participate in the study, you non-participation will not result in any adverse consequences of any kind.

The study will take the form of a research assistant being present in your consulting room while you consult with sick children using the IMCI approach. The research assistant is Mrs Pumla Nkosi who will observe your assessment, classification and management of these sick children and document your consultation. There will be no feedback to you following the consultation. However, at the completion of all the consultations, should you wish, feedback will be given about your consultations. You will be observed as you consult with 10 children between the ages of 2 months and 5 years or for a period of two full working days, whichever occurs first. These observations will be carried out during your normal work hours as you consult in your own clinic. You will not be required to work any overtime. I do acknowledge that you may feel uncomfortable during this observation, however this is not a test but merely an attempt to identify any area of the IMCI approach that causes nurses difficulty.

In addition to the observations of your practice, you will be required to participate in one in-depth interview. This interview will be scheduled for a suitable time to you, the IMCI nurse and the researcher. The researcher will undertake the interviews personally. The interviews will take no longer than one hour.

The results of the study will be made available to the IMCI task team involved with refining and altering the IMCI training in order to evaluate the training and make it more effective if necessary. Should you personally request a copy of the study on completion, it will be forwarded to you.

As far as can be determined, there will be no risk or discomfort to you personally during this study. There will also be no monetary gain to you should you agree to participate in the study. However, considerable benefit could be obtained for all nurses undertaking training in the IMCI approach if the study is able to refine the IMCI training programme.

If you agree to participate in the abovementioned study please would you complete the attached Informed Consent Form.

.....

RESEARCHER: JL HASKINS

.....

SUPERVISOR: DR L GRAINGER

Appendix 17

INFORMED CONSENT FORM

TITLE OF RESEARCH PROJECT:

AN EVALUATION OF THE USE OF THE INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS ALGORITHM BY NURSES IN SELECTED PRIMARY HEALTH CARE CLINICS IN KWAZULU NATAL

NAME OF SUPERVISOR: **Dr L Grainger**

NAME OF CO-SUPERVISOR: **Ms N Phillips**

PARTICIPANTS FULL NAME: .....

PARTICIPANT'S ALLOCATED NUMBER: .....

PLEASE CIRCLE THE APPROPRIATE ANSWER

1. Have you read the research information sheet?	Yes/No
2. Have you had an opportunity to ask questions regarding the study?	Yes/No
3. Have you received satisfactory answers to your questions?	Yes/No
4. Have you had an opportunity to discuss this study?	Yes/No
5. Have you received enough information about this study?	Yes/No
6. Who have you spoken to?	
7. Do you understand the implications of the study?	Yes/No
8. Do you understand that you are free to withdraw from this study?	Yes/No
a) at any time, and	
b) without having to give reason for withdrawing	
9. Do you agree to voluntarily participate in the study?	Yes/No

If you have answered "No" to any of the above, please obtain the information before signing.

I, ... hereby give consent to participate in the abovementioned research project.

PARTICIPANT'S NAME ..... SIGNATURE .....

WITNESS'S NAME ..... SIGNATURE .....

REASERCHER'S NAME **Lyn Haskins** SIGNATURE .....

DATE .....

Appendix 18

SUBJECT INFORMATION LETTER

TITLE: AN EVALUATION OF THE USE OF THE HIV PORTION OF THE IMCI ALGORITHM BY NURSES IN SELECTED PRIMARY HEALTH CARE CLINICS IN KZN

RESEARCHER: LYN HASKINS (B. TECH: NURSING, RN., RM., CN., OHN., PHC.)

Thank you for agreeing to participate in my study. Data regarding the use of the IMCI algorithm and how this approach has guided and influenced your decisions in the management of sick children has been collected.

The purpose of the study is to evaluate the use of the HIV portion of the IMCI algorithm by IMCI trained nurses working in primary health care clinics in KZN. The objectives are therefore:

- to assess the extent to which IMCI trained nurses in KZN are using the HIV portion of the IMCI algorithm to guide decisions regarding the management of sick children;
- to assess the accuracy with which IMCI trained nurses in KZN use the HIV portion of the IMCI algorithm; and
- to determine what factors influence the use of the HIV portion of the IMCI algorithm by IMCI trained nurses in KZN.

Hopefully this information will be useful for refining the IMCI training given to nurses when addressing issues pertaining to HIV/AIDS. For this reason, only information regarding the HIV portion of the IMCI algorithm will be analysed and used. Previously you were informed that the study addressed the full IMCI algorithm. If you were told that only the HIV portion of the algorithm was to be assessed and analysed, this could have resulted in you being vigilant in your approach and could have altered the outcome of the study. However, I would like to forward all the other data that has been collected to IMCI training team in order for them to evaluate the effectiveness of their training programme. Should you not agree to the forwarding of this data, it will be withheld.

The in-depth interview will deal mainly with your feelings, knowledge, attitudes and fears regarding HIV and AIDS. Please feel free to express yourself both positively and negatively. There are no right or wrong answers. This is not a test but a genuine attempt to identify areas relating to this disease that can be addressed through interventions in the training programme

As previously discussed, although I will keep a record of who participated in my study, your name will not appear on any documentation, therefore protecting your identity and promoting confidentiality. All data will be stored in a secure place and no one will have access to your name. Your name will not be mentioned in the final report.

Participation in this study is voluntary; you are under no obligation to participate. However, your participation will be invaluable and greatly appreciated. You have the right to withdraw at any time if you care to. There will be no repercussions or penalty should you decide to do so.

Should you have any further questions, please do not hesitate to contact me directly on 031-2042537 during work hours.

Thank you for your co-operation.

.....
JL Haskins
Researcher

.....
Dr L Grainger
Supervisor

Appendix 19

INFORMED CONSENT FORM

TITLE OF RESEARCH PROJECT:

AN EVALUATION OF THE USE OF THE HUMAN IMMUNODEFICIENCY VIRUS PORTION OF THE INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS ALGORITHM BY NURSES IN SELECTED PRIMARY HEALTH CARE CLINICS IN KWAZULU NATAL

NAME OF SUPERVISOR: **Dr L Grainger**

NAME OF CO-SUPERVISOR: **Ms N Phillips**

PARTICIPANTS FULL NAME: .....

PARTICIPANT'S ALLOCATED NUMBER: .....

PLEASE CIRCLE THE APPROPRIATE ANSWER

1. Have you read the research information sheet?	Yes/No
2. Have you had an opportunity to ask questions regarding the study?	Yes/No
3. Have you received satisfactory answers to your questions?	Yes/No
4. Have you had an opportunity to discuss this study?	Yes/No
5. Have you received enough information about this study?	Yes/No
6. Who have you spoken to?	
7. Do you understand the implications of the study?	Yes/No
8. Do you understand that you are free to withdraw from this study?	Yes/No
c) at any time, and	
d) without having to give reason for withdrawing	
9. Do you agree to voluntarily participate in the study?	Yes/No

If you have answered "No" to any of the above, please obtain the information before signing.

I, ... hereby give consent to participate in the abovementioned research project.

PARTICIPANT'S NAME ..... SIGNATURE .....

WITNESS'S NAME ..... SIGNATURE .....

REASERCHER'S NAME **Lyn Haskins** SIGNATURE .....

DATE .....

Appendix 20
SUBJECT INFORMATION SHEET - MOTHERS

TITLE: AN EVALUATION OF THE USE OF THE IMCI ALGORITHM BY NURSES IN SELECTED PRIMARY HEALTH CLINICS IN KWAZULU NATAL

Dear mother,

I am a professional nurse presently undertaking a research project through Technikon Natal in order to complete a Masters Degree of Technology: Nursing. The study is aimed at evaluating nurses as they assess and classify sick children in clinics in KwaZulu Natal. This is being done in order to identify any problems that nurses may have while consulting sick children in order to be able to refine and alter the training programme for nurses. Hopefully this will then improve the quality of care provided to sick children. The study has the approval of the Department of Health in KwaZulu Natal.

The study is about how nurses assess and classify sick children that come to the clinic. It is not looking at the sick children or their diseases but how nurses diagnose and treat the diseases. However, I need to ask permission from you in order to be present in the consulting room while the nurse examines and treats your child. At no stage will your child's name, diagnosis, or management appear together in the study documentation. This will be done to protect the identity of your sick children and therefore promote confidentiality.

As far as we can determine, there should be no risk to your child. In addition, there will be no monetary benefit for participation in this study. However, there could be considerable benefit. Should this research identify that the nurse is treating your child inappropriately, the researcher will intervene and alter the management of your child. This will be done in order to provide your child with the very best recommended care. In addition, you will not be unduly delayed, as you will remain in your same position in the line waiting for the consultation.

Do you give permission to allow a researcher to be present during the consultation of your sick child by the IMCI trained nurse?

.....
RESEARCHER: JL HASKINS

.....
RESEARCH SUPERVISOR: DR L GRAINGER

Appendix 21

INFORMED CONSENT FORM

TITLE OF RESEARCH PROJECT: **ISIHLOKO: UPHENYO LWEZINDLELA EZINGCONO ZOKUSETSHENZISWA KOKUNAKEKELWA KWABANTWANA ABAGULAYO NGABAHLENGIKAZI KUMITHOLAMPILO EMINCANE KWAZULU/NATAL**

IGAMA LONQAPHI : Dr L Grainger

IGAMA LOMSIZI WOMQAPHI : Ms N Phillips

USUKU LOKUVAKASHA OKOKUQALA : .....

Igama eliphelele lesiguli : .....

DWEBA INDILINGA EMPENDULWENI OKUYIYONA-YONA

1. Usuke walifunda iphepha elinolwazi ngocwaningo? YEBO/CHA
2. Usuke waba nalo ithuba lokubuza imibuzo emayelana nalolucwaningo? YEBO/CHA
3. Usuke wazihola izimpendulo exigculisayo ngalembuzo yakho? YEBO/CHA
4. Usuke waba nalo ithuba lokuxoxisana ngalolucwaningo? YEBO/CHA
5. Usuke waluthola yini ulwazi ulwazi olwanele ngalolucwaningo? YEBO/CHA
6. Ubani oke wakhuluma naye? .....
7. Uyawazi umphumelo ngokuzimbandakanya kwakho kulolucwaningo? YEBO/CHA
8. Uyazi ukuthi ukhululekileukuhoxisa kulolucwaningo?
   a) noma yinini ,futhi
   b) ngaphandle kokunika isizathu sokuloxisa
9. Uyavuma ukubamba iqhaza ngokuzininkela (volunarily) kulolucwaningo? YEBO/CHA

ISIGULI/INJONGO IGAMA ..... UKUSAYINA .....

UFAKAZI IGAMA ..... UKUSAYINA .....

UMFUNDI WOCWANINGO Lyn Haskins (ngamagama amakhulu) UKUSAYINA .....

DATE .....

Appendix 22

ISIHLOKO: UPHENYO LWEZINDLELA EZINGCONO ZOKUSETSHENZISWA KOKUNAKEKELWA KWABANTWANA ABAGULAYO NGABAHLENGIKAZI KUMITHOLAMPILO EMINCANE KWAZULU/NATAL

Mama othandekayo,

Ngingumhlengikazi ophelele futhi futhi ongumama okumanje ngenza ucwaningo ohlelweni lokubhekela impatho yabahlengikazi kubantwana abagulayo nokuyisifundo engisenza ngokuthunywa ngabesikole sezinga eliphezulu iTechnikon Natal ukuze ngiphothule izifundo zami zeMasters Degree of Technology : Nursing. Inhlosongqangi ukuba kweluswe futhi kubhekwe izindlela onesi abenza ngayo imisebenzi yabo yokweluleka nokwelapha izingane ezigulayo kumitholampilo yaKwaZulu/Natal. Lokhu kwenzelwa ukuba kutholakale izinkinga okungenzeka abahlengikazi nabagulayo kuya nakubazali babagulayo imbala abathi bahlangabezane nazo ngenkathi benza lomsebenzi wokwelapha izingane ezigulayo nokuzothi ngemiphumela yalolucwaningo kwenziwe izinguquko ekuqeqeshweni kwabahlengikazi kulomkhakha. Lokhu kungenza izindlela zokwelashwa nokwamukelwa kuya ekuphathweni kwabantwana kube sezingeni eliphezulu nelingcono. Lombhidlango wamukelwe ngezandla ezimhlophe wanikezwa nemvume ngaboMnyango weZeMpilo KwaZulu/Natal.

Lolucwaningo alukho mayelana nokwelapha abantwana noma kwezifo ezibaphethe kodwa kuwukubhekela nokucwaninga izindlela abahlengikazi abenza ngazo ngenkathi bebalapha kanjalo bebhekana nezifo zabo. Empeleni engikucelayo ukuba ungiphe imvume njengomzali womntwana yokuba ngibekhona njengombukeli egumbini lezokwelapha ngenkathi unesi ehlola futhi elapha ingane yakho. Ngithanda ukukunika isiqiniseko sokuthi ngeke nangephutha igama lengane yakho lingene emibhalweni yami ngombiko engizowushicilela, kanjalo nohlobo lwesifo. Lokhu kwenzelwa ukuhlonishwa komntwana wakho ogulayo nokuba kube imfihlo. Okubalulekile ukuba ukwelashwa kwezingane nabantwana kubesezingeni elingcono nelifanele bangabi sengcupheni. Ukuthasisela kulokho, akukho nkokhelo ezodingakala kumbe ozokhokhelwa ngalokhu, kodwa okubalulekile ukuthi abazali nabantwana bazozuza lukhulu ngalolucwaningo.

Uma kutholakala ukuthi unesi akelaphi ngendlela futhi akanayo impatho enhle nefanele kogulayo nakumama womntwana, umcwaningi uyophoqeleka ukuba alungenelele lolodaba ngokweluleka umhlengikazi ngezindlela ezifanele zokwelapha.
Inhloso yalokho kuzobe kuwukwenza isiqiniseko sokuthi umntwana/ingane yakho ithola usizo nonakekelo oluyilo.Ukwengeza, umphumela walolucwaninga uzokwenza kuqedwe kumbe kuphele nya ukuhlaliswa isikhathi eside kulindiwe emabhentshini kuya ekumeni emigqeni emide, ukubambezela okungenasidingo kodwa kutholakale usizo olusheshayo.

Engizocela ukukwazi kuwe ukuthi ngabe uyavuma kumbe uyanginika yini imvume yokuba khona njengomcwaningi oyisibukeli ngenkathi ingane yakho egulayo ihlolwa futhi ithola nokwelashwa ngumhlengikazi?

UMCWANINGI/RESEARCHER: JL HASKINS

OYINHLOKO YABACWANINGI/ RESEARCH SUPERVISOR: DR L GRAINGER

Appendix 23

Codes - Question / Interview Guide

Section 1.

1. For how long have you been a registered nurse?
   1 = 0 – 5 years
   2 = 6 – 10 years
   3 = 11 – 15 years
   4 = 16 – 20 years
   5 = 20+ years

2. Have you received any primary health care training (other than IMCI training)?

   1 = Yes
   2 = No

3. If yes, what training have you received?

4. How long ago did you do your IMCI training?
   1 = less than 6 months
   2 = 6 months to 1 year
   3 = 1 year to 18 months
   4 = more than 18 months

5. Do you use the IMCI approach when consulting with children?
   1 = Always
   2 = Sometimes
   3 = Never

6. If not always, explain.

7. Supervision
   1 = Yes
   2 = No

8. How many times?

9. How many patients, on average, do you see every day in your clinic?
   1 = Less than 30
   2 = Between 31 & 40
   3 = Between 41& 50
   4 = More than 50

10. How many paediatric patients, on average, do you see every day in your clinic?

    1 = Less than 30
    2 = Between 31 & 40
    3 = Between 41& 50
    4 = More than 50

Section 2

11. Have you previously had to tell a mother / caregiver that hr child may possibly be symptomatic of HIV infection?

1 = Yes
2 = No

12. If yes, what was the mothers / caregivers reaction to this?

13. How did you feel about telling the mother / caregiver that her child may possibly be symptomatic of HIV infections?

14. Has there been a time that you should have spoken to a mother / caregiver about the possibility of her child being symptomatic of HIV infection and you did not do so?
    1 = Yes
    2 = No

15. If yes, why did you not talk to the mother / caregiver about the possibility that her child may be symptomatic of HIV infections?

16. Do you think mothers / caregivers want to know if their children are possibly symptomatic of HIV infections?
    1 = Yes
    2 = No

17. Explain.

18. Do you think that mothers / caregivers may suspect that their children may be HIV positive?
    1 = Yes
    2 = No

19. Explain.

20. Do you think that mothers who are told that their children are possibly symptomatic of HIV infection will conclude that they (the mothers) are HIV infected?
    1 = Yes
    2 = No

21. How do you think the mothers will react to the knowledge that they (the mothers) were possibly HIV positive?

22. Will this reaction of the mother be problematic to you?
    1 = Yes
    2 = No

23. Explain.

24. What role do you think you (as a primary health care nurse) could play in the reduction I the mortality rate of children who are symptomatic of HIV infection?
    1 = Prevention of MTCT
    2 = Health education
    3 = Feeding and nutrition
    4 = Other

25. What role do you think you (as a primary health care nurse) could play in the morbidity (amount of disease) associated with children who are symptomatic of HIV infection?
    1 = Early Δ + Mg of opportunistic disease
    2 = Nutritional interventions
    3 = Prophylaxis of opportunistic disease
    4 = Other

26. What strategies are available in your clinic to manage children who are symptomatic of HIV infections?
    1 = Prophylaxis for opportunistic diseases
    2 = Feeding schemes
    3 = Regular monitoring of growth and development
    4 = Other

27. What medications are available in your clinic to treat children who are symptomatic of HIV infection?
    1 = Bactrim
    2 = Vit A
    3 = Iron supplements
    4 = Amoxycillen
    5 = ORS
    6 = INH
    7 = Ceftriaxone
    8 = Naladixic Acid
    9 = Metronidazole
    10 = Mebendazole

28. What support systems are available through your clinic for families of children who are symptomatic of HIV infection?
    1 = Support groups
    2 = Hospice
    3 = Church groups
    4 = Home base care
    5 = Feeding schemes
    6 = Other

29. What social service grants are available to families of children who are symptomatic of HIV infection?
    1 = None known
    2 = Available through social workers

30. What strategies do you think should be introduced into your clinic to manage children who are symptomatic of HIV infection?
    1 = Support groups
    2 = Feeding schemes
    3 = Individual care
    4 = Other

31. Do you think nurses should tell fathers that their children are possibly symptomatic of HIV infection?
    1 = Yes
    2 = No

32. Explain.

33. What role do you think you have (as a primary health care nurse) in reducing the stigma associated with being HIV positive?

34. Has any person close to you personally been diagnosed with HIV infection?
    1 = Yes
    2 = No

35. If yes, how did you feel about it?

36. Do you ever discuss death and dying at home with your family?

1 = Yes
2 = No

37. Explain.

38. Do you ever discuss death and dying with your patients?
1 = Yes
2 = No

39. Explain.

40. Do you ever worry about your own death?
1 = Yes
2 = No

41. Explain.

42. Do you ever worry about becoming infected with HIV?
1 = Yes
2 = No

43. Explain.

44. What do you (in the course of your work) do to prevent this happening?
1 = Gloves
2 = Needle safety
3 = Protective Clothing
4 = Other

45. What do you do (at home) to prevent this happening?
1 = Condoms
2 = Gloves
3 = Other
4 = Nothing

46. What causes HIV infection?
1 = HIV virus
2 = Other

47. How is HIV transmitted?
1 = Sexual contact – contaminated person to person - MTCT
2 = 2 methods given
3 = 1 method given
4 = Other

48. Who gets HIV infection?
1 = Anyone
2 = Other

49. Should all children be tested for HIV infection?
1 = Yes
2 = No

50. Explain.

51. Do you feel confident to counsel mothers before and after testing for HIV?

1 = Yes
2 = No

52. Explain.

53. Have you had any training in counseling skills?
1 = Yes
2 = No

54. Explain.

55. Do you feel the need for further training in counseling skills?
1 = Yes
2 = No

56. Explain.

57. What do you think HIV counseling entails?

58. Do you counsel for any other conditions in the course of your everyday work?
1 = Yes
2 = No

59. Explain.

60. What do you understand by the term confidentiality?

61. State whether your clinic stocks the following medications.

Medications – Amoxycillen, Ceftriaxone, Vit A, Iron, ORS, Naladixic Acid, Metronidazole, INH, Mebendazole, Co-Trimoxazole
1 = Always
2 = Sometimes
3 = Seldom
4 = Never

62. State if your clinic stocks the following immunisations.
Immunizations – BCG, TOPV, DPT, HIB, HBV, Measles, DT
1 = Always
2 = Sometimes
3 = Seldom
4 = Never

63. Do you weigh all children under the age of 5 years who attends your clinic?
1 = Yes
2 = No

64. Explain.

65. Do you have facilities for HIV testing at your clinic?
1 = Yes
2 = No
3 = Don't know

66. If no, do you have access to testing for HIV near your clinic? Where do you refer children for testing?

67. Do mothers / caregivers generally go for testing of their children if they have been referred?
    1 = Yes
    2 = No
    3 = Don't know

68. Explain.

69. Are there any cultural factors / issues that impact on mothers / caregivers going for HIV testing?
    1 = Yes
    2 = No
    3 = Don't know

70. Explain.

71. Is there any support system presently operating in your clinic that addresses the needs of the staff?
    1 = Yes
    2 = No
    3 = Don't know

72. Explain.

73. Do you feel there is a need for a support system for staff?
    1 = Yes
    2 = No
    3 = Don't know

74. Explain.

75. How do you think you did in the observation part of the study?