

**Ndwedwe District Child Survival  
Cost Extension Project  
Baseline KPC Report**



**Medical Care Development International**  
1742 R Street, NW  
Washington, DC 20010 USA  
Tel: (202) 462-1920  
Fax: (202) 265-4078  
Email: mcdi@mcd.org

**Ndwedwe District Child Survival Project**  
1401 Maritime House  
143 Victoria Embankment, Durban, RSA  
Tel: 27-31-304-0365  
Fax: 27-31-304-0386  
Email: mcdi@mweb.co.za

## ACKNOWLEDGMENTS

The authors of this report would like to thank the following persons for their contributions to the preparations and conduct of this survey:

1. Mr K Mungwe, Health Manager - Ndwedwe Sub-District
2. Ilembe Regional Council, Amakosi and Nduna of Ndwedwe
3. Ministry of Health, KwaZulu Natal Province
4. Gita Gidwani, Consultant
5. Field Team and Supervisors: Farshid Meidany, Thuli Ngidi, Thoko Radebe, Esmé Cakata, Zandile Myeza, Christopher Mohatsela, Zanele Buthelezi, Social Worker, Gugu Mabaso, and Theresa Mntombi Khumabo
6. Survey Enumerators: Mthokozisi Mbonambi, Fakazi Ngwane, Dudu Shandu, Jabulile Ntetha, Zanele Gumede, Nhlanhla Goba, Zandile Ndlovu, Mbongeni Mthembu, Buyisile Hlophe, Rebecca Nyuswa, Ntokozo Muthwa, Kenneth Msomi, Mgabiseni Ngcobo, Louisa Mtshali, Nontobeko Mthembu, Zanele Ndlela, Lungile Skhakhane, Sthembile Nzama, Fikile Mkhize, Khulili Mcanyana, Bonisiwe Zungu, Margaret Mavundla, Sbhongile Mvubu
7. Data Entry: Ncengizwe Hlambisa and Hlengiwe Mhlungu

## EXECUTIVE SUMMARY

The Ndwedwe District Child Survival Project, located in the KwaZulu Natal province of South Africa, has been awarded a four-year cost-extension grant from USAID/BHR/PVC. A baseline Knowledge, Practices and Coverage (KPC) Survey was carried out in the Ndwedwe District over a five-day period from November 27-December 1, 2001. This activity was implemented with the cooperation of MCDI, Ndwedwe Sub-District, Tribal Authorities, Ilembe Regional Council, and the Department of Health.

The total population of the area is 231,776 and includes 29,829 children 0-59 months of age and 78,803 women of childbearing age. The goals of the NDCSP are unchanged in Phase II: To reduce morbidity and mortality among children under the age of 60 months, and to improve the health status of women of reproductive age (WRA).

The objectives of the survey were to: 1) obtain population-based information on key knowledge, practices and coverage of mothers and caregivers of children age 0-23 months, 2) obtain population-based information on key knowledge, attitudes, practices and coverage of mothers and caregivers with children age 0-59 months, particularly relating to HIV/AIDS, 3) prioritize interventions and refine targets for the Ndwedwe District Child Survival Project based on the current KPC data, and 4) facilitate the design of qualitative research tools for an in-depth understanding of the gaps in knowledge, practice and coverage identified through the KPC.

Major findings include the following:

- Knowledge about HIV/AIDS and STIs other than HIV/AIDS is somewhat erratic and there is a low use of condoms as a means of preventing transmission. Approximately 26% of the mothers/caregivers interviewed knew at least three symptoms of STIs other than HIV/AIDS in females, while roughly twice as many (54% of mothers) could recognize at least two known ways in which a mother could transmit HIV/AIDS to her child. A low 30% reported using a condom on last act of sexual intercourse. Besides assessing knowledge, mothers/caregivers attitudes were also assessed. 68% of mothers/caregivers were willing to allow children under their care to play with an HIV-positive child.
- None of the mothers/caregivers of children who experienced a diarrheal episode in the two weeks prior to the survey increased the amount of food given to the child during the diarrheal episode. 45% actually reduced the amount of food given, while an estimated 39% gave the same amount as usual to eat. Similarly, 35% of the mothers/caregivers reduced the amount of fluids given to their child during the diarrheal episode, while an additional 48% gave the same volume of fluids as usual. Only 7% increased the fluids given to their child during the diarrheal episode. In spite of the fact that very few mothers/caregivers increased the fluids provided to their children during diarrheal episodes and none increased the quantity of food provided, 74% of the mothers/caregivers reportedly practiced administration of ORT (ORS, SSS) when the child had diarrhea. This suggests that mothers/caregivers have not learned that the benefit

of ORT is derived from rehydration, and that they therefore presumably administer ORT as a cure for diarrhea in the same way as they would administer antibiotics.

- Hygiene practices are relatively poor, particularly as they relate to food preparation and the feeding of children; only 15% of the mothers/caregivers reported washing their hands before feeding the child under their care.
- Breast feeding is widely practiced: 97% of mothers of children 0-23 months of age reported that they breastfed their child and 41% reported exclusively breastfeeding their child.
- 56% of children 0-23 months had experienced an episode of coughing and fast breathing in the two weeks prior to the survey. The care-seeking behaviors among the mothers and caregivers of these children was found to be very inadequate, with as few as 10% seeking care the same day the child's symptoms appeared.
- Although BCG immunization coverage for a child in Ndwedwe age 12-23 months is high (95%), coverage decreases to 61% immunized for measles. There is also considerable dropout, resulting in only 51% of children being fully immunized.
- Three quarters of the mothers interviewed sought antenatal care during their last pregnancy. Of these, roughly 21% sought antenatal care from a doctor, 68% a nurse, and 12% Community Health Workers, Traditional Birth Attendants and others. In spite of this, only 20% of the mothers began their antenatal visits during the first trimester and then made at least three subsequent visits.
- Only 7% of the mothers/caregivers were aware of three or more of the danger signs in newborns that require immediate treatment.

# TABLE OF CONTENTS

<b>I. BACKGROUND</b>	<b>1</b>
<b>A. DESCRIPTION OF THE PROGRAM LOCATION</b>	<b>1</b>
<b>B. HEALTH STATUS OF THE TARGET POPULATION</b>	<b>2</b>
<b>C. SOCIOECONOMIC CHARACTERISTICS OF THE POPULATION</b>	<b>3</b>
<b>D. NATIONAL STANDARDS/POLICIES</b>	<b>3</b>
<b>E. GOALS AND OBJECTIVES</b>	<b>5</b>
<b>F. INTERVENTION ACTIVITIES</b>	<b>6</b>
<b>G. OBJECTIVES OF THE KPC SURVEY</b>	<b>6</b>
<b>II. PROCESS AND PARTNERSHIP BUILDING</b>	<b>7</b>
<b>A. METHODS OF IDENTIFYING AND ENGAGING LOCAL PARTNERS/STAKEHOLDERS</b>	<b>7</b>
<b>B. SPECIFIC ROLES OF LOCAL PARTNERS/STAKEHOLDERS IN THE KPC SURVEY</b>	<b>7</b>
<b>C. CONSTRAINTS IN THE KPC PROCESS</b>	<b>7</b>
<b>III. METHODS</b>	<b>8</b>
<b>A. QUESTIONNAIRE</b>	<b>8</b>
<b>B. NDWEDWE DISTRICT CHILD SURVIVAL INDICATORS</b>	<b>8</b>
<b>C. SAMPLING DESIGN</b>	<b>10</b>
<b>D. TRAINING OF SUPERVISORS AND INTERVIEWERS</b>	<b>10</b>
<b>E. METHOD OF DATA COLLECTION</b>	<b>11</b>
<b>F. METHOD OF DATA ANALYSIS</b>	<b>12</b>
<b>IV. RESULTS</b>	<b>12</b>
<b>NDWEDWE DISTRICT CHILD SURVIVAL PROJECT</b>	<b>13</b>
<b>RAPID CATCH FINDINGS</b>	<b>15</b>
<b>A. DEMOGRAPHICS</b>	<b>17</b>
<b>B. HIV/AIDS/STIS</b>	<b>18</b>
<b>C. CONTROL OF DIARRHEAL DISEASES</b>	<b>20</b>
<b>D. BREASTFEEDING</b>	<b>23</b>
<b>E. PNEUMONIA CASE MANAGEMENT</b>	<b>24</b>
<b>F. IMMUNIZATION</b>	<b>26</b>
<b>G. MATERNAL AND NEWBORN CARE</b>	<b>27</b>
<b>H. INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS (IMCI)</b>	<b>29</b>
<b>I. COMMUNICATION AND MEDIA</b>	<b>30</b>

**IV. DISCUSSION** **31**

---

<b>A. HIV/AIDS/STIs</b>	<b>31</b>
<b>B. CONTROL OF DIARRHEAL DISEASES</b>	<b>33</b>
<b>C. PNEUMONIA CASE MANAGEMENT</b>	<b>34</b>
<b>D. IMMUNIZATION</b>	<b>35</b>
<b>E. MATERNAL AND NEONATAL CARE</b>	<b>35</b>
<b>F. INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS (IMCI)</b>	<b>36</b>
<b>G. COMMUNICATION AND MEDIA</b>	<b>37</b>

**ANNEXES**

<b>1</b>	<b>Map of Project Area</b>
<b>2</b>	<b>Training Schedule</b>
<b>3</b>	<b>Cluster Sample</b>
<b>4</b>	<b>Questionnaire</b>

## I. BACKGROUND

### A. Description of the Program Location

Ndwedwe is part of what has been termed the “Durban collar region”– a rural and semi-rural area that was particularly underserved under the apartheid regime. At that time, what is now the KwaZulu Natal (KZN) Province was divided into a number of administrative areas, classified by race and with unequally apportioned public services. Ndwedwe itself was included in the administrative area of the KwaZulu “non-independent homeland.” Ndwedwe received few public services in comparison with the rest of the “homeland” due to its distance from the KwaZulu heartland.

The program area is primarily rural with a dispersed settlement pattern; the population is Zulu. (See Annex 1 for a map of the project area.) There are no nucleated villages; instead, the area is conventionally divided into a series of 18 Tribal Authorities (TAs), each governed by an Nkosi (pl. Amakosi), or chief, and his Councilors and headmen (Nduna). The TAs are informally divided into a series of Isigodi with no fixed boundaries. The current project works with 13 TAs (the local NGO Valley Trust works with the other five); there are about 4 more TAs in the new area, however, boundaries have not been set. See Table 1 for population figures for the present Ndwedwe District.

**Table 1: Population Figures for the Ndwedwe District**

Total Population (Present Ndwedwe District) .....	144,795
Population of Children 0-4.....	18,648
Population of Women 15-49.....	49,073

Source: GIS Unit, Infomatics Section, KZN Department of Health, Pietermaritzburg

The province of KZN has recently announced that, due to a reorganization of the city of Durban’s boundaries, a number of nearby rural areas, including the southern half of Ndwedwe, will become part of the Durban “Unicity” by the end of 2000. At that time, new territory to the north of the current Ndwedwe District will be added to the District. In Phase II, the NDCSP will continue to work in the areas of the present Ndwedwe District and, after discussions with DOH representatives, will expand into the new Ndwedwe territory as well. The new district boundaries are still uncertain, but the population of the total Phase II area can be estimated (see Table 2 below).

**Table 2: Population Figures of the Total Phase II Area**

Total Population of Phase II area.....	231,776
Population of Children 0-4 in Phase II area.....	29,829
Population of Women 15-49 in Phase II area.....	78,803

Source : GIS Unit, Infomatics Section, KZN Department of Health, Pietermaritzburg

## **B. Health Status of the Target Population**

According to the Preliminary Report of the 1998 South Africa Demographic and Health Survey (DHS), the infant mortality rate (IMR) for KwaZulu-Natal was 52.1 per 1000 live births during the five years before the survey, compared with a national IMR of 45.4 during the survey. Nearly half of this mortality (23.2 per 1000 live births) occurred during the neonatal period in KZN, while the post-neonatal infant mortality rate was 28.9. The child mortality rate for the province was 23.6 per 1000 children surviving to 12 months of age. The total under-five mortality for KZN during this period was 74.5. The DHS reports an alarming trend for the nation, in which both the IMR and mortality in the 1-4 year age group, after declining steadily during the 1986-1990 period, began to display a gradual but steady increase after 1991.<sup>1</sup> The current HIV/AIDS epidemic is the most likely cause of the increase. Another alarming development in KZN is a recent outbreak of cholera in the north of the province. Although there have been no confirmed cases in Ndwedwe, the NDCSP will exercise vigilance in the context of its diarrhea intervention and will be prepared to take action as required.

A recent national DOH report on maternal deaths<sup>2</sup> states that a reliable estimate of the national Maternal Mortality Ratio (MMR) is impossible to calculate due to poor reporting. Reliable estimates were developed for three provinces other than KZN however. For the Free State, the estimated MMR was highest at 135 per 100,000 live births. The MMR in KZN is likely to be even higher, since neonatal, infant, and child mortality, as well as most other health indicators, are worse in KZN than in the Free State. The MMR of the program area, then, can be assumed to be above 135 per 100,000 live births. The same report identifies the “big five” causes of maternal death in South Africa as complications of hypertensive conditions in pregnancy (23.2%), AIDS (14.5%), obstetric hemorrhage (13.3%), pregnancy-related sepsis (11.9%) and pre-existing medical conditions, especially cardiac disease (10.4%). The report notes that the percentage of maternal deaths from AIDS-related causes is likely to be much higher than reported, since HIV status was unknown in 75.8% of the maternal deaths.

The major causes of infant and child mortality in the province of KZN<sup>3</sup> include diarrhea (estimated at 14.7% of under-five mortality) and respiratory tract infections (9.3%). In the main referral hospital, Osindisweni Hospital, serving the program area, 172 deaths occurred among children under age five in 1999 and the first quarter of 2000. Of these, the greatest number (86 children) died of diarrhea and the second highest cause of death (25 children) was respiratory illness. Twenty-three deaths each were attributed to malnutrition-related causes and meningitis. Neonatal causes accounted for 8 deaths, dysentery for 5, AIDS for 4, and “herbal intoxication” (generally due to herbal enemas administered by untrained TBAs) for 5. There were no deaths from measles, tetanus or acute flaccid paralysis.

Major causes of infant and child morbidity in the program area may be deduced from clinic service statistics on outpatient diagnoses collected by the NDCSP and DHSMT from all clinics serving the District. From July 1999 to June 2000, 33,030 pediatric cases under 60 months of age were seen and diagnosed in the clinics. Of these, 3,600 (11%) were cases of watery diarrhea and

---

<sup>1</sup> Preliminary Report of the 1998 South Africa Demographic and Health Survey

<sup>2</sup> Saving Mothers: Report on Confidential Enquiries into Maternal Deaths in South Africa, 1998.

<sup>3</sup> Health Systems Trust. South African Health Review 1999. Durban, RSA.

228 were bloody diarrhea. 1,053 (3%) cases were diagnosed as pneumonia and 241 as marasmus/kwashiorkor. Among immunizable diseases, there were 18 diagnosed cases of measles, 11 cases of pertussis and 2 cases of tetanus. The remainder were classified as “other causes;” mostly colds, flu, minor injuries and gastric disturbances. Of the common threats to child health and survival, watery diarrhea and pneumonia appear to be most common. The low number of immunizable diseases, particularly tetanus, suggests that new EPI protocols introduced in 1997 may have had a positive impact. It should be noted, however, that there has been a slight increase in all these conditions since the previous year (when 2,947 cases of watery diarrhea, 183 cases of bloody diarrhea, 739 cases of pneumonia, 93 cases of marasmus/kwashiorkor, 7 cases each of measles and pertussis, and no cases of tetanus were diagnosed). This slight increase could reflect increased use of the clinics (30,818 cases were seen), or it could be a result of the increasing number of children who are affected by HIV/AIDS.

### **C. Socioeconomic Characteristics of the Population**

The area’s economy is based on subsistence agriculture, with a small amount of cash cropping (sugar cane). A large proportion of households, however, receive remittances from one or more family members employed in Durban or Gauteng Province. Most of those employed outside the District are men, but some women are employed in Durban as domestic servants. Paternal absence, therefore, is very common and maternal absence is not uncommon. The disruption of family residence patterns through migrant labor is thought to be one of the primary causes of the current explosion of HIV rates in KZN; and as noted above, results of the KPC 2000 study have indicated that the relegation of children to non-maternal caregivers often results in inferior child care and slower treatment-seeking during episodes of illness.

Literacy in the District is high by developing country standards, in that about 40% of KPC sample mothers report that they have some secondary education.<sup>4</sup> Only Zulu language education has been provided to the adult population, however; and so very few speak or read English or Afrikaans (the main languages of business and administration in the country). The religious affiliations of Ndwedwe area residents are primarily Christian, although only a minority are members of mainstream churches (Roman Catholic, Methodist and Baptist).<sup>5</sup> The remainder belongs to local churches, such as the Zionist, that combine Christianity with traditional beliefs. The District is sacred to the Shembe religion, and many Ndwedwe residents are Shembe adherents.

### **D. National Standards/Policies**

#### *1. HIV/AIDS*

The DOH has policies on prevention of mother-to-child HIV transmission (MTCT), management of HIV positive pregnant women, rapid HIV testing, testing for HIV, feeding of infants of HIV positive mothers, tuberculosis and HIV/AIDS, management of occupational exposures to HIV, and the syndromic case management of STIs. Testing for HIV may be conducted under certain circumstances and requires informed consent, as well as pre-test and post-test counseling. The standard adult guidelines for rapid HIV testing discuss the ethical and legal rights of patients, and

---

<sup>4</sup> Macro KPC Survey 2000

<sup>5</sup> Ibid.

the role and indications for rapid HIV testing, which includes HIV testing and counseling, diagnosis of HIV infection, diagnosis of HIV infection in areas without local diagnostic laboratories, occupational exposure to blood or body fluids that may be infected with HIV and epidemiological surveillance and screening. The guidelines also discuss the issues to consider such as home test kits, performing and interpreting rapid test results, predictive value of rapid tests in low HIV prevalence communities and issues regarding confirmatory tests for all patients who test positive on the rapid tests. Pre- and post- test counseling and rapid HIV test results, its implications for health care workers, counselors, and patients are also addressed

## *2. Diarrheal Disease*

The DOH protocol for standard case management of childhood diarrheal diseases, including management of dysentery and of persistent diarrhea in children, follows the February 2001 KZN IMCI guidelines. These guidelines detail assessment, classification, treatment, and counseling protocols for children ages 2 months to 5 years and children ages 1 week to 2 months with varying severity of illnesses. The DOH policies are consistent with WHO/UNICEF guidelines, and the NDCSP's case management strategies are consistent with DOH policies. The DOH has an active ORT promotion program in which clinic health educators teach mothers of diarrhea victims to mix sugar-salt solution. Packets of ORS are also available free of charge from all clinics, and they are sold in the many small stores that are scattered throughout the District. The main emphasis is on SSS and use of porridge, soup, or plain water. The DOH has very tight control over antibiotics and anti-diarrheal medications, with clear prescription protocols. Currently, antibiotics are fairly well restricted to use in cases of bloody diarrhea, and anti-diarrheal medications are not heavily used in the management of childhood diarrhea. Unfortunately, discussions with the IMCI facilitator for the district indicate that there is an irregular supply of drugs. For example, the district had no IMCI drugs during February 2002. This issue is understood as more of a logistics management problem rather than shortage of supplies.

## *3. Pneumonia Case Management*

The DOH follows the IMCI protocols adapted as the KwaZulu Natal IMCI Guideline for pneumonia case management, February 2001. These protocols are consistent with and based on WHO protocols. The NDCSP is a facilitator in implementation of IMCI and the DOH protocols in the region. Professional nurses have been trained in the use of IMCI for case management whereby they (a) assess, (b) classify, (c) treat, and (d) counsel children. Included in the protocols are steps to recognize the signs that indicate the need for antibiotic treatment for infants 1 week to two months of age, and for children 2 months to 5 years of age, as well as the signs, which will result in referral to a higher level of care. Also included are the cut-offs for fast breathing for each of the three age groups, and the antibiotics to be used for pneumonia. Counseling regarding antibiotic use and home care for children with pneumonia is done by clinic nurses when the child is brought in for diagnosis and treatment.

## *4. Immunization*

Prior to 1995, immunization policy in South Africa was inconsistent due to the fragmented health system. The current routine childhood immunization schedule in South Africa is based on a National Policy that was adopted in 1999 and, although it includes Hib and HBV, it is otherwise consistent with WHO guidelines.

### *5. Maternal and Neonatal Care*

The 2000 National Guidelines for Maternity Care in South Africa (a manual for clinics, community health centers and district hospitals), and a policy and management guideline for common causes of maternal deaths entitled “Saving Mothers,” provide extremely clear instructions and protocols on maternal and newborn care. The National Guidelines manual clearly defines the functions, staffing and facilities at the clinic, community health center, level 1, 2, 3 hospitals and emergency transport systems. According to the Guidelines, all women that attend ANC should be issued with an antenatal card. This is the principal record of the pregnancy and should be completed at each antenatal clinic visit and retained by the mother until delivery.

All Ndwedwe area clinics and hospitals provide prenatal care which includes weight and blood-pressure monitoring, iron and folic acid supplementation, TT vaccination, blood tests (including blood count and RPR), and treatment of infections (including STIs).

### **E. Goals and Objectives**

*The goals of the NDCSP are unchanged in Phase II: **To reduce morbidity and mortality among children under the age of 60 months, and to improve the health status of women of reproductive age (WRA).*** The Phase II objectives for the principal interventions are as follows:

**HIV/AIDS/STIs:** 1) 65% of mothers/caregivers will be aware of at least three symptoms of STIs other than HIV/AIDS in females; 2) Mothers reporting use of condoms on last act of intercourse will increase from 30% to 50%; 3) 90% of mothers can recognize at-least three known ways in which a mother can transmit HIV/AIDS to her child; 4) 90% of mothers/caregivers will be willing to allow children under their care to play with an HIV-positive child; 5) 100% of the DOH health facilities in the project area will provide appropriate HIV/AIDS/STIs prenatal screening and counseling according to protocols; 6) 75% of households caring for OVCs will be aware of and know how to access Department of Social Welfare (DSW) grants and services; 7) 85% of high school students in schools with active school health clubs (SHCs) will be able to name at-least two strategies of HIV/AIDS prevention; and 8) 60% of high school students in schools with active SHCs report adopt of one of the three strategies of HIV/AIDS prevention (abstinence, being faithful, condom use).

**Control of Diarrheal Diseases:** 1) 90% of mothers and non-maternal caregivers whose child experienced a diarrheal episode during the previous two weeks will provide oral rehydration therapy (ORS, SSS or available home fluids) to the child under their care during diarrheal episodes; 2) 50% of mothers and caregivers will report that they wash their hands before feeding the child under their care; 3) 85% of mothers and caregivers whose child experienced a diarrheal episode during the previous two weeks will give the same of or more liquids than usual during diarrhea episodes.

**Pneumonia Case Management:** 1) 35% of mothers and caregivers whose child experienced cough with rapid or difficult breathing during the previous two weeks of children will seek medical attention by the end of the day after the onset of symptoms; 2) IMCI protocols for pneumonia diagnosis and treatment will be implemented and correctly used in 100% of the project clinics.

**Immunization:** 1) 70% of children aged 12-23 months are fully immunized per RTH card; 2) 80% of children aged 12-23 months will have received a measles vaccination per RTH card.

**Maternal/Neonatal Care:** 1) At least 60% of mothers/caregivers will be aware of two or more of the danger signs in newborns that require immediate treatment; 2) 40% of CHCs will have established a cost recovery/financial system or loan system for different priority PHC activities (e.g., transporting obstetrical emergencies, incentives for CHWs, HBCVs, etc.) 3) During their last pregnancy, 50% of women will have made an antenatal visit during the first trimester of pregnancy and at least three antenatal visits thereafter; and 4) 80% of midwives in program area health facilities will be trained in the PEP modules.

## **F. Intervention Activities**

The NDCSP's Phase II strategies to achieve these goals and objectives are based on building capacity of the program's primary partners—the DHSMT, local NGOs (Oakford, TREE, and DramAidE) – and on establishing strong and sustainable community institutions such as the Community Health Committees, Community health workers and the Home Based Care Volunteers. The program's capacity building strategy relies on its multi-faceted training program that includes management and organizational strengthening for the DHSMT and for CHC members, as well as training for these partners in mounting an effective behavior change campaign. The capacities of health facilities personnel will be improved through the NDCSP's support to the effective implementation and supervision of the new IMCI protocol and through the planned training program to teach maternal and HIV/AIDS counseling skills to facility-based personnel. At the community level, the NDCSP will facilitate the organization of the new CHCs, assist them to undertake periodic community health assessment using PLA methods, and build their Behavior Change capabilities by providing them with up-to-date health information and teaching them effective communication skills. All previously trained nurses will be provided refresher training in essential obstetric care using the PEP module. Furthermore, the HBCVs, who have already received basic training with NDCSP support, will receive additional and refresher training as indicated by the planned training needs assessment, in order to establish them as a resource to households affected by HIV/AIDS.

## **G. Objectives of the KPC Survey**

The purpose of the survey was as follows:

1. To obtain population-based information on key knowledge, practices and coverage from mothers and caregivers of children age 0-23 months.
2. To obtain information on key knowledge, attitudes, practices and coverage relating to HIV/AIDS from mothers and caregivers with children age 0-59 months.
3. Based on the current KPC data, to prioritize interventions and refine targets for the Ndwedwe District Child Survival Project.
4. To facilitate the design of qualitative research tools for an in-depth understanding of the gaps in knowledge, practice and coverage identified through the KPC.

## **II. PROCESS AND PARTNERSHIP BUILDING**

Participation of the community in the planning and implementation of a KPC survey serves to increase the community's "ownership" of, and commitment to, the survey and its results.

### **A. Methods of Identifying and Engaging Local Partners/Stakeholders**

The Ilembe Regional Council was informed of the survey and provided valuable assistance in the form of maps for the KPC as well as the most current lists of tribal authorities. Information on the tribal authorities, along with the associated population figures is very critical, especially as the boundaries of the tribal areas are constantly changing. Local project staff identified and contacted the tribal chiefs (*Amakosi*) for each tribal authority in which the KPC was planned. Local project staff including, the community mobilizer, explained the Child Survival Project and purpose of the KPC to the *Amakosi*. The *Amakosi* gave their approval for the KPC survey.

### **B. Specific Roles of Local Partners/Stakeholders in the KPC Survey**

The enumerators for the KPC were drawn from a pool of home-based care volunteers (HBCVs) for people living with AIDS (PLWA) that have been working with the NDCSP. Many of these home-based care volunteers also worked on the KPC that was carried out in 2000. Most of the enumerators were residents of Ndwedwe District, enhancing community involvement in the process. Six supervisors were needed to manage the KPC survey; of these four of the supervisors were NDCSP staff, while the other two were nurses from the District Health Services. MCDI program staff supervisors included the project AIDS/Primary Health Care Training Supervisor, the HBCV Coordinator, the Social Worker, and the Community Outreach Organizer. The two data entry persons had served as enumerators on the KPC survey conducted in 2000, so both were very familiar with the entire survey process. In addition, one of the data entry persons worked on the design of the questionnaire in the EPI INFO EPI 6 software program for the KPC survey done in 2000. He was involved with creating the data entry file in EPI INFO for this current KPC.

### **C. Constraints in the KPC process**

An effort was made to include all of the HBCVs in the KPC survey. The remaining home-based care volunteers who did not qualify as enumerators were hired as cooks to work at the Umsunduze Training Center, where the training of the enumerators was undertaken. All of the enumerators and cooks were also housed at the Umsunduze Training Center for the period of the KPC survey. In the future, it would be more cost-effective to completely outsource the catering function. Although the home-based care volunteers who served as cooks were using their skills and earning wages, there was no transfer of knowledge, and as such, there was no potential for any capacity-building to occur. In addition, in the future, it would also be helpful to apply more stringent criteria to selection of the enumerators. Some sort of qualifying written test or interview would serve well to select the most promising enumerators. Additionally, two of the supervisors were drawn from the clinics in the project area, which meant that they had to be excused from their normal duties. In the face of the staffing shortage at the clinics, many times these supervisors had to split their time between their normal duties and the KPC survey, and as a result were overburdened.

### III. METHODS

#### A. Questionnaire

The questionnaire for the survey was designed to collect information from mothers or caregivers of children under 60 months of age, and is composed of the following modules: (a) childhood immunization; (b) diarrhea case management; (c) pneumonia case management; (d) maternal and newborn care; (e) delivery practices; (f) postpartum care; (g) IMCI; (h) HIV/AIDS and other sexually transmitted diseases; and (i) health contacts and sources of health information. A single version of the questionnaire was administered to both mothers and caregivers, though instructions were provided to enumerators to skip questions such as those related to pregnancy and the post-partum period when interviewing caregivers given that they were not relevant.

Given that a large number of children in the project area are cared for by non-maternal caregivers, consideration was initially given to administering two separate questionnaires - one for mothers, and one for caregivers. However, as sampling both mothers and caregivers independently would have increased the costs of administering the survey considerably<sup>6</sup>, it was determined that it would be more cost-effective to administer a single questionnaire to a combined sample of mothers and caregivers.

The questionnaire was drafted by the home office and then adapted and translated into Zulu by the field team and the MOH. See Annex 2 for a copy of the questionnaire.

#### B. Ndwedwe District Child Survival Indicators

A listing of the child survival indicators that will be used as the basis for evaluating the Project's performance are summarized in the ensuing table.

INDICATORS	DEFINITION
<b>HIV/AIDS/STIs</b>	
<b>Indicator 1:</b> 65% of mothers/caregivers will be aware of at least three symptoms of STIs other than HIV/AIDS in females.	Percentage of mothers who can name three or more symptoms of STIs in females.
<b>Indicator 2:</b> Mothers reporting use of condoms on last act of intercourse will increase from 30% to 50%.	Percentage of mothers who report use of a condom during the last act of intercourse.
<b>Indicator 3:</b> 90% of mothers will be able to recognize at least three known ways in which a mother can transmit HIV/AIDS to her child	Percentage of mothers who are able to recognize at-least three known ways of mother to child transmission of HIV/AIDS
<b>Indicator 4:</b> 90% of mothers/caregivers will be willing to allow children under their care to play with an HIV-positive child	Percentage of mothers and caregivers who state they are willing for a child under their care to play with an HIV-positive child.
<b>Indicator 5:</b> 100% of DOH health facilities in the project area will provide appropriate HIV/AIDS/ STIs prenatal screening and counseling according to protocols.	Percentage of clinics and hospitals providing HIV/AIDS/ STIs screening and counseling.
<b>Indicator 6:</b> 75% of households caring for OVCs will be aware of and know how to access DSW grants and services.	Percentage of caregivers caring for OVCs who have established contact with DSW.

<sup>6</sup> MCDI's estimates indicated that we would have to double the sample size to be able test the difference in behavior between mothers and caregivers.

<b>INDICATORS</b>	<b>DEFINITION</b>
<b>Indicator 7:</b> 85% of high school students in schools with active School Health Clubs (SHCs) are able to name at least two strategies of prevention	Percentage of school students in schools with active SHC can name at-least two strategies of HIV/AIDS prevention
<b>Indicator 8:</b> 60% of high school students in schools with active SHCs report adoption of one of three strategies of HIV/AIDS prevention (abstinence, being faithful, condom use)	Percentage of school students in schools with active SHC adopting at-least one of the three methods of HIV/AIDS prevention
<b>CONTROL OF DIARRHEAL DISEASES</b>	
<b>Indicator 1:</b> 90% of mothers and caregivers whose child experiences a diarrheal episode during the previous two weeks will provide oral rehydration therapy(ORS, SSS, or home available fluids) to the child under their care during diarrheal episodes.	Percent of mothers and caregivers who report they gave ORT during their child's last episode of diarrhea
<b>Indicator 2:</b> 50% of mothers and caregivers will report that they wash their hands before feeding the child under their care.	Percent of mothers and caregivers who report hand-washing before feeding children
<b>Indicator 3:</b> 85% of mothers and caregivers whose child experiences a diarrheal episode during the previous two weeks will give the same amount of or more liquids than usual during diarrheal episodes.	Percent of mothers and caregivers who report that they gave the same or more than usual liquids during the child's last diarrhea episode.
<b>PNEUMONIA CASE MANAGEMENT</b>	
<b>Indicator 1:</b> 35% of mothers/caregivers whose child with cough experiences rapid or difficult breathing during the previous two weeks will seek medical attention by the end of the day after the onset of symptoms.	Percent of mothers/caregivers who report they sought medical treatment for their child with cough and rapid or difficult breathing by the end of the day after the onset of symptoms.
<b>Indicator 2:</b> IMCI protocols for pneumonia diagnosis and treatment will be implemented and correctly used in 100% of the project clinics	Percent of clinics treating children who correctly diagnose and treat children with cough and difficult breathing according to IMCI protocols during supervisory visits.
<b>IMMUNIZATION</b>	
<b>Indicator 1:</b> 70% of children aged 12-23 months will be fully immunized per RTH card	Percent of KPC children 12-23 months of age whose RTH Cards indicate that they are fully immunized.
<b>Indicator 2:</b> 80% of children aged 12-23 months will have received a measles vaccination per RTH card	Percent of KPC survey children 12-23 months of age whose RTH Cards indicate that they are immunized for measles.
<b>MATERNAL AND NEONATAL CARE</b>	
<b>Indicator 1:</b> At least 60% of mothers/caregivers will be aware of two or more of the danger signs in newborns that require immediate treatment.	Percentage of mothers/caregivers who can name two or more of the danger signs in newborns.
<b>Indicator 2:</b> 40% of CHCs will have established a cost recovery/financial system or loan system for different priority PHC activities(e.g., transportation for obstetrical emergencies, incentives for CHWs, HBCVs, etc.)	Percentage of community based health funds established in CHC catchment areas
<b>Indicator 3:</b> During their last pregnancy, 50% of women will have made an antenatal visit during the first trimester of pregnancy and at least three antenatal visits thereafter	Percent of mothers who report they made one antenatal visit during their first trimester and that they made at least 4 antenatal visits in all.
<b>Indicator 4:</b> 80% of midwives in program area health facilities will be trained in the PEP modules.	Percentage of midwives in program area health facilities who are trained in the PEP modules.

### **C. Sampling Design**

In keeping with standard cluster sample survey design, a sample of 300 households was drawn from the expanded project area in Ndwedwe Sub-District. Households with children under the age of five were selected for the survey (as opposed to the usual KPC selection criteria that identifies households with children under 2) in an attempt to capture more households with children that have been affected by HIV/AIDS, that is, households in which the child has lost one or both parents and is being cared for by a non-maternal caregiver. Though it was recognized that expanding the selection criteria to the under-5 age cohort would likely reduce the reliability of the point estimates for the under-2 age group, it was felt that net benefit was positive given the anticipated increased reliability with respect to households with children that have been affected by HIV/AIDS – a critically important, yet relatively poorly understood, epidemiological factor in the project area.<sup>7</sup> Although a sample size larger than 300 would have enabled the team to obtain estimates with smaller confidence limits, this was neither logistically nor financially feasible because of the large distances between households in Ndwedwe, particularly in the new expansion area. These factors, combined with the fact that the NDCSP had undergone a KPC survey fairly recently (in 2000), led the team to decide to limit the sample size to 300 households.

Ten households were selected in each of 30 clusters. Clusters were selected using a systematic random sampling methodology that selected the clusters from the tribal authority areas and associated enumerator area codes (equivalent to housing areas in areas for which there is mapping available) in proportion to the population size of the tribal area. Thus larger tribal areas had a higher probability of having clusters drawn. 1998 population projections based on the 1996 census were provided to the NDCSP by the Human Sciences Research Council. See Annex 3 for a listing of the clusters sampled.

Once the survey teams reached the designated cluster site, the initial household surveyed within the cluster, as well as the direction from the initial household was randomly selected. A start-point near the center of the cluster was designated. The team members spun a pencil to randomly select a direction. Households were visited in the direction the pencil was pointing in. They then visited the next nearest household in that direction until they came to the end of the limits of the cluster, defined by enumerator area code. Households were selected for interview if they had a child under 5 living in it.

When a household was chosen that had more than one child under 5 living in it, the enumerator was instructed to ask the mother questions relating to the youngest child. If there were two or more mothers living in the household with children under five, again the mother with the youngest child was chosen to answer the questionnaire.

### **D. Training of Supervisors and Interviewers**

Training of supervisors and enumerators was carried out by MCDI's KPC consultant, Gita Gidwani. The supervisors for the KPC Survey consisted of both NDCSP and DOH staff,

---

<sup>7</sup> The loss in precision for questions pertaining to the under-2 population expected as a result of change in our selection criteria was not deemed to be overly problematic given the relatively wide confidence intervals typically generated using the cluster sampling methodology as a result of the design effect associated with intra-cluster homogeneity.

including individuals with previous supervisory work experience from the NDCSP's 1996 baseline survey. The NDCSP and DOH staff agreed that this exercise would be an important learning opportunity for the DOH staff. Because of the NDCSP's strong emphasis on community participation, the enumerators were selected from the NDCSPs group of home-based care volunteers (HBCVs). Involving the HBCVs in the KPC process was not only seen as a means of enhancing community participation, but was also seen as a means of providing them with the opportunity to earn money and gain skills.

Supervisors received a day of specialized training prior to the onset of joint training for supervisors and interviewers. The first day of supervisor training was very participatory, and the entire questionnaire was reviewed. During this time, the supervisors were encouraged to ask questions and provide suggestions regarding the entire KPC survey process, as well as regarding the questionnaire. As a result of this first day of training, a few changes were made to the questionnaire.

The joint training of supervisors and interviewers took place over five days and also employed a participatory approach where four of the supervisors led the training. Prior to the first day of training, the MCDI team reviewed the training curriculum and delegated responsibility for the various sessions among the four senior supervisors, who are all nurses.

The first day of training was dedicated to survey administration, methodology, and understanding the questionnaire. The MCDI team instructed the interviewers in the following: (a) purpose and objectives of the survey, (b) selection of the sample size, (c) selection of the starting household and survey direction, (d) community protocols and taboos, and (e) a thorough review of the customized questionnaire. The second day of training continued with a detailed review of the entire questionnaire to ensure that the interviewees understood the questions.

The remaining two days of training were also structured around the questionnaire. The interviewees were instructed to study the questionnaire as their homework, and to come to class the next day with any questions or issues that needed clarification. The definition of a caregiver as someone other than the parent who has permanent or long-term responsibility for a child was also explained to the interviewees during this time. In addition, as stated previously, in households with more than one child under the age of five, the enumerators were instructed to select the mother/caregiver of the youngest child in the household. Interviewing techniques, including role-playing, as well as selection of households within the clusters was also reviewed.

On the fifth day of training, the questionnaire was pilot-tested by each group on a household near to the training center. Although only one of the enumerators from each group administered the survey, the other enumerators in the group were instructed to follow along and take any notes as needed. Any outstanding issues were clarified through the pre-testing of the survey. See Annex 4 for an overview of the training schedule.

## **E. Method of Data Collection**

The survey was conducted over a five-day period from November 27-December 1, 2001. Teams were guided to the cluster sites by the drivers of the transport vehicles, all of whom were residents of the district. There were six teams with four enumerators and one supervisor for each

team. The supervisor of each team was responsible for the selection of the starting household and the survey direction.

The supervisors observed at least one complete interview each day, and tried to accompany and directly supervise those enumerators whose performance demonstrated that they needed more direct attention. The length of time for each survey was approximately 45 minutes. In addition, both of the data entry persons reviewed many of the written surveys before any data was entered as a quality control mechanism. This also led to a faster and easier data entry process, as the data entry persons were very familiar with the survey.

In order to ensure consent and confidentiality, a consent form was attached to each survey. Each interviewer was instructed to read the consent form to the mother before commencing with the survey. The consent form from the Rapid KPC Survey was used. The form advised the potential respondent that she was not obligated to participate in the survey, that all information would be held in confidence, and that the information would be used to help health workers plan health activities. The interviewers were required to sign each form verifying that it had been read to the mother/respondent, and that she had consented to participate. In spite of our best efforts we experienced greater than usual problems with quality control, which has caused a much higher proportion of missing values in our dataset than has occurred when MCDI has administered similar surveys in the past. Though the reliability of our results have clearly been adversely impacted to some degree, we believe that a lot of useful information has been gained from the survey and that the process will serve as a learning device both for MCDI and the NDCSP and DOH staff.

## **F. Method of Data Analysis**

The data was tabulated and analyzed using the EPI INFO EPI6 software program. EPI/INFO EPI6, developed at the Centers for Disease Control (CDC) in Atlanta, was designed specifically for the analysis of health surveys. For the purposes of this report, frequency distributions for each of the variables were generated. In addition, a number of bi-variate cross-tabulations were also derived. The findings from this analysis are presented in the sections that follow. Point estimates derived from the survey for each question are presented in Table 3 in the ensuing section.

As can be seen from the table, the 95% confidence intervals for a number of the point estimates are rather large – a phenomenon that is not unusual in this type of small sample cluster survey design. To some degree, however, the confidence intervals are larger than they might have been given that the sub-sample sizes related to some of these questions was restricted by our sample design. As has been explained elsewhere, the sampling design sought to obtain information not just on the 0-23 aged population typically focused on in the Rapid Catch surveys but, given the enormous AIDS orphan problem in the project area, to collect information on the 0-5 year cohort as well. This necessarily meant that the 0-23 sub-sample size was reduced to some degree. The wider confidence limits were considered a necessary trade-off for obtaining a broader and more relevant set of indicators upon which to formulate our overall project strategy.

## **IV. RESULTS**

The survey consisted of 92 questions, which are discussed below. The use of different denominators for different questions reflects whether (1) the questions were addressed to mothers and caregivers together, or mothers alone, (2) questions were addressed to particular cohorts of the survey population selected for specific health-related criteria such as whether their child had been ill with diarrhea during the preceding two weeks, and (3) missing data caused by quality control problems. Three hundred (300) questionnaires were entered into EPI/INFO for analysis.

**Table 3: 2001 Baseline KPC Results  
Ndwedwe District Child Survival Project**

Cost Extension Proposal Objectives	Numerator/ Denominator	Percent	Confidence limits
<b>HIV/AIDS/STIs Objectives (30% of LOE), by EOP:</b>			
1. 65% of mothers/caregivers will be aware of at least three symptoms of STIs other than HIV/AIDS in females.	43/164	26%	20% -33%
2. Mothers reporting use of condoms on last act of intercourse will increase from 30% to 50%.	52/174	30%	23% -37%
3. 90% of mothers can recognize at least three known ways in which a mother can transmit HIV/AIDS to her child.	136/254	54%	47% -60%
4. 90% of mothers/caregivers will be willing to allow children under their care to play with an HIV-positive child.	172/252	68 %	62% -74%
5. 100% of the DOH health facilities in the project area provide appropriate HIV/AIDS/STIs prenatal screening and counseling according to protocols.	Not KPC		
6. 75% of households caring for OVCs will be aware of and know how to access DSW grants and services.	Not KPC		
7. 85% of high school students in schools with active School Health Clubs (SHCs) have adequate knowledge of HIV/AIDS prevention as demonstrated in their ability to name at least two strategies of prevention.	Not KPC		
8. 60% of high school students in schools with active SHCs report adoption of one of three strategies of HIV/AIDS prevention (abstinence, being faithful, condom use).	Not KPC		
<b>Control of Diarrheal Diseases Objectives (20% of LOE), by EOP:</b>			
1. 90% of mothers/caregivers whose child experiences a diarrheal episode during the previous 2 weeks will provide oral rehydration therapy (ORS, SSS or available home fluids) to the child under their care during diarrheal episodes	23/31	74%	55% -88%
<i>Analyzed for children 0-59 months of age</i>	44/64	69%	56%-80%

<b>Cost Extension Proposal Objectives</b>	<b>Numerator/ Denominator</b>	<b>Percent</b>	<b>Confidence limits</b>
2. 50% of mothers/caregivers will report that they wash their hands before feeding the child under their care	20/135	15%	9%-22%
<i>Analyzed for children 0-59 months of age</i>	27/299	9%	9%-21%
3. 85% of mothers/caregivers whose child experiences a diarrheal episode during the previous 2 weeks will give the same or more liquids than usual during diarrhea episodes	19/29	66%	41%-76%
<i>Analyzed for children 0-59 months of age</i>	30/60	50%	37%-63%
<b>Pneumonia Case Management Objectives (20% of LOE), by EOP:</b>			
4. 35% of mothers/caregivers whose child with cough experiences rapid or difficult breathing the previous two weeks will seek medical attention by the end of the day after the onset of symptoms	3/30	10%	2%-27%
<i>Analyzed for children 0-59 months of age</i>	9/68	13%	6%-24%
5. IMCI protocols for pneumonia diagnosis and treatment will be implemented and correctly used in 100% of the project clinics	Not KPC		
<b>Immunization Objectives (15% of LOE), by EOP:</b>			
1. 70% of children aged 12-23 months are fully immunized per RTH card	22/43	51%	36%-66%
2. 80% of children aged 12-23 months will have received a measles vaccination per RTH card	26/43	61%	45%-75%
<b>Maternal/Neonatal Care Objectives (15% of LOE), by EOP:</b>			
1. At least 60% of mothers/caregivers will be aware of two or more of the danger signs in newborns that require immediate treatment	122/300	41%	35%-47%
2. 40% of CHCs will have established a cost recovery/financial system or loan system for different priority PHC activities (e.g., transporting obstetrical emergencies, incentives for CHWs, HBCVs, etc.)	Not KPC		
3. During their last pregnancy, 50% of mothers will have made an antenatal visit during the first trimester of pregnancy and at least three antenatal visits thereafter	40/196	20 %	13% -28%
4. 80% of midwives in program area health facilities will be trained in the PEP modules	Not KPC		

## Rapid CATCH Findings

INDICATOR	Numerator/ Denominator	Percent	Confidence limits
<b>Measure of child health and well-being</b>			
% of children aged 0-23 months who are underweight (-2SD from the median weight-for-age, according to the WHO/NCHS reference population)	N/A <sup>8</sup>		
<b>Prevention of Illness/Death</b>			
% of children age 0-23 months who were born at-least 24 months after the previous surviving child	N/A		
% of children age 0-23 months whose births were attended by skilled health personnel	101/116	87%	80% -93%
<i>Analyzed for children 0-59 months of age</i>	<i>217/252</i>	<i>86%</i>	<i>81%-90%</i>
% of mothers with children age 0-23 months who received at least two tetanus toxoid injections before the birth of their youngest child	77/87 <sup>9</sup>	89 %	80% -94%
<i>Analyzed for children 0-59 months of age</i>	<i>166/194</i> result based on one TT injection	<i>84%</i>	<i>78%-89%</i>
% of children age 0-5 months who were exclusively breastfed during the last 24 hours	12/32	38%	21% -56%
% of children aged 6-9 months who received breast-milk and complementary foods during the last 24 hours	13/16	81%	54% -96%
% of children age 12-23 months who are fully vaccinated before the first birthday	22/43	51%	36% -66%
% of children 12-23 months who received a measles vaccine	26/43	61%	45% -75%
% of children 0-23 months who slept under an insecticide-treated net the previous night	N/A		
% of mothers/caregivers with children age 0-23 months who cite at least two known ways of reducing the risk of HIV infection	66/97	68%	58% -77%
<i>Analyzed for children 0-59 months of age</i>	<i>147/234</i>	<i>63%</i>	<i>57%-69%</i>

<sup>8</sup> The KPC survey did not measure weight-for-age to estimate under-weight and neither was a nutritional survey conducted

<sup>9</sup> The KPC survey did not report maternal tetanus toxoid (TT) coverage since mothers reported that the Maternal Health Cards are held at the facilities. According to the DOH, there were no cases of tetanus in KwaZulu Natal between 1998 - 2000 (Directorate: Health Systems Research and Epidemiology Notification System, Pretoria, 2000). National DOH data also shows a high percentage of pregnant women in the province (75%) receiving tetanus toxoid immunizations.

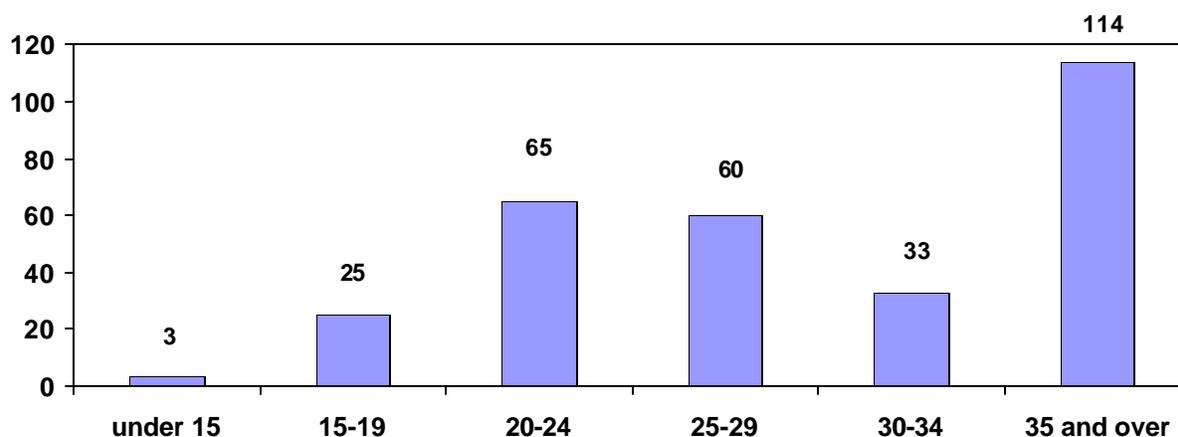
<b>INDICATOR</b>	<b>Numerator/ Denominator</b>	<b>Percent</b>	<b>Confidence limits</b>
% of mothers/caregivers with children age 0-23 months who report that they wash their hands with soap/ash before food preparation, before feeding, after defecation, and after attending to a child who has defecated	7/135	5%	2%-10%
<i>Analyzed for children 0-59 months of age</i>	<i>8/300</i>	<i>3%</i>	<i>1%-5%</i>
<b>Management/Treatment of Illness</b>			
% of mothers/caregivers of children age 0-23 months who know at least two signs of childhood illness that indicate the need for treatment	95/135	71%	62%-78%
<i>Analyzed for children 0-59 months of age</i>	<i>206/300</i>	<i>69%</i>	<i>63%-74%</i>
% of sick children age 0-23 months who received increased fluids and continued feeding during an illness in the past two weeks	1/73	1%	0%-5%

The rapid catch indicators above are included in this report as suggested in the KPC 2000+ Tool and Field Guide. The Breastfeeding subsection C, discussed in the results section below includes catch indicators. Although NDCSP project will not directly measure the breastfeeding practices, the best practices of exclusive breastfeeding and appropriate complementary feeding will be an overarching message that will be disseminated with mothers/caregivers.

## A. Demographics

In the Ndwedwe District Child Survival Project target area, the mean age reported by mothers/caregivers surveyed is 32.77 years. Graph 1 below illustrates the age group of mothers/caregivers who were interviewed.

**Graph 1: Age Distribution of Mothers and Caregivers**



Among the children in the survey, roughly 24% are under the age of one year (11 months of age or younger), 21% of the children are 12-23 months of age and 55% are between two and five years of age. The mean age of children in the survey is 28.17 months. Based on the age and sex distribution of the 300 households, 49% of the children aged 0-59 months are females and 51% are male. Age and sex of the children in the sample are presented in Table 5.

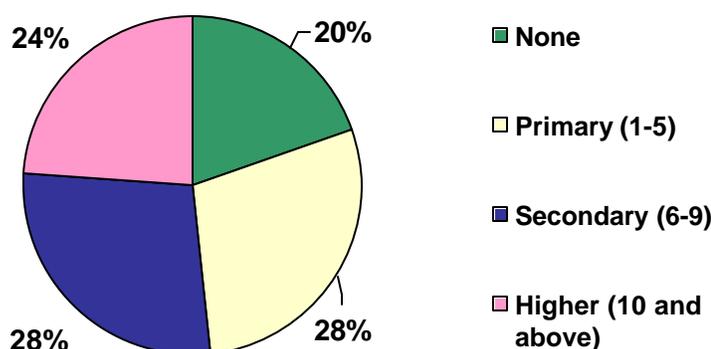
**Table 5: Age and Sex of the Children Sampled**

AGE	MALE	FEMALE	TOTAL
Less than 5 months	18	19	37
5-11 months	17	19	36
12-23 months	39	23	62
24-59 months	79	86	165
<b>TOTAL</b>	153	147	300

Most of the children surveyed were being cared for by their mothers. Among the 15% who were under the care of caregivers other than their mother, the majority (85%) were being cared for by their grandmother. 87% of the mothers/caregivers were found to be working outside the home.

As shown in Graph 2, the educational attainment of mothers and caregivers is relatively high. Only 20% had no formal education whatsoever while over half had secondary education or above. This is a significant finding for the Project since it establishes that modern forms of information dissemination (print media, radio and TV) are likely to be quite effective for a sizeable proportion of the target population. Never the less, the fact that nearly half of the mothers and caregivers had a primary education or none at all suggests the need to continue with less modern forms of outreach.

**Graph 2: Caregivers' Level of Education**



## B. HIV/AIDS/STIs

### Knowledge

All mothers/caregivers with children age 0-59 months were asked, “Is there anything a person can do to avoid getting AIDS or the virus that causes AIDS?” 26 respondents did not answer the question, but of those who did, roughly 86% reported in the affirmative. Among these, slightly over half (54%) were aware of at least two ways of prevention. A similar percentage knew of at least three ways of transmission of HIV/AIDS from a mother to the child. See Table 16 below.

**Table 16: Percent of mothers aware of at least two ways HIV/AIDS can be transmitted from mother to child**

# OF WAYS HIV/AIDS CAN BE TRANSMITTED FROM MOTHER TO CHILD	NO. (%) OF MOTHERS
0	52 (21%)
1	28 (11%)
2	38 (15%)
3	136 (54%) <sup>10</sup>
TOTAL	254

Mothers only were also asked whether they had heard about other infections transmitted through sexual contact, apart from AIDS. Of the 254 mothers in the sample, 252 mothers answered this question. Of these, 58% reported that they had heard about other infections. Less than a third of the mothers who had heard about other infections (26%) knew three or more signs and symptoms of this type of sexually transmitted infection.

Although mothers/caregivers knowledge that HIV/AIDS can be avoided was found to be high, knowledge about multiple ways of transmission and prevention was less pervasive. Given the relatively high incidence of HIV/AIDS in KwaZulu Natal province it will be important for the Project to focus on increasing knowledge and practice of appropriate ways of prevention. The project will continue to use multiple strategies for HIV/AIDS education such as DramAide, in-

<sup>10</sup> Throughout the report percentages in tables may not equal to 100% due to rounding

school education and community worker outreach provided by home based care volunteers (HBCVs), and community health workers (CHWS).

All mothers/caregivers were asked whether there is a cure for AIDS. Of the 300 mothers/caregivers in the sample, 248 mothers responded to this question; approximately 19% reported "yes," while another 10% did not know.

### **Attitudes and Practice**

In addition to assessing knowledge, several questions in the KPC measured mothers'/caregivers' attitudes towards people living with HIV/AIDS. If a relative of the mother/caregiver became sick with the AIDS virus, 77% reported they would be willing to care for him/her in their own household if they could afford it while 18% reported they would not be willing to do so. Approximately 78% of mothers/caregivers stated that if their child's teacher had the AIDS virus but was not sick, the teacher should be allowed to continue teaching school. Although more than half of the mothers/caregivers said that they would allow their child to play with another child who had the AIDS virus, a relatively large percentage (32 %) reported they either did not know or would not allow their child to play with another child who has AIDS. The survey evidence reveals that although progress has been made in educating the general population about the risks of living with people affected by HIV/AIDS, prejudice still exists among a non-negligible proportion of the population. The stigma associated with HIV/AIDS still forms a barrier to effectively curtailing the epidemic. The Project's HBCVs supervisors corroborated these perceptions by reporting that most patients still do not reveal their sero-status, and thus do not benefit from the quality of care they could obtain. It is anticipated that the Project's strategies of using HBCVs and DramAide will result in creating more awareness and a change in the social stigmas, especially in care of the sick and the acceptance of the person with HIV/AIDS.

According to those who were willing to answer questions about their sexual practice and that of their husbands, approximately 45% believed that their partners had multiple sexual partners<sup>11</sup>. Although a high percentage of mothers reported that they believed their husbands had multiple partners, besides the existing social stigmas stated above, traditional cultural values result in mothers' inability to influence their partners' sexual behaviors. This was also reflected in the fact that only 30% reported using a condom the last time they had sexual intercourse. Table 17 provides the main reasons these mothers gave for using a condom.

**Table 17: Reasons for using a condom on the last sexual act (multiple answers allowed)**

REASONS FOR USING A CONDOM ON LAST SEXUAL ACT	% OF MOTHERS
To prevent STDs/HIV	33 (64%)
To prevent pregnancy	25 (48%)
To prevent both STDs/HIV and pregnancy	14 (27%)
Partner has other partners/doesn't trust partner	6 (12%)
Partner insisted	1 (2%)
<b>TOTAL</b>	<b>52 (100%)</b>

**Note:** Because multiple answers were permitted for this question, the total (52) represents the number of women who reported using a condom and therefore does not add up to the numbers in the column.

<sup>11</sup> Responses were not provided for 111 mothers among whom 46 constituted outright refusals to answer.

## C. Control of Diarrheal Diseases

### Knowledge

24% of the mothers and caregivers with children less than 24 months of age reported that their child had experienced an episode of diarrhea in the two weeks prior to the survey. Information related to the care of these 32 children during the diarrheal episode is presented below. Nearly three quarters (74%) of these mothers/caregivers had correct knowledge of how to make a sugar salt solution (SSS), while the remaining mothers/caregivers either did not know how to make the solution or stated an incorrect way of making the solution. A cross-tabulation of knowledge of SSS preparation and the level of maternal/caregiver education revealed that better educated mothers/caregivers are no more likely to know how to prepare SSS than those who are less well educated. This seems to suggest that increasing knowledge of correct SSS preparation will depend principally on gaining access to those who do not know how to properly mix SSS rather than on changing the information provided.

### Practice:

Table 6 below summarizes the feeding practices of mothers/caregivers during the child's diarrheal episode. It reveals that *a large proportion (84%) of mothers/caregivers whose child experienced a diarrheal episode during the two weeks prior to the interview, either reduced or did not increase the quantity of food given to the child during the illness episode. None of the children were given more to eat as recommended under rehydration therapy!*

**Table 6: Feeding Practices by Mothers/Caregivers for Children with Diarrhea**

FEEDING DURING DIARRHEA EPISODE	No. (%) OF MOTHERS/CAREGIVERS
Less Quantity of Food	14 (45 %)
Same Quantity of Food	12 (39%)
Greater Quantity of Food	0 (0%)
Exclusive Breastfeeding	5 (16%)
<b>TOTAL</b>	<b>31 (100%)</b>
<i>Missing</i>	<i>1</i>

Table 7 describes in detail the practice of mothers/caregivers in providing liquids during their child's diarrheal episode. Again, as in the case of feeding above, it is evident that *a large percentage (83%) either provided less than the usual amount of liquids, or did not increase the volume of liquids administered. Only 7% actually increased the volume of liquids provided to their child during their diarrheal episode as intended under rehydration therapy!*

**Table 7: Percent of Mothers / Caregivers who Reported Giving the Same or More Liquids than Usual During Diarrheal Episodes**

LIQUIDS DURING DIARRHEA EPISODE	No. (%) OF MOTHERS/CAREGIVERS
Less Volume of Liquids	10 (35%)
Same Volume of Liquids	14 (48%)
Greater Volume of Liquids	2 (7%)
Exclusive Breastfeeding	3 (10%)
<b>TOTAL</b>	<b>29 (100%)</b>
<i>Missing</i>	<i>3</i>

The finding that very few mothers/caregivers increased food and liquid intake during their child's diarrheal episodes is surprising given that 74% of the mothers/caregivers whose child experienced a diarrheal episode during the previous two weeks reported administering ORT (either ORS or SSS). In order to investigate this apparent contradiction in practice further, a cross-tabulation of ORT use with increased food and liquid intake is presented in Table 8.

**Table 8:ORT Use and Increased Food and Liquid Intake During Diarrheal Episodes**

ORT USE	INCREASED FOOD AND LIQUID INTAKE DURING DIARRHEAL EPISODE			
	YES		NO	
	N	(Row %)	N	(Row %)
YES	2	12%	16	88%
NO	1	23%	2	67%

Table 8 reveals that only 12% of the mothers/caregivers who used ORT actually increased the volume of food and liquids administered to their child during a diarrheal episode! Evidently, there is a widespread misunderstanding about rehydration therapy, and mothers/caregivers appear to be administering ORT in much the same way as they would antibiotics – as a treatment for diarrhea rather than as a therapy for combating dehydration associated with diarrhea. This is clearly a misconception that the Project will need to address within its information/education strategy.

In order to ascertain whether the contradictory practice of administering ORT while restricting food and fluid intake during diarrheal episodes is largely an informational problem (i.e., mothers/caregivers have not been informed of the purpose of ORT and the benefits of rehydration) or a comprehension problem (i.e., certain mothers/caregivers do not understand the purpose of ORT and the benefits of rehydration), a cross-tabulation of maternal/caregiver educational attainment by food and liquid intake is presented in Table 9. The hypothesis here is that the strategy needs to be largely informational (i.e., broad-based dissemination of appropriate information on ORT and rehydration) if increased food and liquid intake is unrelated to educational attainment, whereas the strategy needs to be largely one of targeted education if increased food and liquid intake is positively correlated with educational attainment. In the latter case, the evidence would suggest that mothers/caregivers with little or no education need to be targeted for education on the need for and benefits of rehydration and that this is the purpose of ORT as well as increased food and liquid intake.

**Table 9: Educational attainment of mothers/caregivers and increased liquid intake during diarrheal episode**

EDUCATIONAL ATTAINMENT OF MOTHERS / CAREGIVERS	INCREASED FOOD AND LIQUID INTAKE DURING DIARRHEAL EPISODE			
	YES		NO	
	N	(Row %)	N	(Row %)
SECONDARY OR HIGHER	2	20%	8	80%
PRIMARY	0	0%	5	100%
NONE	1	17%	5	83%

Table 9 suggests that maternal/caregiver educational attainment is not positively correlated with increased food and liquid intake during their children's diarrheal episodes. This further suggests that the Project will need to focus largely on a broad-based informational strategy that seeks to disseminate to all mothers/caregivers correct information concerning ORT and rehydration. Developing distinct targeted educational strategies for less educated mothers/caregivers will not apparently be necessary.

Another potentially beneficial consequence of effective ORT use for management of diarrheal disease could be a reduction in the demand for institutionally based clinical care in these cases. As reported earlier, 74% of mothers/caregivers whose child experienced a diarrheal episode during the previous two weeks reported administering ORT (either ORS or SSS). A smaller percentage (66%) of these same mothers/caregivers reported that they sought advice/treatment outside the home when their child had diarrhea. The question is therefore, were mothers/caregivers who use ORT less likely to seek advice treatment outside the home when their child had diarrhea? This is investigated in Table 10, which presents the results of a cross-tabulation between ORT use and care seeking at hospitals and clinics for diarrheal cases.

**Table 10: Care Seeking Behavior and ORT Use in Cases of Diarrhea**

ORT USE	SOUGHT HOSPITAL OR CLINIC CARE WHEN CHILD SICK WITH DIARRHEA			
	YES		NO	
	N	(Row %)	N	(Row %)
YES	18	67%	9	33%
NO	3	60%	2	30%

Table 10 suggests that mothers/caregivers who administer ORT are just as likely to seek treatment at hospitals or clinics when their child suffers from diarrhea as mothers/caregivers who do not administer ORT.<sup>12</sup> Given the fact that ORT use is not positively correlated with increased food and liquid intake, it is possible that the results presented in Table 10 simply confirm the tendency for mothers/caregivers to view ORT as a cure for diarrhea and that if it does not stop the diarrhea soon after being administered they feel the need to seek out medical care. This tentative hypothesis appears to be supported to some degree by the evidence reported in Table 11, which reveals that 84% of the mothers/caregivers waited at least one day to seek medical care for their child suffering from diarrhea, while only 17% waited two or more days.

**Table 11: The time taken to seek treatment for the child with diarrhea**

TIME TAKEN TO SEEK TREATMENT DURING DIARRHEA EPISODE	NO. (%) OF MOTHERS/CAREGIVERS
Same Day	3 (17%)
Next Day	12 (67%)
2 Days	1 (6%)
3 or more Days	2 (11%)
TOTAL	18 (100%)

The question then arises, did mothers/caregivers who increased the volume of food and liquid administered to their child during a diarrheal episode seek out care at a clinic or hospital less

<sup>12</sup> The small number of observations for mothers/caregivers who do not administer ORT prevents us from testing whether the small observed difference in proportions is statistically significant.

frequently than mothers/caregivers who did not increase food and liquid intake? Table 12 evaluates this phenomenon by cross tabulating whether mothers/caregivers sought clinic or hospital care for their child’s diarrhea with the use of ORT and increased food and liquid intake.

**Table 12: Care Seeking Behavior and Increased Food and Liquid Intake in Cases of Diarrhea**

ORT USE AND INCREASED FOOD AND LIQUID INTAKE DURING DIARRHEAL EPISODE	SOUGHT HOSPITAL OR CLINIC CARE WHEN CHILD SICK WITH DIARRHEA			
	YES		NO	
	N	(Row %)	N	(Row %)
<b>YES</b>	8	67%	4	33%
<b>NO</b>	11	61%	7	39%

Table 12 suggests that mothers/caregivers who increased the volume of food and liquids administered to their child during diarrheal episodes are just as likely to seek care at a clinic or hospital when their child suffers from diarrhea as mothers/caregivers who do not increase food and liquid intake. This finding could be the result of a number of factors. First, it may be a function of the fact that most clinics have ORT Corners and that mothers/caregivers frequent these to obtain ORT assistance. Second, it is possible that mothers/caregivers who use ORT and increase food and liquid intake take their child to the clinic or hospital if the diarrhea is particularly severe. Or third, it could reflect the underlying need for better education as to the fact that most diarrheas are self-limiting and that ORT is not a cure for diarrhea.

The survey also examined sanitation practices and hand washing in particular. Mothers/caregivers of children under 24 months were asked when they washed their hands “before cooking”, “before eating”, “before feeding,” and/or “after defecation.” Table 13 presents the frequency of mothers/caregivers who reported that they did wash their hands at these times.

**Table 13: Percent of mothers/caregivers who reported when they wash their hands\***

WHEN RESPONDENTS USUALLY WASH HANDS	NO. (%) OF MOTHERS/CAREGIVERS
Before Feeding Children	20 (15%)
Before Eating	36 (27%)
Before Cooking	69 (51%)
After Defecation	105 (78%)
<b>TOTAL</b>	<b>135</b>

\*Multiple responses permitted; therefore total percentages will exceed 100%

Table 13 reveals that a very small percentage of mothers/caregivers wash their hand before feeding their children, and that approximately half also do not wash their hands before cooking. The Project will clearly need to focus attention on educating mothers/caregivers on the etiology of diarrheal disease and the benefits of hand washing before cooking, eating and feeding their children.

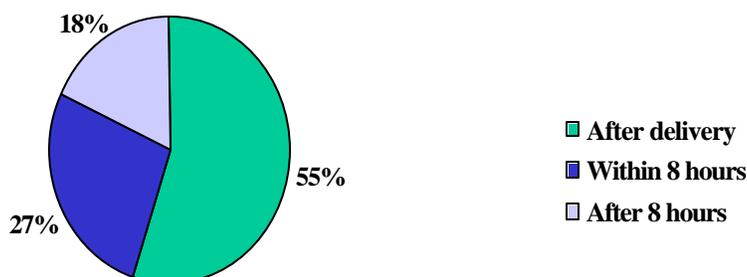
#### **D. Breastfeeding**

##### **Practice:**

A very high percentage (97%) of mothers with children under the age of two, reported that they

breastfed their child. As shown below in graph 3, of all the mothers who reported breastfeeding their child, 55% said that they put their child to the breast soon after delivery. 27% said that they put the child to the breast within 8 hours after birth, while 18% did so after 8 hours.

**Graph 3: Time Taken to Initiate Breastfeeding**



The data for exclusive breastfeeding were obtained by asking mothers what they had fed their child in the previous 24 hours. Those who indicated only “breast milk” were considered as having exclusively breastfed their child (this is the conclusion suggested in the KPC 2000+ Tool and Field Guide). Using these criteria, it is evident that approximately 63% of the mothers did not exclusively breastfeed their child. Mothers/caregivers are probably introducing complementary foods and top feeds at an early age. Although promotion of breastfeeding and complementary practices is not a direct intervention of the Project, it is an overarching message that is integrated as a practice when the child is sick with diarrhea, pneumonia or any childhood ailments. The child survival messages will promote appropriate practices of exclusive breastfeeding to reduce episodes of diarrhea and increase feeding when the child has diarrhea or pneumonia, which is apparently low according to the KPC.

### **E. Pneumonia Case Management**

#### **Knowledge:**

Only 11% of mothers/caregivers for children age 0-23 months had knowledge of fast and difficult breathing as a sign of illness requiring immediate care. This finding is corroborated by the qualitative research results that identified that mothers/caregivers were unable to define pneumonia by a set of distinct symptoms thus making it difficult for them to recognize it as a dangerous condition requiring attention by medical personnel. This is probably the reason that only 10% of the mothers/caregivers actually sought medical attention for the child by the end of the day after the onset of symptoms (see Table 17).

#### **Practice:**

46 % of mothers/caregivers reported that their child under the age of 2 had an illness with cough in the last two weeks prior to survey, of which 55% reported that the cough was accompanied by short fast breaths.

Table 14 examines the percentage of mothers/caregivers who administered varying quantities of liquids to their child suffering from a cough with fast breathing. It reveals that *a high percentage*

(88%) of mothers/caregivers reported either reducing or not increasing the volume of fluids they gave to their child with cough and fast breathing. None reported that they increased the volume of liquids administered during the illness event contrary to recommended practice!

**Table 14: Percent of mothers/caregivers who offered less than usual, about the same or more than usual to drink when the child had cough with fast breathing**

AMOUNT OF LIQUIDS GIVEN WHEN CHILD HAD COUGH WITH FAST BREATHING	NO. (%) OF MOTHERS/CAREGIVERS
Less liquids than usual	19 (56%)
Same liquids as usual	11 (32%)
More liquids than usual	0 (0%)
Exclusively breastfeeding	3 (9%)
Don't know	1 (3%)
TOTAL	34 (100%)

Table 15 reports on mothers/caregivers breastfeeding practices during a child's respiratory illness. As in the case of liquids in general, it reveals that *a very high percentage (89%) either reduced or did not increase the amount of breast milk given during the child's respiratory illness*. Only 7% actually increased the amount of breast milk given during the illness!

**Table 15: Breastfeeding practices when child had cough with fast breathing**

BREASTFEEDING PRACTICES WHEN CHILD HAD COUGH WITH FAST BREATHING	NO. (%) OF MOTHERS
Stopped Breastfeeding completely	1 (4%)
Breastfed less	16 (59%)
Breastfed same	8 (30%)
Breastfed more	2 (7%)
Not breastfeeding	1 (4%)
TOTAL	27 (100%)
Missing	8

Table 16 reports on the feeding practices of mothers/caregivers when their child suffered from a cough and fast breathing. It reveals that *an extremely high percentage (94%) of mothers/caregivers reduced or did not increase the amount of food given to their child suffered from a cough and fast breathing*. None of the mothers/caregivers reported giving their child more food to eat contrary to recommended practice!

**Table 16: Percent of mothers/caregivers who offered less than usual, about the same or more than usual to eat when the child had cough with fast breathing**

AMOUNT OF FOOD GIVEN WHEN CHILD HAD COUGH WITH FAST BREATHING	NO. (%) OF MOTHERS/CAREGIVERS
Less to eat than usual	24 (73%)
Same to eat as usual	7 (21%)
More to eat than usual	0 (0%)
Exclusively breastfeeding	1 (3%)
Don't know	1 (3%)
TOTAL	33 (100%)
Missing	2

The preceding analysis confirms the practice reported earlier in the case of diarrheal disease case management by mothers and caregivers. Very few mothers/caregivers evidently understand the need for increasing the quantity of food and fluid (including breast milk) when their child is experiencing respiratory illness. The Project will clearly need to develop a broad-based and comprehensive education strategy aimed at educating mothers as to the benefits of increased food and fluid intake during respiratory illness events.

**Coverage:**

All mothers/caregivers with children who experienced a cough and or fast breathing were asked whether they sought advice or treatment outside the home. A high percentage of mothers/caregivers (87%) reported that they sought treatment outside the home for their child when sick with a cough and fast breathing. In all these cases care was sought either from a hospital, a health center or clinic. However, as shown in Table 17, only 10% of the mothers/caregivers sought medical attention for the child by the end of the day after the onset of symptoms. Approximately 44% of mothers/caregivers waited for 2 or more days. This has clear implications for the Project, as it is essential for mothers/caregivers to seek early and appropriate care for respiratory illnesses. The project will therefore, emphasize the importance of seeking care on the same day and measure this as a key indicator in the pneumonia case management.

**Table 17: Time taken by mothers/caregivers to seek treatment for their child with cough and fast breathing**

<b>TIME TAKEN TO SEEK TREATMENT FOR CHILD WITH COUGH AND FAST BREATHING</b>	<b>NO. (%) OF MOTHERS/CAREGIVERS</b>
Same day	3 (10%)
Next day	14 (47%)
2 days	5 (17%)
3 more days	8 (27%)
<b>TOTAL</b>	<b>30 (100%)</b>
<i>Missing</i>	5

**F. Immunization**

The interviewers were instructed to record immunization dates from the child's immunization card or Road to Health Card (RHC). The data on immunization status for children 12- 23 months of age, therefore, is based on the RHCs actually seen by the interviewers. There were 62 children in the survey 12-23 months of age, of these 43 had a RHC seen by the interviewer. The following are coverage figures for OPV, DPT, measles and full immunization.

**Knowledge:**

When mothers were asked at what age a child should receive a measles immunization. Only 11% reported a correct answer (9-12 months were considered a correct answers, however all 11% reported 9 months).

**Coverage:**

The following table reports the coverage for specific antigens for children age 0-23 months.

**Table 18: Immunization Coverage for Children 12-23 Months of Age**

<b>BCG IMMUNIZATION STATUS</b>			
AGE GROUP	NO	YES	TOTAL
12-23	5 % (2/43)	95% (41/43)	43
<b>POLIO 1 IMMUNIZATION STATUS</b>			
AGE GROUP	NO	YES	TOTAL
12-23	7 % (3/43)	93% (40/43)	43
<b>POLIO 2 IMMUNIZATION STATUS</b>			
AGE GROUP	NO	YES	TOTAL
12-23	12% (5/43)	88% (38/43)	43
<b>POLIO 3 IMMUNIZATION STATUS</b>			
AGE GROUP	NO	YES	TOTAL
12-23	20% (9/43)	79% (34/43)	43
<b>DPT 1 IMMUNIZATION STATUS</b>			
AGE GROUP	NO	YES	TOTAL
12-23	12% (5/43)	88% (38/43)	43
<b>DPT 2 IMMUNIZATION STATUS</b>			
AGE GROUP	NO	YES	TOTAL
12-23	12% (5/43)	88% (38/43)	43
<b>DPT 3 IMMUNIZATION STATUS</b>			
AGE GROUP	NO	YES	TOTAL
12-23	16% (7/43)	84% (36/43)	43
<b>MEASLES IMMUNIZATION STATUS</b>			
AGE GROUP	NO	YES	TOTAL
12-23	40% (17/43)	60% (26/43)	43
<b>FULLY IMMUNIZED STATUS</b>			
AGE GROUP	NO	YES	TOTAL
12-23	49% (21/43)	51% (22/43)	100% (43)

While BCG, Polio I-III and DPT I-III coverage rates were fairly high, roughly 61% children age 12-23 months were immunized with a measles antigen and only 51% of children age 12-23 months were fully immunized.

## **G. Maternal and Newborn Care**

### **Knowledge:**

In the case of maternal care, approximately 33% of the mothers did not know of the danger signs such as fever, excessive bleeding or smelly discharge as post partum danger signs indicating the need for clinical care.

In the case of newborn care, roughly 60% of the mothers/caregivers did not know at least two of the critical signs of infant illness such as poor feeding, fast-breathing, sluggish, irritable crying and fever.

The Project will need to put particular emphasis on educating mothers about signs of illness in newborns while re-enforcing their knowledge of signs of post partum maternal complications. TBAs and CHWs will receive further training in this regard and will serve as key educators in this area.

### **Coverage:**

### 1. Antenatal Care

The survey revealed that 76% of the 254 mothers interviewed sought antenatal care during their last pregnancy. 68% of these reported seeking antenatal care from a nurse, 21% from a doctor, and approximately 3% from a TBA. Only one fifth of the mothers reported that they began their antenatal visit during the first trimester and had at least three visits thereafter. Clearly, this is an area where the Project will hope to have a significant impact by substantively increasing early and regular antenatal care use throughout pregnancies. In this regard, the Project will continue to train TBAs and CHWs to educate mothers on the benefits of seeking timely and appropriate antenatal care. TBAs and CHWs will also continue to be trained to refer obstetric complications and those requiring emergency care to hospitals in the area.

### 2. Tetanus Toxoid Immunizations

84% of the mothers reported that they received a TT injection when they were last pregnant. Given that there were a relatively high number of missing observations for this question (60 of the 254 mothers), the question arose whether these missing observations were for mothers who reported that they had not used antenatal care? If this were the case, then the 84% TT vaccination coverage rate would be selectivity biased in an upward direction.<sup>13</sup> In order to test for potential selectivity bias, TT responses were cross tabulated with Antenatal care use responses. Observing a high proportion of the missing values for TT in the NO category for antenatal care would confirm selectivity bias.

**Table 19: Test for selectivity bias in TT coverage**

TT	ANTENATAL CARE		
	YES	NO	MISSING
YES	116	44	3
NO	19	11	1
MISSING	2	1	57

As can be seen from Table 19, there is no evidence of selectivity bias in the TT coverage result presented earlier. Interestingly, however, 44 mothers who reported not seeking antenatal care reported having received a TT vaccination. This suggests either that there is recall error in TT vaccinations (which would mean that the TT coverage rate is understated) or that there is recall error in the use of antenatal care (which would mean that antenatal care utilization rates are higher than reported).

### 3. AIDS Testing

Of the 192 mothers who provided an answer to whether they had been tested for HIV/AIDS, over half (57%) reported that they were tested while pregnant, while the rest said that they were either never tested or did not know if they had been tested<sup>14</sup>. Taken at face value, these results would appear to suggest that there is a relatively high acceptance among women to be tested for AIDS, and that tests are relatively common as part of antenatal care. Given that HIV/AIDS testing is only administered at the hospital level in Kwazulu Natal, however, a cross-tabulation of the AIDS test with delivery location (hospital or other site) was evaluated to attempt to confirm the validity of this finding. Though the cross-tabulation revealed that women who delivered in a hospital were 10% more likely to have reported being tested for HIV/AIDS than women who

<sup>13</sup> To see this, note that since TT is administered at antenatal care visits, mothers who did not use antenatal care would not have been vaccinated, and thus the percentage actually vaccinated would be substantially lower than the 84% reported here.

<sup>14</sup> Sixty-two (62) of the mothers did not provide an answer for this question.

delivered in other locations<sup>15</sup>, this result was not found to be statistically significant<sup>16</sup>. Moreover, 34 women in the sample (23% of the women) reported that they had been tested for HIV/AIDS while having delivered in a non-hospital setting. This either indicates that these women were tested at some point in the antenatal process before delivery at a hospital, or that they were misinformed and believed they were tested when in reality they were not. What is more certain is that with the high prevalence and incidence of HIV/AIDS in the Project area, there will be a need to continue advocating for HIV/AIDS testing, supplying rapid HIV test kits to Ndwedwe district hospitals and clinics, and for educating mothers on the benefits of anti-retrovirals during pregnancy as a means of reducing mother-to-child transmission of the virus.

#### 4. Place of Delivery, Delivery Attendants and Postpartum Period

The survey revealed that women make relatively extensive use of modern care facilities for deliveries – a finding that stands in contrast to findings from elsewhere in the southern Africa region. Over two-thirds (68%) of the mothers reported they gave birth in a hospital while 17% gave birth at a clinic. By contrast, only 15% of the respondents gave birth in their own homes. Mothers were also asked who assisted them during their last birth. Only 14% reported that they delivered without assistance from a doctor, nurse or TBA. In these cases, the majority were assisted by a family member, but a small percentage reported delivering alone.

## H. Integrated Management of Childhood Illness (IMCI)

### Knowledge

Roughly 70% of the mothers/caregivers with children 0-59 months said that they knew two or more of the indicators of need for treatment in cases of childhood illness (e.g., not playing normally, not eating or drinking, lethargic or difficult to wake, high or low fever, fast or difficult breathing, excessive crying, change of color, vomits everything and convulsions). While this is an encouraging finding, there is clearly scope for increasing maternal/caregiver knowledge in this domain.

### Practice

Table 20 on the next page reports mother/caregiver practice in administering fluids to their children when sick. As can be seen, of those children who were sick in the two weeks prior to the survey interview, *a very high percentage (92%) were either given less to drink or were offered same amount of liquids when sick*. These results are comparable to those reported earlier for cases of coughs with fast breathing (see Table 14), and underscore the need for developing an effective and broad-based educational intervention related to fluid intake during childhood illness events.

**Table 20: Percent of mothers/caregivers who offered less than usual, about the same or more than usual to drink when the child was sick**

AMOUNT OF LIQUIDS GIVEN WHEN CHILD WAS SICK	NO. (%) OF MOTHERS/CAREGIVERS
Less liquids than usual	51 (55%)
Same liquids as usual	34 (37%)
More liquids than usual	4 (4%)

<sup>15</sup> 76% of women who reported that they delivered at a hospital said that they were tested for HIV/AIDS as compared to 66% of the women who delivered elsewhere.

<sup>16</sup> A Chi-square value of 1.74 was obtained with an associated p value of 0.18.

Don't know	4 (4%)
TOTAL	93 (100%)
<i>Missing</i>	<i>1</i>

Table 21 further illustrates feeding practices when the child was sick. Here a slightly lower percentage of mothers/caregivers reported reducing the amount of food given when the child was sick as compared to the cough with fast breathing case alone, though the percentage is still unacceptably high.

**Table 21: Percent of mothers/caregivers who offered less than usual, about the same or more than usual to eat when the child was sick**

AMOUNT OF FOOD GIVEN WHEN CHILD WAS SICK	NO. (%) OF MOTHERS/CAREGIVERS
Less to eat than usual	56 (60%)
Same to eat as usual	31(33%)
More to eat than usual	1 (1%)
Don't know	5 (5%)
TOTAL	93
<i>Missing</i>	<i>1</i>

The Project supports the DOH in implementing IMCI as a strategy in Ndwedwe district. It has assisted the DOH in training the clinic staff in the district and will expand its training assistance to cover the new target areas. In this second phase of the Project, community and household IMCI will be pilot tested and implemented in Ndwedwe and the lessons learnt will be replicated in the province. The KPC IMCI questionnaire will supplement and strengthen the key information of the diarrhea and pneumonia subsections.

## I. Communication and Media

Table 22 reports the sources of health messages reported by mothers and caregivers. The most common source of information for of the mothers/caregivers was the radio, with 45% stating that it was their main source of information. The next most common information source was newspapers while community-based channels such as Health Educators, CHWs and TBAs together serve as the principal source of health messages for nearly half the mothers and caregivers.

**Table 22: Sources of health messages**

SOURCES OF HEALTH MESSAGES	% OF MOTHERS/CAREGIVERS
Radio	134 (45%)
Newspaper	61 (20%)
Health Educator	48 (16%)
TBA	41 (14%)
Community Health Worker	49 (16%)
Traditional Healer	25 (8%)
Television	0 (0%)
TOTAL	299 (100%)
<i>Missing</i>	<i>1</i>

In the second phase of the Project, more emphasis will be placed on the use of community-based IMCI and extensive community based education creating more opportunity for a two-way dialogue in sharing of key messages between the community and the providers.

## **IV. DISCUSSION**

### **A. HIV/AIDS/STIs**

A vast majority of the mothers/caregivers surveyed said that they were aware of AIDS and reported that a person could do something to avoid getting infected with HIV/AIDS. However, there is still scope for increasing knowledge about the ways of avoiding transmission. On fifth of the mothers/caregivers interviewed didn't know any means of avoiding transmission, while approximately half knew two or fewer ways. Nearly one third of mothers and caregivers interviewed either believed there was a cure for AIDS or did not know.

While knowledge about AIDS is relatively high, effective preventive practice is very low, with less than a third of the mothers reporting that they had used a condom the last time they had sexual intercourse. The low condom prevalence rate gains particular significance in the light of the fact that many mothers reported they believed that their partners had multiple sexual partners.

The low use of condoms cannot be attributed to lack of awareness about condoms and their use, or to a lack of availability. Free condoms are easily available throughout the Project area. The Project's qualitative research has determined instead that low condom use is attributable to the fact that their use is assumed to imply infidelity or mistrust. The Project's qualitative research has also revealed that economic dependency on the part of young girls and women as well as exploitation of schoolgirls in Ndwedwe district inhibits condom use.

The KwaZulu Natal Province has the highest HIV prevalence rate and the highest number of HIV positive people among the nine provinces in South Africa. According to the Annual Antenatal HIV survey, 33.5% of all first visit pregnant women in KwaZulu Natal in 2001 were HIV positive.

Voluntary testing and counseling has been initiated in the project target area and the NDCSP will aim to enable 100% of the appropriate health facilities in the project area to provide HIV/AIDS/STIs prenatal screening and counseling by training counselors. The DOH has trained 82 lay counselors in Ndwedwe who will be affiliated with clinics to provide counseling. In addition, MCDI has introduced rapid and simple STI/HIV testing (developed by the Program for Appropriate Technology in Health – PATH) in Ndwedwe. This is being used in a district hospital and a few clinics in the project area and a cost-effectiveness study of this initiative showed that by reducing the time requirements and travel costs for pregnant women seeking to know their HIV status, participation rates in testing pregnant women increased markedly, while improving the diagnosis and management of STIs and HIV-related diseases. The baseline KPC data indicate that more than half of the mothers were tested for HIV/AIDS when pregnant with their last child. This testing will be expanded during the cost-extension phase of the Project. VCT services will also be initiated at clinics after sufficient staff is trained as counselors. This project activity will aim to prevent the transmission of HIV/AIDS from the mother to the child, and will include a supply of Nevirapine once the new policy is implemented by the DOH.

A qualitative survey was conducted by MCDI between March and May 2000 with technical assistance from a consultant anthropologist. The findings of the discussions and interviews led to

the identification of a number of factors that contribute to the spread of HIV, and a set of conclusions that are pertinent to the objectives of the NDCSP. The study found that Ndwedwe community members hold conflicting (and compartmentalized) beliefs to the effect that HIV is always acquired through sexual “misconduct” and, simultaneously, that there is danger of HIV contamination through casual means such as sitting on a chair used previously by PLWA. In addition, informants believe that an infant is invariably HIV positive if he/she has been born to a woman who is HIV positive, and such a child is believed to present a danger to any potential foster or adoptive family.

The KPC Survey also revealed that there is a non-negligible proportion of mothers/caregivers (approximately ¼ of those interviewed) who express an unwillingness to care for a household member living with HIV/AIDS even if they could afford to do so. A slightly higher percentage (38%) indicated that they would be unwilling to have their child play with a child who had the AIDS virus. Clearly, therefore, although progress has been made in terms of reducing the stigma associated with AIDS there is work that needs to be done to fully inform the population about HIV/AIDS and its transmission.

These data support the NDCSP team’s belief that HIV/AIDS is more than a medical problem and that there is the need for an integrated comprehensive package (economic, human rights, etc.) oriented towards effectively addressing this issue. In addition, “best practices” strategies of care for HIV/AIDS infected persons need to be expanded beyond the confines of clinics. Home-based care services provided by HBCVs trained by the DOH at the community level can have a significant impact on access to care. The NDCSP in partnership with the DOH has trained 150 HBCVs to provide Home-Based care of PLWA. Moreover, with the expectation that many young teenagers will become agents-of-change at the household/community level, NDCSP has partnered with DramAidE in forming school health clubs and educating children in schools and neighboring communities, using drama as a media of communication.

Other community based approaches that are in place or under development involve CHWs, Traditional Healers (THs), and TBAs who are being trained to address psycho-social needs of orphaned and vulnerable children (OVCs). CHCs that have been formed have identified HIV/AIDS as a priority concern, and the NDCSP community outreach organizer is assisting them to develop an action plan to include behavior change campaigns. In addition, a model Crèche is being developed and orphan registers are being maintained to provide care for the orphans and vulnerable children. The CHCs will be prepared to tap financial resources from the Department of Social Welfare and University of Natal Center for Rural Development to access grants for the OVCs.

In summary, the project’s comprehensive approach to addressing HIV/AIDS will comprise voluntary counseling, testing and the distribution of anti-retrovirals, promoting use of contraceptives as a preventive method, preventing MTCT, promoting active involvement of school health clubs, and increased community support and household care for people living with AIDS.

## **B. Control of Diarrheal Diseases**

Since the prevalence of diarrhea varies seasonally, the results pertain only to the pattern during the summer period of December, when the survey was conducted. It is likely, however, that seasonal factors have resulted in the relatively small percentage of children experiencing diarrhea. In spite of this potential seasonal bias, the data do provide unbiased insight into the current knowledge, behaviors and practices of mothers and caregivers when the child under their care experiences an episode of diarrhea.

Surprisingly, none of the mothers/caregivers who were interviewed gave more than the usual amount of food to eat when their child had diarrhea, and less than ten percent increased the child's fluid intake. Clearly, therefore, the Project's behavior change strategies and messages during Phase II will need to emphasize educating mothers and caregivers on the risks of dehydration and the benefits of giving more fluids during diarrheal episodes. The need for educating mothers on the implications of dehydration and the fact that ORT is administered to prevent dehydration and its consequences, is further evidenced by the seemingly contradictory fact that a relatively high percentage of mothers/caregivers reported administering ORT (ORS or SSS) during their child's diarrheal episode while a relatively small proportion increased the total fluid volume administered. This apparent contradiction suggests that mothers/caregivers are probably administering ORT as a cure for diarrhea rather than as a means of rehydration, or that they are not properly educated on the need for increasing food and liquids besides ORT. The project will thus continue to promote the practice of treating a child's diarrhea with ORT, while placing particular emphasis on teaching mothers why it should be administered and that it should increase the total fluid and food intake of the child. An increased percentage of mothers/caregivers in the project area who can correctly prepare and administer oral rehydration solution will result in quality household practices in control of diarrhea. The NDCSP will advocate promotion and increased use of ORS at the community level.

Control of diarrhea in early ages also requires delaying the early introduction of supplementary foods as well as improving exclusive breastfeeding practices, especially for children 0-5 months of age, which is currently practiced by less than half of the mothers surveyed.

Mothers and caregivers will also be educated on basic household sanitation practices, such as hand washing prior to food preparation and eating as a simple measure to control diarrheal diseases and other infections. Evidence from the KPC supplemented by discussions with field staff have revealed that diarrhea often results from lack of clean drinking water and toilet practices, poor personnel hygiene, improper feeding (e.g., early introduction of food), and bottle feeding using dirty bottles. In addition, the practice of administering enemas "uchatho" to get rid of spirits accentuates the ill effects of diarrheal episodes. The NDCSP staff feel that general hygiene must be emphasized as a key practice (e.g., proper hand washing). Through inter-sectoral collaboration with the Department of Water and Sanitation, provision of clean water and increased use of HH/C-IMCI protocols, behavior change regarding the treatment and prevention of diarrhea at the community level can be achieved.

To effectively control outbreaks of diarrhea and cholera, activities at the clinical and facility levels are being carried out. Community Health Workers (CHWs), Home Based Care Volunteers (HBCVs), and Traditional Birth Attendants (TBAs) form the front line of health workers and are

responsible for caring for families with sick children and ensuring prompt and proper referrals. These health workers will be trained in critical household practices, recognition of sign/symptoms of illness, and counseling of mothers/caregivers to properly care for their child with diarrhea. The Household-Community (HH-C) IMCI approach to diarrhea control will be introduced and adapted to the needs of Ndwedwe District. At the facility level, clinic staff will be trained to follow prescribed IMCI protocols for diarrhea case management. The specific activities include establishing ORT corners at clinics, creating rehydration centers (i.v.) for treatment of diarrhea and cholera, supplying ORS to mothers/caregivers and educating mothers/caregivers on how to prepare ORT.

All the preceding activities will help educate mothers/caregivers the best practices and reinforce current efforts in diarrhea control.

### **C. Pneumonia Case Management**

Pneumonia is estimated to be one of the three leading causes of death among black children in South Africa. The baseline survey revealed that a little more than half of the children age 0-23 months experienced a cough and fast breathing in the two weeks prior to the survey – an alarmingly high level. The high prevalence of respiratory illnesses including pneumonia is confirmed by health facility utilization data from the district. Even though pneumonia is an illness that is often under-diagnosed, there were 5,874 cases among children under 5 years of age reported in Ndwedwe during 2001 (District Health Information System).

The KPC Survey revealed that a very low percentage of mothers/caregivers sought immediate treatment (same day) and care for their child who experienced cough and fast breathing. Moreover, none of the mothers/caregivers increased the quantity of food or liquids given to their child during these respiratory illness episodes. The reasons for these low care-seeking and care-giving practices could be failure to recognize the signs and symptoms and/or inadequate clinic and outreach services in terms of health education and case management. Qualitative research conducted by the Project has indicated that mothers/caregivers are unable to define pneumonia by a set of distinct symptoms, thus that making it difficult for them to recognize it as a dangerous condition requiring attention by medical personnel. While mothers/caregivers are unable to identify a set of distinct symptoms of pneumonia, many are able to recognize severe chest in-drawing as a danger sign, and recognize that this would indicate the need for clinical care.

The Project staff believe that pneumonia is a disease that requires prompt treatment and that it is crucial that (a) mothers/caregivers recognize the key danger signs and take the children for treatment, (b) clinic nurses recognize the signs/symptoms and assess and provide treatment using IMCI protocols, and (c) adequate drug supply is assured at health facilities.

To address these issues, the Project strategy for pneumonia case management is to: (a) implement IMCI protocols for diagnosis and treatment in 100% of the program clinics, (b) educate mothers/caregivers to identify signs of illness and seek medical attention on the same day of onset of symptoms, and (c) educate mothers on the need to increase food and fluid intake during episodes or respiratory illness. The Project will also pilot test and facilitate implementation of HH/C-IMCI for PCM by adapting to the specific needs of Ndwedwe District. CHWs, HBCVs, TBAs will be responsible to care for families with sick children and ensuring

prompt and proper referrals. As mentioned previously, these health workers will also be trained to assess the sick child, classify the illness, counsel the mother and make necessary referrals. Follow-up care will be emphasized as well. The Community Health Committee (CHC) members will play an active role in ensuring that the IMCI strategies are communicated to the families, as well as ensuring active participation in planning and decision making at the community level.

#### **D. Immunization**

A comparison of the KPC 2001 data with the KPC 1996 data indicates that there has been a statistically significant increase in immunization coverage in the interim period. According to these data full immunization coverage has increased 26% (CI: 19% - 33%) to 51% (CI: 36% - 66%)<sup>17</sup>. The evidence suggests that the Project's interventions in this area along with the efforts exerted by the DOH have yielded significant positive results, although there is clearly a need to continue exerting effort in this domain to further increase full immunization coverage. Particular effort will need to be exerted to increase measles immunization coverage since it has the lowest coverage of all antigens.

Discussions with the Project staff indicate that traditional Zulu families have an explanation and an intervention for every child ailment including measles. Although measles is recognized as a severe and contagious illness, few families believe that immunization is an effective prophylactic. To the extent that these beliefs explain the lower measles immunization coverage rates observed in the KPC Survey, the Project will need to exert particular effort in attempting to educate families to the contrary.

NDCSP Project staff perceive immunization as one of the most important child survival interventions and believe that effective implementation of IMCI will make clinic nurses appreciate immunization services. The team also feels that intense health education at the community/household level is critical. The Project is assisting the DOH, in particular the DHSMT, in the design and establishment of community health committees (CHCs), whose role includes community mobilization. Individuals/families will be informed about immunization services through community meetings, and CHWs and HBCVs will also carry out necessary follow-up at the household level. Following review of the existing tools, a community based monitoring tool for use by the community-based workers will be developed. These strategies will ensure that all eligible children are tracked and follow-up of defaulters or case follow-up is done.

#### **E. Maternal and Neonatal Care**

##### *Antenatal Care*

Though three quarters of the mothers surveyed indicated that they had sought antenatal care at some point during their last pregnancy, relatively few (only 1/5<sup>th</sup>) both initiated antenatal care visits in the first trimester and had at least three follow-up visits thereafter. This is clearly an area that the Project will need to focus on during the second phase, and this is reflected in the

---

<sup>17</sup> The fact that the immunization coverage data have been obtained from Road to Health Cards, and that not all children in the 0-23 month age range had a card could indicate that immunization coverage rates are being under estimated. However, the Health Systems Trust 2001 estimates that immunization coverage in 1998 for children 12-23 months of age in KwaZulu Natal was 50%. This is consistent with the KPC 2001 data reported here. Moreover, there is no statistically significant difference in the percentage of children with Road to Health Cards between the 1996 and 2001 KPC surveys. As such, there is no reason to believe that immunization coverage rates in one year are any more biased than in the other year.

antenatal care objective that seeks to increase this percentage from 20% to 50% by the year 2005.

#### *Tetanus Toxoid Immunization*

The KPC data reveal that a large percentage of the mothers reported that they had received a tetanus toxoid injection when they were pregnant with their last child. Although there is no card-documented evidence to validate the TT coverage estimated derived from the KPC Survey, evidence from larger and more representative surveys corroborate this finding. According to the 2001 Health Systems Trust Report, 74.9 % of pregnant women in KwaZulu-Natal received a TT vaccine in 1998. Moreover, Ndwedwe District health statistics from the National Department of Health show that no cases of tetanus have been reported in clinics since 1997. As a result, the Project will not include reduction of tetanus toxoid as a results-based objective; however the project will continue to place an emphasis on TT immunizations among pregnant women educate mothers and monitor antenatal care as a key activity of the maternal and newborn care intervention.

#### *Breast Feeding*

Interestingly, a large proportion of mothers reported breastfeeding their child, however exclusively breastfeeding practices was low. The Project will thus promote exclusive breastfeeding as part of its strategies for maternal/neonatal care as well as for control of diarrheal diseases.

#### *Place of Delivery, Delivery Attendants and Postpartum Period*

A large percentage of mothers in the KPC survey were found to have delivered at a hospital or clinic. Data from the Health Systems Trust 2001 Report confirms the KPC finding that most women do not deliver at home or without help.

The comprehensive approach that the Project has initiated to address broader issues relating to maternal and newborn care will continue to include: (a) increasing the availability of clinic level antenatal care for pregnant women; (b) providing mobile clinic services that conduct deliveries and obstetric emergencies; (c) supporting community based maternal and newborn care provided by trained TBAs; (d) training CHWs, HBCVs, and CHCs in maternal and newborn care danger signs, enabling them to advise mothers to seek early medical care and conduct health education activities in their respective communities; and (e) training TBAs in the Project area to conduct safe deliveries and making timely and appropriate referrals.

TBAs trained by the Project will also be charged with educating mothers on the danger signs during pregnancy and during the neonatal period and with encouraging mothers to deliver at a health facility and to seek appropriate care when necessary.

### **F. Integrated Management of Childhood Illness (IMCI)**

Using the IMCI structured KPC questionnaire it was revealed that a very high percentage of the children who were sick in the 2-week period prior to the survey were either given less to drink or were offered the same volume of liquids when sick. This finding was confirmed separately for diarrheal disease management and respiratory illness case management. The Project will seek to address this practice within the context of a comprehensive IMCI strategy implemented both at

the facility and community levels.

The NDCSP has supported the DOH in pilot testing the IMCI approach for implementation in Ndwedwe district with logistics and training conducted in collaboration with other local partners. At the facility level, the Project will aim to strengthen facilities to ensure that 100% of program clinics correctly use IMCI protocols for diagnosis and treatment of childhood illness. The specific components the NDCSP IMCI strategy are based on the adapted KwaZulu Natal IMCI guidelines (2001), which include diarrhea, pneumonia case management, immunization, HIV and care of the sick child ages 1 week to 2 months as well as ages 2 months to 5 years.

At the district level, NDCSP will strengthen health systems to effectively implement IMCI. Specific elements of the health systems strengthening component that the NDCSP will be involved with include strengthening the health information system, drug supply and logistics systems and organizing IMCI trainings and supervision for clinics nurses.

At the community level, the NDCSP will play a critical role in supporting implementation of HH/C-IMCI approach within Ndwedwe as well. The NDCSP will work to ensure that the HH/C-IMCI approach implemented will incorporate the key messages of the project interventions. The project's partner community providers will be trained on key family practices using this package, which will empower them to educate families/mothers to adopt positive behaviors. This will include active involvement of HBCVs, CHCs and CHWs to strengthen household recognition of the signs and symptoms of childhood illness and enable households to seek early treatment.

## **G. Communication and Media**

Most mothers and caregivers surveyed have a primary education level or above, and newspapers and radios are the most used sources of information for health messages. In collaboration with local non-profit organizations working on health media issues, the NDCSP is discussing promotional strategies for broadcasting key health messages. Although the educational level among mothers and caregivers is quite high, previous qualitative research in Ndwedwe shows that traditional and cultural beliefs still form a significant part of behavior models. It is imperative, therefore, that the project's behavior change strategies are cognizant of these local beliefs.

The Project will continue to train and empower community-based workers (CHWs, HBCVs, TBAs, and CHCs) to be primary contacts with mothers and caregivers, and to help them adopt key behavior change practices. The NDCSP's approach to behavior change involves going beyond information dissemination to embracing a more comprehensive strategy based on identification of the specific factors that influence the adoption of key behaviors. The NDCSP will use the BEHAVE Framework for Behavior Change Programming.

In addition, the findings suggest that most mothers and caregivers work outside the home, which could have a significant impact on the care provided to children. Therefore, the project's behavior change strategies should be implemented in different settings (e.g., worksites, farms, etc.) rather than just in homes.