

LINKAGES/Zambia PMTCT Results Reporting

1. FY02 numerators for each expanded response program area

a. PMTCT

Table 1 Numbers of pregnant women counseled and tested for HIV (January–November 2002)

VCT service	Number
New ANC attendees	8,950
Pregnant women counseled	1,195*
Pregnant women tested	993
Pregnant women HIV+**	280

*Numbers of pregnant women counseled have been under-reported because until September 2002, many counselors recorded only pregnant women who actually received HIV tests in the counseling registers.

**Women eligible for Nevirapine prophylaxis

2. M&E's readiness to collect this data routinely as of FY03

An M&E Officer was hired by LINKAGES during the first quarter of FY03 to manage routine monitoring of clinic-based activities and implement yearly community-based surveys. Service delivery and survey data collection institutionalized in FY01 will be ongoing through FY03 and the life of the project.

3. Key program accomplishments to date

- a. Start date: September 1997; end date currently September 30, 2003
- b. Obligated funds: USD 3,400,000 since FY97
- c. Source of funds:

Africa Bureau	\$ 75,000
Field support:	\$3,325,000
- d. Number of local implementing partners:

Partner	Type of implementing agency	Status
Central Board of Health (CBoH)	Ministry of Health	Current
National Food and Nutrition Council (NFNC)	Ministry of Health	Current
National AIDS Control Program (NACP)	Ministry of Health	Current
District health management teams (DHMTs)	Ministry of Health	Current

Hope Humana	NGO	Through FY02
Horizons Project	CA	Through FY02
Zambia Integrated Health Project (ZIHP)	Bilateral	Through FY02

- e. Type of implementing agencies: Ministry of Health, NGOs, CAs, and bilaterals
- f. Target groups:

Primary: All pregnant women and women with infants under 12 months old
 Secondary: All women of reproductive age and partners of women attending antenatal care; health care providers

- g. Geographical area: 26 clinics and their surrounding catchment areas and 3 hospitals in Kabwe District (Central Province), Livingstone District (Southern Province), Lusaka District (Lusaka Province), and Ndola District (Copperbelt Province), broken down as follows:

Table 2 Number of health facilities in districts implementing PMTCT activities

District	Health centers (number)	Hospitals (number)
Kabwe	3	1
Livingstone	6	1
Lusaka	1	0
Ndola	12	1

- h. Number of people reached:

Table 3 Sample sizes for LINKAGES/Zambia catchment areas

Clinics	Total population	Women of childbearing age (22% of total)	New ANC attendees per year
Kabwe (3)	49,220	10,828	37,224
Livingstone (6)	59,499	13,091	---
Mtendere (Lusaka)	73,903	16,259	30,240
Ndola South (6)	104,047	22,891	22,812
Ndola North (7)	117,958	25,952	---

Source: 2001 Zambia census

- i. Overview of intervention:

The goal of the LINKAGES/Zambia program is to enable women to make and act effectively on informed choice to feed their infants optimally in the context of HIV. The program objective is to integrate improved counseling on infant feeding and HIV voluntary counseling and testing (VCT) into existing health and community services.

Strategies to achieve these objectives include strengthening maternal and child health (MCH) services at selected clinics and in surrounding communities; improving clinic and community counseling on infant feeding and maternal nutrition; introducing VCT in clinics and community support systems; strengthening links between communities and clinics to improve breastfeeding and HIV-related support; and documenting program feasibility, acceptability, effectiveness, and cost-effectiveness.

The LINKAGES integrated approach to PMTCT developed in the NDP includes advocacy for national policy to protect and support safe infant feeding practices, formative research, BCC to develop strategies to help families make informed infant feeding and reproductive health decisions, training in infant feeding counseling and community outreach in the context of PMTCT, introduction of Nevirapine for HIV-positive mothers and their infants, strengthening of community capacity for counseling and referrals, monitoring and evaluation through collection and analysis of data on infant feeding and PMTCT indicators to improve program planning.

j. Context of intervention and extent of implementation

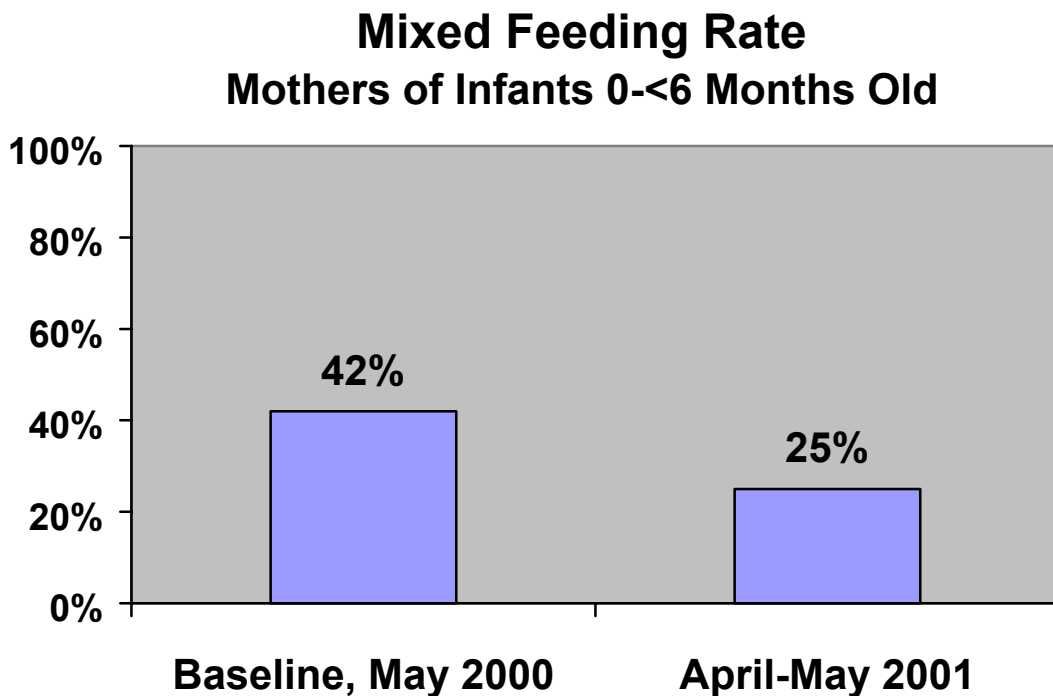
In 1998 the Central Board of Health (CBoH), MOH, NFNC, LINKAGES, the Zambia Integrated Health Project (ZIHP), Hope Humana, and Horizons, with USAID support, piloted the introduction of infant feeding counseling as a PMTCT intervention at antenatal clinic (ANC) sites in southern Ndola District. Operations research was conducted to develop appropriate and feasible infant feeding recommendations. Formative research tools incorporated questions based on the UNAIDS/UNICEF/WHO guidelines for HIV and infant feeding. Assessments of health facilities and community organizations were followed by training courses in HIV/AIDS, PMTCT, psychosocial counseling, and infant feeding counseling for health providers and community service providers. In 2000 the Ndola Demonstration Project (NDP) integrated PMTCT services into MCH services in 6 clinics and their 7 catchment communities in Ndola. HIV testing and counseling were introduced in Lubuto Clinic, with LINKAGES support to provide counseling rooms, a new laboratory, and equipment for testing.

The intervention has succeeded in strengthening routine services and introducing VCT and PMTCT counseling and services into the existing MCH setting as part of ANC. District health authorities have taken the lead in planning, implementing, and monitoring activities. Responding to the success of the program, the MOH requested expansion to new sites in 2001. In 2002 LINKAGES commissioned a 1-year follow-up assessment to guide program modifications, expansion to target districts, introduction of the antiretroviral drug Nevirapine in Ndola District as a component of the integrated approach, improved counseling methodologies and improved uptake of VCT. LINKAGES has conducted baseline surveys and formative research in three new districts (Kabwe, Livingstone, and Lusaka) and the northern part of Ndola District and has begun training health providers and community providers in integrated infant feeding and PMTCT. The program has also developed a BCC strategy in collaboration with local stakeholders and enhanced the behavior change communication (BCC) aspect of course

curricula and messages. The Ndola Demonstration Project was completed in 2002, and the program has begun integrated PMTCT interventions in the expansion sites.

k. Outcome

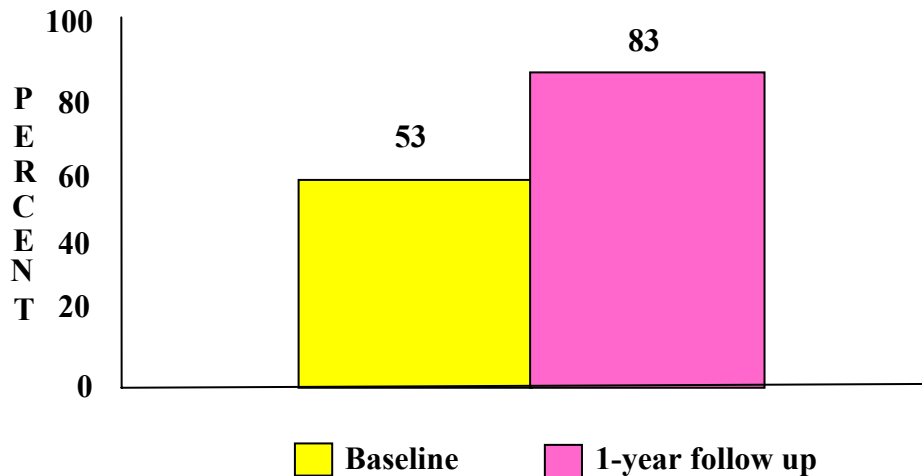
- **Breastfeeding practices have improved.** The greatest risk of HIV transmission is through mixed feeding (feeding breastmilk and other milks or foods to an infant during the first six months). Mixed feeding is also dangerous aside from HIV transmission in that it introduces pathogens into an infant's diet that puts them at increased risk of morbidity and mortality. Mixed feeding has declined in the NDP program area based on household interviews with women in the intervention **communities**. Data presented are from a baseline survey conducted in April 2000 and a one-year follow-up survey conducted in April 2001 of mothers with infants less than six months old. The percentage of infants 0-<6 months old receiving mixed feeds—measured using 24-hour recall—decreased from 42% (88) to 25% (80). This decrease is significant ($p<0.001$). the first six months). Mixed feeding is also dangerous aside from HIV transmission in that it introduces pathogens into an infant's



diet that puts them at increased risk of morbidity and mortality. Mixed feeding has declined in the NDP program area based on household interviews with women in the intervention **communities**.

The rate of initiation of breastfeeding within the first hour of birth for all women was 53 percent at baseline and 83 percent at 1-year follow up (figure 2).

Figure 2 Timely initiation of breastfeeding in the first hour among infants 0–11 months, NDP clinic survey



Other indicators of improved breastfeeding practices include water and other feeds given to infants, demand feeding, and incidence of diarrhea among infants. For all women, 79 percent at 1-year follow up had never given water to their infants (the question was not asked at baseline). At 1-year follow up 98 percent of women of unknown HIV status reported that their infants had never received water. Moreover, since the introduction of the intervention, health workers appear to be moving away from recommending alternative feeds from birth. More health workers suggest other PMTCT options during breastfeeding, including VCT, condom use, and early weaning. For all women, 80 percent at 1-year follow up said their infants were not receiving other feeds. Of exclusively breastfeeding women of unknown HIV status, 99.5 percent at 1-year follow up said their infants had not taken other feeds, compared with 89 percent at baseline. Of community women of unknown status who breastfed exclusively, 68 percent at baseline said they fed on demand, compared with 91 percent at 1-year follow up reporting feeding their infants 8 or more times (the question was asked differently at baseline). Finally, at 1-year follow up 8 percent of women of unknown status who exclusively breastfed reported that their infants had had diarrhea in the previous 2 weeks (the question was not asked at baseline).

NDP advice to begin complementary feeding at 6 months is reflected in reported improved practices among clinic and community mothers. However, continued breastfeeding of infants up to 12 months among mothers interviewed indicates that awareness of HIV status has not affected breastfeeding beyond 6 months.

- **VCT uptake has increased.** All women attending MCH clinics are offered confidential VCT. Testing for HIV increased among women with infants less than 6 months old. At baseline 5% (11) had tested for HIV; one year later 15% (48) had tested. This increase is

significant ($p < 0.001$). Figure 3 shows the numbers of pregnant women recorded in clinic registers as being counseled and tested for HIV in 2002.

Figure 3 Number of pregnant women counseled and tested for HIV, aggregate data for all clinics (January–November 2002)

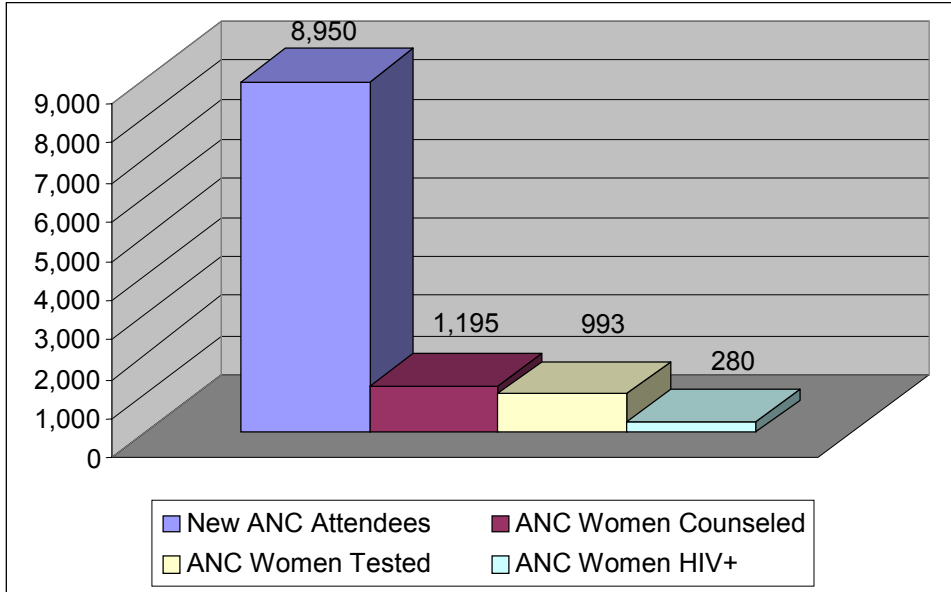
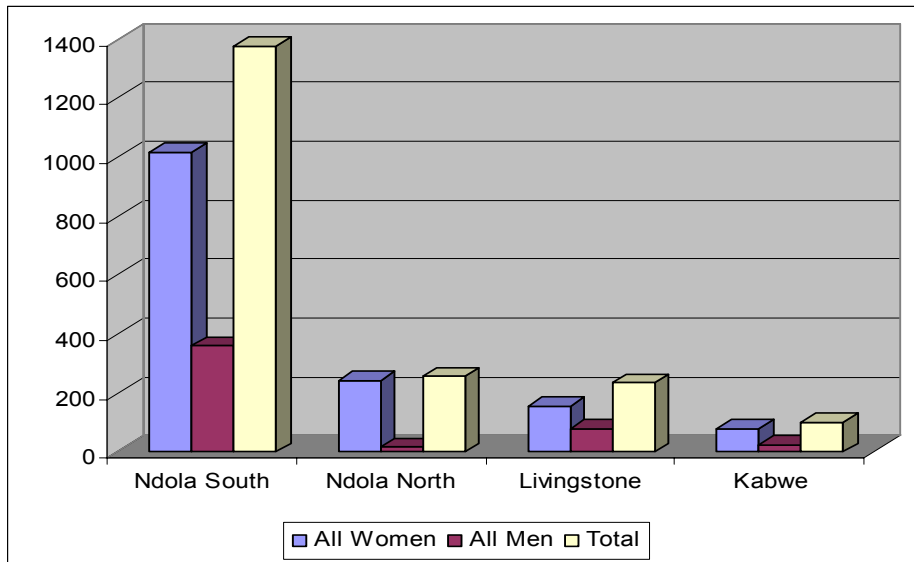


Figure 4 Numbers of men and women tested for HIV, by clinic (January–November 2002)

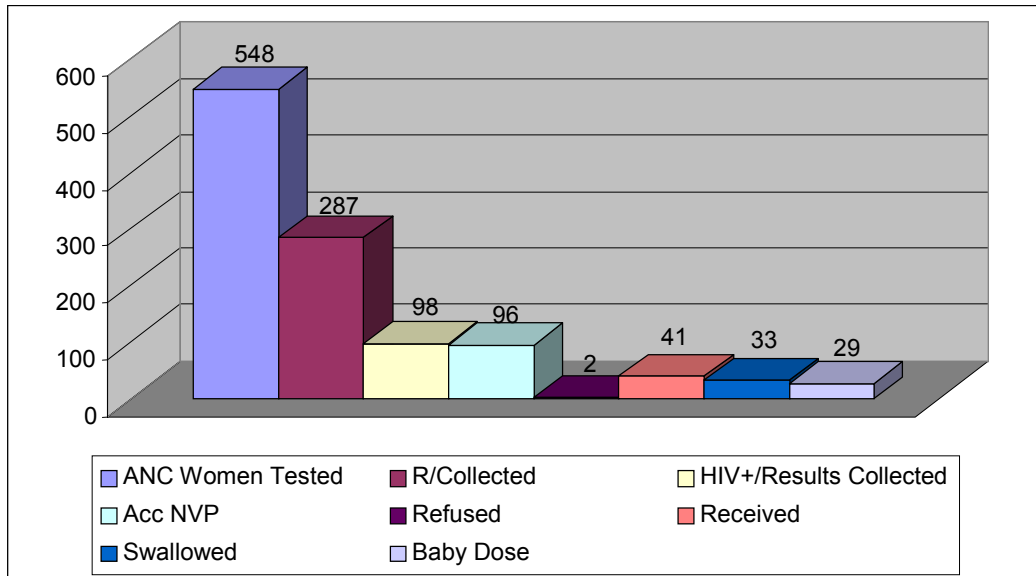


Donated by the Centre for Infectious Disease Research in Zambia (CIDRZ) for the first year, Nevirapine was introduced in six clinics in Ndola South in June 2002 and extended to Ndola North. The drug will be phased into clinics in Kabwe and Livingstone by the end of December. LINKAGES/Zambia provides updated training in the use, risks, and benefits of Nevirapine, as well as accurate documentation and monitoring of the

prophylaxis, to counselors, midwives, nurses, doctors, traditional birth attendants, and other community service providers involved in the care of pregnant women and infants. In cooperation with in-charges in each clinic, district site coordinators ensure accurate recording, storage, and dispensing of the drug according to protocol.

Each HIV-infected pregnant women who agrees to be enrolled in the PMTCT program is given a single 200mg tablet to take home to swallow at the onset of labor. When the mother comes with her infant for the post-natal visit on day 3, the infant is given a syrup dose of 0.6ml. If the mother does not come back with her infant on day 3, community service providers are asked to contact the mother to ensure she takes her baby to the clinic before day 7. The current handwritten ANC registration log was modified to include Nevirapine dosing. Midwives update each woman’s record on delivery. The site report to the site coordinators the number of women enrolled in the program and the infants who come for Nevirapine during the first week of life. Figure 5 shows Nevirapine use in Ndola sites.

Figure 5 Nevirapine use in old and new Ndola sites (June–November 2002)



1. Limitations

- Although knowledge of exclusive breastfeeding as a means to reduce MTCT has increased significantly across all respondents, such knowledge remains low, suggesting a **need for more education on the role of exclusive breastfeeding in PMTCT.**
- **VCT uptake has increased, but low figures suggest a reluctance to use services despite awareness of their availability.** The community survey showed that VCT is increasingly perceived as causing rather than allaying stress.

- **Routine ANC requires additional resources.** The intervention aims to strengthen care during pregnancy, delivery, and the post-natal period. The project contributed to improving clinic infrastructure through improving health workers' capacity and in one case through clinic renovation and supplies. Survey data and clinic observation show that logistical obstacles such as lack of adequate staff and erratic availability of basic supplies restrict provision of a comprehensive MCH package.
- **Sexual risk reduction, risk reduction communication, and disclosure of HIV status need further attention.** Condom use at last sex with regular partners was low among mothers interviewed in the community and remained at about 13 percent between the baseline and 1-year follow up surveys. Data show no significant change among men in terms of reducing the number of sexual partners. HIV risk reduction communication needs improvement, as little change was observed in mothers' reporting that they had discussed HIV risks with others.
- **Care and support links need strengthening.** Community links essential to promote services and provide follow-up care and support to mothers need improving. The project needs to improve collaboration among clinics and NGOs for continuity of care, information, and support to people living with HIV/AIDS (PLHAs).

m. Cost

LINKAGES is collecting data for a cost-effectiveness analysis by Abt Associates.

n. Methodologies used in assessments and evaluations

Operations research on the NDP involved three rounds of data collection for baseline (April and May 2000), 1-year follow up (April and May 2001), and end-line surveys (March 2002).

Operations research led by Horizons and collection of baseline data for expansion sites were completed in 2002. Collection of service data is ongoing. Operations research on the NDP involved three rounds of data collection for baseline (April and May 2000), 1-year follow up (April and May 2001), and end-line surveys (February 2002). Data was collected through household surveys in catchment communities, clinic exit interviews, and provider surveys and observations. The study followed a pre-/post- intervention design. Mothers of infants 0–<6 months old were interviewed in household surveys, and pregnant women and mothers of infants 0–<12 months old were interviewed on exit from MCH services.

Ongoing data collection includes a qualitative cohort study and tracking of service data and referral slips. Service data tracking built on the national HMIS, which supports district-level, data-based management. LINKAGES created two new registers, one to track VCT test results and counseling sessions and one to capture the VCT continuum of care (from counseling to testing to choice of infant feeding method to referral). In the expansion sites, baseline (household) surveys have been conducted of mothers with

infants <12 months old. The monitoring system being introduced in new sites is based on the HMIS and NDP tracking forms.

- o. Training and counseling approaches (i.e., MTMSGs, negotiation, community)

LINKAGES/Zambia trains health workers (DHMT employees supervised by the DHMTs) in HIV/AIDS, PMTCT, infant feeding, and psychosocial counseling. An introductory course for health providers covers HIV epidemiology, infant feeding counseling, lactation management, the essential ANC package, MTCT risk reduction, and VCT. Health providers who have completed this course are eligible to be trained as trainers. A modified version of the introductory course is conducted for community service providers (neighborhood health committees, mother support groups, traditional birth attendants, and growth monitors). Both health workers and community service providers are trained in a 6-week psychosocial counseling course that includes 2 weeks of on-the-job mentoring. In 2002 a BCC Specialist was hired to enhance the BCC content of all course curricula. Table 4 lists the numbers of people trained in all LINKAGES/Zambia courses since 1999.

Table 4 LINKAGES/Zambia training statistics, 1999 through 2002

Course	Health workers and supervisors	Community service providers
2-week introductory course in HIV/AIDS, PMTCT, and infant feeding	181	109
Training of trainers in HIV/AIDS, PMTCT, and infant feeding	68	
Psychosocial counseling	92	24

The most innovative aspect of the NDP was making infant feeding counseling the centerpiece of the PMTCT intervention. Infant feeding counseling is provided in group talks in ANC, discussed in pre- and post-HIV test counseling, when mothers are discharged after delivery, and in growth monitoring visits at the clinic. Routine data collection was established to record the point at which women are counseled on infant feeding. The content of infant feeding counseling depends on whether the client opts to be tested for HIV and the results she receives.

- p. FAASS (feasibility, affordability, acceptability, safety, and sustainability) of infant feeding practices promoted

LINKAGES has conducted operations research in target catchment communities with partners to determine appropriate and feasible infant feeding recommendations. Counselors are trained to discuss with women the risks and benefits of infant feeding options in the local context. Women of negative or unknown HIV status are counseled on exclusive breastfeeding for the first 6 months and continued breastfeeding up to 2 years. Women who are HIV positive are counseled on exclusive breastfeeding for the first 6

months, heat treatment and cup feeding of breastmilk, and transition from breastfeeding to replacement feeding. All women, regardless of HIV status, are counseled on avoiding mixed feeding, introducing complementary foods at about 6 months, and preventing HIV and unwanted pregnancies.

4. Lessons learned and best practices (i.e., evidence of technical leadership, etc.) under each major ER area

- Best practices: Tools and mixed infant feeding indicator that eliminates breastfeeding bias by being neutral in its promotion of which kind of infant feeding practice to adopt, exclusive breastfeeding or replacement feeding
- The NDP was one of five case studies featured by UNAIDS in its Best Practice collection. The document is on the UNAIDS Web site:
<http://www.unaids.org/publications/documents/health/counselling/JC729-VCT-Gateway-CS-E.pdf>
- The NDP and activities in subsequent expansion sites have depended substantially on the support of national officials and district implementers. Ownership—planning, implementation, and evaluation by Africans—is a hallmark of the program. Working with health authorities at district level improves credibility and effectiveness, if interventions are planned to fit district schedules and goals, and fosters ownership. At the same time, MOH capacity imposes an automatic ceiling on the extent and coverage of interventions.
- Local situation analyses, including assessments of health services and facilities, household food security, and available infant feeding options, as well as formative research to learn about the infant feeding and PMTCT knowledge, attitudes, and practices, stigma and gender issues, and care-seeking behavior, are essential to lay the foundation for appropriate messages and interventions for behavior change in MCH and community settings.
- Capacity building of health care and community service providers in the integrated PMTCT approach needs to be followed up with mentoring on the job through existing or improved supervisory systems.
- Community involvement is key to successful PMTCT interventions. Partnerships must be formed across formal and informal health, care, and support sectors that are built on collaboration from the beginning. Sustainability depends on mutual respect and recognition of the valuable role of community volunteers in primary prevention, PMTCT, and care and support for people infected with or affected by HIV/AIDS.
- Gender inequality remains a major issue for PMTCT programs. Women must be empowered to make informed decisions about infant feeding, negotiation of safer sex during pregnancy and lactation, acceptance of VCT, and reproductive health. Male partners want to protect their children from HIV infection and are willing to play a role, provided they can be involved in male-friendly environments.
- Programs that build on quality, integration, and informed choice have lower VCT uptake, while programs that build on testing only or that use the opt-out model have higher VCT uptake. Simply focusing on VCT uptake will not increase VCT. Comprehensive programs need to be dynamic in changing approaches as needed.

- Interventions and research need to be integrated, with research applied to test interventions and assess outcomes.
- A staff member responsible for M&E should be engaged at the outset of a PMTCT project to help design realistic indicators to measure data that contribute to program goals.

5. Recommendations for strategies for future scale up

- Explore ways to invest in health workers and clinic infrastructure to provide routine and improved services.
- Find innovative and effective ways to reach men and youth through community education and couples counseling to educate these groups in reducing the risk of transmitting HIV to their partners.
- Develop consensus and partnership with local stakeholders on designing, producing, disseminating, and where appropriate, cost-sharing appropriate BCC messages and materials based on formative research results.
- Address demand-side factors affecting VCT uptake, helping service providers draw attention to the benefits and exploring service improvements needed to reduce disincentives.
- Strengthen routine MCH care as an integral component of MTCT risk reduction in addition to providing enhanced services for selected program components.

6. Formative research and documentation

LINKAGES and the SARA Project conducted formative research in Ndola District in 1998 to examine infant feeding practices, identify appropriate replacement feeding methods, and determine the feasibility and acceptability of counseling women about these options. In 1999 Horizons and other NDP partners assessed community resources and capacity. The formative research findings were used to design the NDP intervention package, which introduced the following elements of an integrated approach to PMTCT:

- Advocacy for policies to support infant feeding and HIV/AIDS
- Improved access and quality of antenatal, labor, and delivery services
- Introduction of VCT in MCH and community services
- Counseling and support for safe infant feeding choices and practices
- Training of health and community service providers in integrated PMTCT
- Involvement of community care and support, including men
- Strengthened reproductive health, safe motherhood, and family planning
- Short-course antiretroviral prophylaxis (Nevirapine) for HIV-positive pregnant women and their infants

The operations research component of the NDP has been led by Horizons, a USAID-funded global HIV/AIDS operations research project implemented by the Population Council. Horizons, LINKAGES, the NFNC, Ndola DHMT, Hope Humana, and ZIHP conducted a pre- and post-intervention pilot study to investigate the influence of integrating PMTCT services into low-resource maternal and child health and antenatal care settings influences women's ability to

make an implement informed decisions about HIV. The baseline survey was conducted in 2000, the 1-year follow up in 2001, and the end-line in 2002. The operations research office closed in June 2002.