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Trip Report

**HIV Transmission Through Breastfeeding:
Assessment of Prevention Efforts in Zambia**

July-August, 1998

Nomajoni Ntombela, Elizabeth Preble, and Dace Stone

**Academy for Educational Development
Cooperative Agreement HRN-A-00-97-00007-00
Breastfeeding and Related Complementary Feeding and Maternal Nutrition**

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List of Acronyms

AED	Academy for Educational Development
AIDS	acquired immunodeficiency syndrome
ANC	antenatal care clinics
AZT	Zidovudine
BFH	Baby Friendly Hospital Initiative
CBO	Central Board of Health
CMA	Churches Medical Association of Zambia
DHS	Demographic and Health Survey
GOZ	Government of Zambia
HIV	human immunodeficiency virus
IEC	Information, Education and Communication
MCH	maternal and child health
MTCT	mother-to-child transmission
NARESA	Network of AIDS Researchers in East and Southern Africa
NASTLP	National AIDS, STD, TB, and Leprosy Control Programme
NFNC	National Food and Nutrition Commission
NGO	non-governmental organization
NIH	National Institutes of Health
PCI	Project Concern International
PWA	persons with AIDS
STD	sexually transmitted disease
TDRC	Tropical Disease Research Center
UAB	University of Alabama - Birmingham
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
UTH	University Teaching Hospital
VCT	voluntary counseling and testing
WHO	World Health Organization
ZAMCAM	Zambia Cooperating Agencies Meeting
ZIHP	Zambia Integrated Health Program



EXECUTIVE SUMMARY

Zambia, like most African countries, has been struggling to develop responsible infant feeding advice to give women who know they are HIV-infected and to the vast majority of women who do not know their status, in an environment where one in five women across the country are already HIV-infected. It is well-understood now that the risks of HIV transmission through breastfeeding are real, yet cessation of breastfeeding by women who do not have access to safe, affordable infant feeding alternatives, will certainly result in some level of increased infant and child morbidity and mortality related to unsafe infant feeding.

A three-person LINKAGES team comprised of research, policy, and program specialists on HIV and breastfeeding visited Zambia to

- compile an overall framework of the approach Zambia is taking to prevent HIV transmission through breastfeeding,
- assess current activities and identify needed resources to more effectively research, design, and implement interventions identified in the “Zambia National Policy on Breastfeeding and HIV Transmission from Mother to Child”, and
- begin to develop strategies and work plans for a demonstration project

Activities of the team included the following

- developed a list of information required for a national-level assessment of the status of HIV and infant feeding
- participated in meetings with other partners related to mother-to-child transmission (MTCT) of HIV in Zambia
- met with USAID to ascertain USAID priorities, interests, and concerns
- explored possibilities for establishing a demonstration project for introducing voluntary counseling and testing (VCT) and infant feeding counseling in antenatal clinic (ANC) settings, and identified next steps required
- assessed the current status of VCT in various settings
- assessed prevailing attitudes and practices related to HIV and infant feeding
- assessed the current status of antenatal services and began discussions on components required for an essential package of antenatal services to reduce MTCT
- reviewed selected reproductive health curricula for adequacy of coverage of issues related to HIV/AIDS and infant feeding
- inventoried and reviewed existing and planned research in Zambia related to VCT, MTCT, and antenatal services



- developed generic assessment tools that can be used in similar assessments in other countries

Conclusions

Interviews with Board of Health, National Food and Nutrition Commission (NFNC), University Teaching Hospital (UTH), other donors, health workers, focus groups with persons with AIDS (PWAs) and mothers, and others led to the following major conclusions by the Team

1 Establishment of a demonstration project

- A demonstration project that offers VCT to pregnant women and that tests an essential package of interventions to prevent perinatal transmission in antenatal settings (including counseling on HIV and infant feeding) would be feasible and useful in Zambia
- Experience gained from such a demonstration project would be helpful in mobilizing donor resources to go to scale in Zambia
- Extensive groundwork will be required to identify the interventions to be offered and research questions to be answered. This will include mobilizing participating partners, securing funding, determining sites, agreeing upon infant feeding options to be suggested during counseling to HIV-positive mothers who choose not to breastfeed, hiring and training any additional required staff, arranging logistics, etc
- The balance between intervention and research in the proposed initiative needs to be determined. In addition, a number of operations research questions could be addressed in such a demonstration project—they will need to be prioritized, as each has important design and cost considerations
- Lusaka and Ndola would both be feasible sites for a demonstration project

2 Introduction of VCT in antenatal settings

- There would be demand for VCT by pregnant women at antenatal clinics in Zambia if the option to be counseled and tested were offered in an appropriate fashion
- The institutionalization/main streaming of VCT in antenatal settings (in addition to community settings) has numerous advantages
- Some antenatal clinics already have staff trained in counseling related to HIV, sexually transmitted disease (STD), family planning, and/or infant feeding, but none have counselors trained specifically in infant feeding related to HIV. Many clinics have



laboratory facilities available/accessible, have the physical space in clinic for counseling, and are motivated to introduce VCT

3 HIV and infant feeding alternatives

- The team strongly recommends that LINKAGES provide technical assistance as soon as possible to the NFNC to determine which alternative feeding methods might be appropriate for HIV-infected Zambian women who choose not to breastfeed
- Since most women in Zambia do not know their HIV status, and because few health workers are comfortable offering counseling in this area, HIV as related specifically to infant feeding is currently not discussed in health centers
- For most HIV-infected mothers in Zambia, given the realities of their lives and their low-income status, many of the alternative feeding options described in 1998 UNAIDS guidelines appear to be unsafe and/or impractical. Commercial infant formula appears to be the most omnipresent alternative for replacement feeding for HIV-infected mothers who choose not to breastfeed. However, the Team doubts that it will be actually affordable for most Zambian HIV-positive mothers and it carries its own risks for the infant
- VCT can also benefit the infant feeding practices of women found to be HIV-negative, by reinforcing the importance of optimal breastfeeding practices

4 HIV, infant feeding, and the media

- Television, radio, and print media can promote, advocate, and support the choices women make among infant feeding options. This support will be critical over the long term
- As this project continues, the role of the media as advocates will become an important tool in supporting the choices women make about infant feeding
- Several organizations and individuals were identified that could serve as key contacts for accurate information about HIV and infant feeding. It is extremely important that the media provide accurate information on HIV and infant feeding

5 The overall challenge

- The problem of HIV and infant feeding is exceedingly challenging from a policy, program, and research standpoint. The consequences are great, since both the MTCT of HIV, which can result from breastfeeding, and the absence of safe, affordable alternatives for those who do not breastfeed, can lead to severe morbidity and mortality in infants



A INTRODUCTION

Zambia, like most African countries, has been struggling to develop responsible infant feeding advice to give women who know they are HIV-infected and to the vast majority of women who do not know their status, in an environment where one in five women across the country are already HIV-infected. It is well-understood now that the risks of HIV transmission through breastfeeding are real, yet cessation of breastfeeding by women who do not have access to safe, affordable infant feeding alternatives, will certainly result in some level of increased infant and child morbidity and mortality related to unsafe infant feeding.

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- begin to develop strategies and work plans for a demonstration project

See Annex A for detailed Scope of Work

The Team also began to develop tools that could be adapted for use in similar assessments in other countries (see Annex C through G for examples)

LINKAGES has been providing technical assistance to Zambia on issues related to infant feeding for over a year in collaboration with the National Food and Nutrition Commission (NFNC) (the Zambian organization responsible for coordinating national nutrition activities). LINKAGES has contributed to the design of both the National Policy on Breastfeeding Practices and the National Policy framework on Breastfeeding Practices and HIV/AIDS Transmission from Mother to Child. Throughout this process, LINKAGES has been concerned with finding safer methods of infant feeding for HIV-positive mothers while preserving breastfeeding among HIV-negative mothers.

Several recent developments related to HIV and infant feeding have led to a reexamination of these policies and frameworks, and led to the conclusion that maternal and child health (MCH), AIDS, and nutrition experts should offer technical assistance on these issues in concert. Recent developments include

- Studies from Africa demonstrate that the impact of breastfeeding on mother-to-child transmission (MTCT) is greater than originally thought



- New guidelines have been issued by UNAIDS, WHO, and UNICEF which relate to HIV and infant feeding¹ These guidelines need to be adapted and applied to the Zambian setting
- Completion of a trial of AZT (Zidovudine) in Thailand (with non-breastfeeding HIV-infected mothers) that demonstrated that a short course of AZT offered through a relatively simple regimen (which some believe would be theoretically feasible to offer in resource-constrained settings like Zambia) was effective in reducing MTCT
- Release of plans for a joint UNAIDS, WHO, UNICEF initiative to help HIV-positive mothers increase their chances of having a healthy child Of interest to this mission are the plans to include AZT and the provision of infant formula in the package for mothers
- Increasing recognition among public health experts that providing of voluntary testing and counseling (VCT) is a prerequisite for offering several of the other components of an integrated package to reduce MTCT
- Increased recognition that reproductive health services are not adequately addressing either broad issues of HIV/AIDS for women or more specific issues related to HIV and infant feeding, and the need for nutrition, HIV/AIDS, and MCH staff to address these issues together

These factors call for a reexamination of guidelines for infant feeding and a review of the feasibility of expanding antenatal services in Zambia to better respond to needs of HIV-infected women

B ORGANIZATIONS IN ZAMBIA WITH AN INTEREST IN HIV AND INFANT FEEDING

Central Board of Health (CBOH)

Since the dissolution of the former NASTLP (National AIDS, STDs, TB, and Leprosy Programme), which occurred as a part of health reforms, responsibility for HIV/AIDS at national level rests informally with the Central Board of Health Dr Sichone, Public Health and Clinical Systems Manager strongly believes that VCT should be a part of antenatal services, and he would welcome a demonstration project that would identify systems which would need to be in

¹ "HIV and Infant Feeding Guidelines for Decision-Makers", WHO/FHN/NUT 98 1, UNAIDS/98 3, and "HIV and Infant Feeding A Guide for Health Care Managers and Supervisors", WHO/FRH/NUT 98 2, UNAIDS/98 4



place to carry this out. His preference would be for such a project to be situated outside Lusaka, (as he believes there are too many activities currently located in Lusaka)

In addition to the obvious benefits of such a project for mothers and children directly, Dr Sichone also believes that such a project could a) help raise donor funds for going to scale and b) assist the Government of Zambia (GOZ) in its ongoing strategic planning process

National Food and Nutrition Commission (NFNC)

The NFNC has been a long-term partner with LINKAGES, receiving technical assistance from LINKAGES in the development of national policies and frameworks on infant feeding. NFNC staff accompanied the Team throughout their mission in Zambia and will be valuable partners in undertaking future steps.

UNICEF

UNICEF is concerned about MTCT (particularly related to HIV and infant feeding) and its impact on child morbidity and mortality. UNICEF's new representative has already embarked on discussions with his staff in Zambia to determine how UNICEF can support efforts to prevent MTCT. Initial ideas include funding a study of KAP related to mothers' views of HIV and breastfeeding. UNICEF recognizes that UNICEF needs technical support and appreciates LINKAGES' capacity to provide technical assistance in this area. Useful partnerships could be developed between UNICEF and LINKAGES.

Population Council (HORIZONS)

The Population Council's HIV/AIDS operations research project, HORIZONS, has already developed eight concept papers related to research that HORIZONS would be interested to undertake in Zambia. One of the projects would seek to integrate VCT and provision of AZT into antenatal clinic settings, and is based on the model protocol developed by the Network of AIDS Researchers in East and Southern Africa (NARESA) for Kenya². Discussions between the Team, AED LINKAGES staff, and HORIZONS' Washington-based staff were initiated in Washington, DC before the Team departed for Zambia and were continued with Dr Sam Kalibala, Horizon's representative in Nairobi (HORIZONS has no staff based in Lusaka).

² "Operations research proposal: testing the feasibility and impact of integrating voluntary HIV counselling and testing and a package of antenatal and perinatal services for reducing mother to child transmission of HIV."



Population Concern International (PCI)

PCI is currently the USAID contracting agency selected to coordinate USAID-funded efforts in Zambia in HIV/AIDS prevention. However, a new procurement for HIV/AIDS is expected to be awarded in September 1998 by USAID and it is not clear how long PCI's present role will continue. PCI's major areas of focus at present are

- mobilization of communities in support of voluntary testing and counseling,
- advocating services for orphans and vulnerable children, and
- promoting strategic planning at the district level

PCI currently works in five geographical areas in Zambia including Lusaka and Ndola

University Teaching Hospital (UTH)

Staff of UTH have been very active in previous years in discussing programmatic issues related to MTCT of HIV and in undertaking high quality research in this area (see below)

C RELATED RESEARCH IN ZAMBIA

1 HIVNET (beginning)

Two studies related to MTCT are beginning through the National Institutes of Health (NIH)-funded HIVNET project in Zambia. The first is a study of the efficacy of using chlorhexidine for intrapartum and postpartum vaginal cleansing to prevent HIV transmission from mother to infant. It will study the tolerance of chlorhexidine by mothers and infants at different doses and subsequently determine the efficacy of the strongest dose which is determined to be safe.

The second study will be a trial of antibiotics (metronidazole and erythromycin) to reduce chorioamnionitis-related perinatal HIV transmission.

2 UTH (completed)

Dr. Bhat has completed a study of the acceptability of VCT in three antenatal clinic centers (ANC) in Lusaka. Findings revealed that women were interested in receiving VCT (over 80 percent accepted testing) and that the use of a rapid test that allowed women to receive the result on the same day was advantageous.

3 UTH (proposed)

Dr. Phiri proposes to study two groups of HIV-positive women, those who breastfeed and those who use alternative feeding methods, with a group of HIV-negative women as a control. He would evaluate the morbidity and mortality of babies and mothers in the two different groups.



Dr Bhat proposes to repeat his earlier study of VCT on pregnant women, this time encouraging male partners of infected women to participate in VCT together with the women

4 Population Concern International (PCI) (proposed)

PCI proposes to undertake a qualitative study of community perspectives on counseling that would reveal issues which might influence the use of counseling services such as cultural, socioeconomic, and demographic factors

5 Network of AIDS Researchers in East and Southern Africa (NARESA) (proposed)

NARESA and the Population Council's HORIZONS project have presented a proposal to undertake operations research in Kenya to test the feasibility and impact of integrating VCT and a package of antenatal and perinatal services for reducing mother-to-child transmission of HIV. Outcomes would include development of a best practice in providing VCT and MTCT prevention in resource constrained settings. While this was initially proposed to be undertaken in Kenya, there is discussion of undertaking it in Zambia as well.

6 Project San Francisco (completed)

Project San Francisco, through the University of Alabama in Birmingham (UAB), has completed a study of VCT in 12,000 couples in Zambia. They found that VCT is highly effective in preventing heterosexual transmission of HIV. They recognize the need to offer VCT in antenatal settings and have trained 350 nurse-counselors through this project. Study results also demonstrated that Zambians do not have time for, nor do they desire, repeat counseling sessions related to HIV.

7 Tropical Disease Research Center (TDRC) (ongoing)

TDRC conducts a range of health and medical research, and processes HIV tests for study populations, or other selected patients who are referred, as indicated. They do not offer routine VCT to the public.

D MAJOR RESEARCH QUESTIONS

There are a number of research questions which could be addressed in a demonstration project on HIV, infant feeding, and strengthening antenatal services in Zambia. The choice of questions to be addressed by LINKAGES will influence the design, cost, and selection of partners significantly. Research questions that emerged in the course of the Team's discussions include

- changes in attitudes toward breastfeeding and infant feeding among mothers and health workers,



- impact of offering VCT in antenatal settings on HIV+ and HIV- mothers' infant feeding choices,
- impact of offering VCT in antenatal settings on MTCT rates,
- impact of infant feeding method chosen by HIV+ mothers on MTCT rates,
- impact of HIV+ and HIV- mothers' infant feeding choices on infant and child mortality,
- impact of breastfeeding by HIV-positive mothers on MTCT by duration of breastfeeding,
- evaluation of the acceptability of antenatal VCT by health workers and/or mothers,
- extent, if any, of negative spillover effect on breastfeeding among HIV-negative women due to exposure to messages about HIV transmission through breastfeeding, and
- impact of HIV/breastfeeding counseling on rates and duration of exclusive breastfeeding among HIV-negative mothers

E ASSESSMENT OF HIV/AIDS SITUATION IN ZAMBIA

1 Epidemiology

According to Ministry of Health estimates,³ nearly one out of every five adults in Zambia is infected with HIV. By 1997, an estimated 1.02 million Zambians were infected with HIV (950,000 adults and 70,000 children). By the end of 1996, it was estimated that there had been more than 400,000 cases of AIDS in Zambia since the beginning of the epidemic. Equal numbers of men and women are infected with HIV and suffering from AIDS.

Data from the national surveillance program reveal a national average adult seroprevalence level of 19.9 percent, with urban and rural levels at 27.9 percent and 14.8 percent respectively. Wide regional variations in seroprevalence are present—ranging from a low of under nine percent for adults in rural areas of North-Western Province to a high of over 30 percent in adults in urban areas of Eastern and Southern provinces.

Two major modes of transmission are predominant in Zambia—heterosexual contact (responsible for the majority of transmission to women) and perinatal (mother-to-child) transmission (which leads to an estimated 25,000 infants becoming infected each year). The peak age group for AIDS cases in women is 20–25, younger than that for men. Young women aged 15–19 are five times as likely to be infected as young men aged 15–19. The median age for sexual intercourse is 16 years for females, and by age 19, many infected young women will already have delivered a baby. The average woman in Zambia will have 6.1 children during her lifetime—if she is infected with HIV during the peak years for women (15–19) and is not aware of her HIV status, many of these 6.1 children she will deliver will be at risk of HIV.

³ Central Board of Health, Ministry of Health, HIV/AIDS in Zambia. December, 1997.



The implications of the AIDS epidemic in Zambia for women of reproductive age and their infants are severe and there is an important role for antenatal services in preventing mother-to-child transmission. For example, based on current trends in HIV in Zambia

- Of the 400,000 estimated deliveries per year, over 80,000 will be by women who are HIV-infected
- Over 20,000 of the babies born each year will acquire HIV infection from their mothers. Based on the UNAIDS assumption that mother-to-child transmission occurs in equal proportions during the in-utero, intrapartum, and postpartum periods, of these 20,000 babies
 - Over 6,000 of these HIV-infected babies will have been infected in utero, and no interventions offered through antenatal clinics are likely to be able to prevent these infections, in part because most of these mothers would have already been HIV-infected at the time of their first antenatal visit (However, women who learn they are HIV-positive during this pregnancy could theoretically elect for termination of pregnancy or postpone or prevent future births and/or may practice safer sex in future)
 - Over 6,000 of these HIV-infected babies will have been infected intrapartum (during delivery). Some of these infections in babies could theoretically be avoided by introducing improved obstetrical practices (such as avoiding unnecessary artificial rupture of membranes, etc) If funds were available, identifying and providing HIV-positive women in antenatal settings with short-course AZT could reduce approximately 50 percent of their babies from becoming infected during delivery. See Annex D for further detail
 - Over 6,000 of these infected babies will have been infected postpartum, most of them through breastfeeding. Identifying HIV-positive mothers in antenatal settings and counseling them on the best infant feeding methods, could theoretically prevent many of their babies from becoming infected

2 Government HIV/AIDS prevention efforts

The GOZ response to HIV/AIDS began in 1986 with the formation of a National AIDS Surveillance Committee and an Intersectoral AIDS Health Education Committee. Since 1986, the GOZ has completed a Short Term Plan, and the first Medium Term Plan for AIDS prevention.

The second medium Term Plan will be completed at the end of 1998. In 1992, in an effort to link several related programs, the GOZ formed the National AIDS/Sexually Transmitted



Disease/Tuberculosis and Leprosy Program (NASTLP) Focus areas for the second plan include strategies to

- prevent sexual transmission of HIV by promoting safer sexual behavior, IEC and education programs, and expanded condom distribution,
- provide early diagnosis and effective treatment of STDs,
- protect the safety of the blood supply,
- provide health care for HIV-infected persons with and without AIDS,
- reduce the impact of AIDS on the economy, including preparation of a comprehensive human resources development plan that takes into account attrition from AIDS, and
- mobilize local and external resources to combat the epidemic

In keeping with the decentralization efforts of current health reforms, HIV/AIDS services are to be integrated into the essential package of health services at district level as well as into other sectoral ministry efforts. A plan to restructure the national program currently led by the Public Health Manager of the Central Board of Health is under consideration and a two-tiered AIDS coordination structure has been proposed which would include an HIV/AIDS council supported by a secretariat.

3 Non-governmental organizations

A large number of non-governmental organizations (NGOs) also support AIDS prevention efforts. The lead agency in AIDS prevention funded by USAID is Population Concern International (PCI). USAID-funded contracting agencies have met regularly through Zambia Cooperating Agencies Meetings (ZAMCAM) to share information on their activities. USAID will soon be issuing three new procurements which will form the new USAID program, Zambia Integrated Health Program (ZIHP).

F ASSESSMENT OF CURRENT INFANT FEEDING PRACTICES

Demographic and Health Survey (DHS) data from 1996 indicate that 98 percent of Zambian mothers initiate breastfeeding and the median duration of breastfeeding is 20 months. Almost all children are breastfed for at least one year, and only four percent of children aged 12–13 months are not breastfed. By age 16–17 months, 13 percent of children are no longer being breastfed.

One important finding of the DHS is that although the overall rate of breastfeeding is high, very few mothers feed their infants optimally. For example, although exclusive breastfeeding did improve between 1992 and 1996, in 1996 only 35 percent of children under two months of age were exclusively breastfed. The proportion of infants exclusively breastfed in 1996 declined to 20 percent in the age group 2–3 months, and to only five percent at 4–5 months.



Hence, by six months of age, most infants are at risk of contamination by low quality foods that are not hygienically prepared or are contaminated with pathogens

Another important finding of the DHS is that only six percent of women meet the criteria for the lactational amenorrheic method (LAM) of contraception method (criteria include exclusive or nearly exclusive breastfeeding of the infant, and postpartum amenorrhea for the first six months)

The DHS data about infant feeding patterns in Zambia have several important implications for the HIV/infant feeding discussion

- Between 1992 and 1996, there was no decline in breastfeeding in Zambia. This indicates that rumors and reports of HIV transmission through breastfeeding had not, by 1996, caused mothers to avoid breastfeeding as infant feeding experts have feared
- Since 98 percent of women begin breastfeeding in Zambia, any women who avoid breastfeeding (due to fear of HIV transmission) may be very obvious in the community – this is significant given the stigma associated with HIV or AIDS
- The impact of avoiding breastfeeding in Zambia (due to fear of HIV transmission or other reasons) is unlikely to result in significant increases in unplanned births, as some suggest, since few women (only six percent) meet the criteria necessary for LAM to be effective

The DHS found that two-thirds of children below the age of three years were fed grain, flour, or cereal, while about half received meat, poultry, fish, or eggs. About one in three were given liquids other than breastmilk, infant formula, and other milk.

The Team also gathered information about current infant feeding practices from interviews, informal discussion groups, and observations. The following conclusions were not based on statistically-representative samples, but mothers' responses were consistent with health workers' responses. Household observations would provide more reliable information. In any case, the Team was informed that

- Most women interviewed commented that if they knew they were HIV positive, they would not breastfeed if they could afford infant formula
- Women who could not afford infant formula told the Team that they would either continue to breastfeed, hoping that the baby would not become infected, ask a relative to breastfeed the child if she has a baby, or ask church members or relatives to give money to buy formula
- Mothers who participate in a mother's support group do report that they practice exclusive breastfeeding because they are aware of the dangers of unsafe, inadequate,



infant formula feeding, as well as knowing the advantages of breastfeeding. Few of these mothers know their HIV status.

- Most mothers who do not know the dangers of artificial feeding, feed their babies with Lactogen (mixed with breastfeeding). When they run out of Lactogen, they give thin porridge, sometimes supplemented with ground nuts if available.

G ASSESSMENT OF ALTERNATIVE FEEDING OPTIONS FOR HIV-INFECTED MOTHERS

The Team undertook a preliminary review of the range of the feeding options suggested in the new UNAIDS guidelines as a means to initiate discussion on the issue of alternative feeding methods. The Team concluded that for women who know they are HIV-positive and decide not to breastfeed, commercial infant formula (used properly) will be the safest and most practical for most women. The Team has concerns, however, about the affordability of commercial infant formula for most Zambian mothers. In this connection, the Team conducted an informal survey of the price of commercial breastmilk substitutes in several supermarkets, and made rough calculations about the costs to a family of using these substitutes for the first six months of life (See Annex E.) These costs are considerable in relation to average Zambian incomes. The Team also noted other serious problems with infant formula, including

- There are significant problems related to making subsidized or free, generic formula widely and consistently available to and safely used by Zambian mothers.
- Some (HIV-positive) women may appear (to health workers) to be able to afford infant formula, and hence may be counseled in that direction, but will not ultimately purchase or use it consistently and/or safely.
- There is a danger that mothers who do not know their HIV status, and/or mothers who know they are HIV-negative, will abandon breastfeeding.
- There is a significant spoilage factor with prepared infant formula, and consequently estimates of the amount of formula required by families is underestimated. This can be due to spillage, milk going sour, or unused milk after mixing (milk stored at room temperature should be used within two hours).
- Longlife milk is unsuitable for mothers without refrigerators (the majority of Zambians). Once the container is opened (without refrigeration) it must be used immediately.
- Estimates of costs for using artificial feeding usually fail to include costs of fuel, water, utensils, mothers' time to prepare the formula, and increased medical fees resulting from increased infant illnesses resulting from unsafe feeding practices.



The Team recommends that the NFNC, with technical assistance from LINKAGES, undertake a more systematic review of feasible, acceptable, and safe alternative feeding methods that could be recommended for HIV-infected mothers who decide not to breastfeed in Zambia. This assessment could be done relatively quickly and at low cost, using Designing by Dialogue methods. This assessment is essential, as Zambian health experts continually cite lack of knowledge about appropriate alternate feeding methods as a major obstacle to making any progress on developing interventions to reduce MTCT.

H ASSESSMENT OF ANTENATAL SERVICES

Antenatal services have not historically responded well to the HIV-related needs of women and mothers in terms of helping them prevent HIV infection, helping them determine their HIV status, helping those who are HIV-infected avoid MTCT, helping them care for themselves and their children suffering from HIV/AIDS, etc. This is critical in Zambia, with an average of 20 percent of all mothers already HIV-infected. The objectives of the Team were a) to review current antenatal services to determine what additional services could be introduced which would both to benefit mothers and to help reduce MTCT, and b) to determine what kind of initiative might test those new services in a Zambian antenatal clinic setting.

Despite the failure of Zambian antenatal clinics to respond well specifically to HIV-related needs, the Team found that in general, services were of a reasonably high quality, are well-attended, and do have the potential to add selected services to better respond to the HIV/AIDS epidemic.

1 DHS data on ANC services in Zambia

The 1996 DHS data indicate that 96 percent of Zambian mothers received antenatal care from a doctor, trained nurse or midwife, 93 percent rely on nurses and midwives, and 99 percent of urban births received antenatal care from a medically-trained provider. Not surprisingly, pregnant women with no education are less likely to seek antenatal services than those with secondary or higher education. There is little difference between urban and rural women in their patterns of antenatal care.

In 70 percent of births, women made four or more antenatal care visits, and the median number of antenatal care visits was 5.2. In 60 percent of births, the first antenatal check-up was received before the sixth month of gestation, while in 30 percent of births, services were not received until the sixth month or later. The median number of months pregnant at first antenatal visit was 5.6.

More than half of Zambian births are delivered at home.



2 Team observations of quality of antenatal services

The Team obtained impressions of antenatal services in Zambia from field visits to government services in Lusaka (Chilenge and Kalingalimaga Clinics) and Ndola (Lubuto Health Centre, TDRC), and from interviews with staff from the Churches Medical Association of Zambia (CMAZ). Catchment areas varied with populations of 104,000 upwards. All the services provide curative services, as well as preventive services. Medical doctors are attached to each facility to attend to patients referred by nurses.

Antenatal services include

- Routine antenatal checkups include physical examinations, urine tests, hemoglobin tests (records show few anemic women), syphilis tests (treatment if positive, partner notification)
- Syphilis testing is done for all pregnant women and is well accepted. Treatment is provided and partner notification is routinely done. Nurses see an improvement as some partners do come for treatment. Repeat testing is done toward the end of pregnancy. Records did not indicate how many repeat tests were done.
- Nurses use the syndromic approach to STD diagnosis and treatment.
- Malaria prophylaxis is sometimes provided at 28 weeks, using chloroquine.
- An average of 3–6 antenatal visits per pregnancy was reported, in contrast to the Ministry of Health recommendation of 12 visits. Even though ANC clinic record systems were kept accurately, the design of the systems made it impossible to know how many times each woman attended—the reporting system needs improvement.
- Nurses reported that about half of pregnant Zambian women have their first antenatal visit after 28 weeks of pregnancy.

Maternity

- Duration of stay after delivery varied from 6–12 hours.
- Procedures for labor and delivery are in accordance with BFHI standards.
- Complicated cases are referred to UTH.

Postpartum care

- Women are encouraged to return for a check-up one week after birth.



- Some facilities have been awarded “baby-friendly” status, and mother support groups visit the facilities to help with breastfeeding

Family Planning

- ANCs have separate rooms for counseling and delivery of contraceptives
- Couple counseling was observed at one of the clinics. Condoms are available

Well-baby clinics

- Baby weighing is done by nurses at ANCs, however there appears to be little counseling or interaction between mother and nurse during this process. Immunization is provided
- Large numbers of mothers attend these clinics. Growth monitoring is done, however, with little explanation/promotion. Rehabilitation for the malnourished child is provided, in addition to demonstration of how to prepare complementary foods
- Some men were seen at the clinics

Infrastructure

- The ANC physical structure is fairly adequate with some degree of privacy, however if VCT is introduced, adjustments will be necessary—there is room for this. The capacity to undertake VCT is present. It will be necessary to streamline the flow of patients within health center to facilitate provision of services
- All services are integrated—mothers are seen throughout the day. Health centers are situated in densely-populated areas within easy reach of the majority of mothers

Staffing and training

- ANCs are not severely understaffed. They will need additional help from the community to ensure adequate counseling (in infant feeding, this is already happening, as well as community-based care for HIV-positive persons and those terminally ill with AIDS)
- Only a few staff have been trained in HIV/AIDS counseling
- In terms of training, in Chilenge, 5 of 100 staff have undergone six weeks of training by KARA counseling at a fee of US\$100 per participant. They must have a sponsor or pay for the training themselves. None have been trained in breastfeeding management or counseling. A few attended the BFHI five-day orientation workshop



- Staff are highly motivated and believe it is a good idea to introduce VCT
- Health talks are conducted daily on all health issues. No systematic recording of health talks was undertaken, however. Little is said about HIV and infant feeding.

Barriers to use of prenatal care

- Financial barriers to care are observed, due to general poverty and the fact that government clinic fees were recently increased from K500 (US\$ 26) to K1500 (US\$ 79) as a part of structural adjustment
- There are limitations in the proximity of services (with lack of adequate transportation), and a limited number of service providers (systems need to be streamlined to facilitate patient flow). There are no facilities to treat minor emergencies or complications—these cases must be referred
- In terms of organization, practice, and environment there is inadequate coordination of services, inadequate quality of health education and counseling, insufficient equipment and drug supply, sometimes unpleasant attitudes and language on part of providers, and unfriendly surroundings
- Lack of appreciation that prenatal care is important was reported, as well as fear of medical procedures and providers. Programs aimed at increasing participation are often designed without careful assessment of women's needs and experiences

3 Developing an essential package of antenatal services to prevent MTCT

The introduction of VCT, viral load monitoring, and provision of short-course AZT in antenatal settings in industrialized countries has the potential to nearly eliminate MTCT of HIV in settings that have adequate resources. However, to date these interventions have been out of reach for resource-constrained settings such as Zambia. One of the objectives of the Team's visit to Zambia was to identify interventions that could feasibly be offered in antenatal settings, initially through a demonstration project.

In an earlier meeting in Zambia on MTCT, child health and HIV/AIDS experts agreed upon the following criteria for selecting antenatal services to reduce MTCT—cheap, simple, safe, efficacious, feasible, and replicable. The Team agrees with these criteria and used them in reviewing interventions to reduce MTCT.

The team developed an illustrative matrix to facilitate future discussions of what interventions should be added in ANC settings to reduce MTCT in Zambia (see Annex D). For each intervention suggested, the matrix reviews its potential impact (on MTCT specifically), any



risks inherent in the intervention itself, and the cost. The matrix indicates that at present, the number of interventions that exist at present in ANC sites to reduce MTCT are actually very few. Some of the interventions which have been proposed, and are thought to be highly efficacious (provision of short-course AZT, C-Section delivery, and provision of elective abortion) are not suitable for resource-poor settings. Other interventions that are affordable and have few or no side effects of their own (such as changing obstetrical practices or providing HIV/AIDS education) are likely to have relatively low impact on MTCT for the pregnancy in question. The Team suggests that this matrix could be used in Zambia when more formal discussions begin on selecting interventions to be included in the demonstration project.

4 Introducing VCT into ANC services

The Team identified the following potential advantages of including VCT in antenatal clinical services (as opposed to community settings)

- Determining a mother's HIV status can help a) a mother make more informed and reasoned choices about future family size, b) a mother select appropriate infant feeding methods, and c) provide HIV/AIDS prevention education to improve potential of women practicing safer sex during and after pregnancy, hence reducing primary infection in women (and men)
- Making VCT a routine intervention for antenatal women could help reduce the stigma associated with HIV
- Antenatal clinics offer the potential for greater confidentiality than walk-in VCT centers that serve both men and women
- Antenatal services offer the potential to reach virtually all pregnant women (since 96 percent of Zambian women utilize antenatal services during pregnancy) and offer the potential to offer VCT to women and men planning their next pregnancy
- Women come for repeat visits to antenatal settings, therefore they can be given answers related to HIV and reproductive health as questions emerge over the course of a pregnancy
- Services can focus on specific issues related to HIV and reproductive health which are of concern to women such as HIV and family planning, MTCT, HIV, infection and obstetrical issues, etc
- A focus on improving ANC can serve to strengthen these services for all women (not only those at risk of HIV)



One disadvantage of offering VCT in ANC settings is that male partners would not easily be reached. However, they can be reached through parallel community-based VCT efforts which Project Concern International (PCI) is planning to support.

5 Introducing AZT into ANC services

Zambia is included as one of 11 countries in the new UNICEF, WHO, and UNAIDS initiative.⁴ Provision of short-course AZT to prevent MTCT is part of this initiative. AZT is also one of the interventions proposed in the demonstration project planned for Kenya by HORIZONS and NARESA,⁵ and under discussion to be repeated in Zambia.

The Team's concerns about including AZT as part of ANC services in Zambia are

- The lack of potential replaceability—the team believes that even if UNAIDS successfully negotiates a lower price for AZT (currently estimated at US\$50 per course), it will still be out of reach for the vast majority of Zambian women. To date, no donors have made any commitment to offer AZT to more than the 1,000 women currently targeted through the UN initiative. Even if the price is reduced, it is unclear whether the GOZ would choose to spend its limited health budget on this intervention.
- The present (Thai short-course) regimen requires that women be counseled not to breastfeed and suggests that women (who receive AZT) also be provided with free formula. The Team doubts the logistical feasibility of providing formula through prescription on a consistent basis in Zambia. The Team also has concerns about the infant morbidity and mortality which can result from improper artificial feeding.
- Zambians interviewed by the Team expressed concerns about the possible negative effects of AZT on the mother (since the nutritional status of African women may be different from that of Thai women, and the Thai regimen has not yet been tested in an African setting). Others worry about the impact on women taking short-course AZT and on breastfed children of women taking the short course, due to a possible viral rebound effect that may occur when the woman stops taking AZT. None of these concerns has been proven to date.

⁴ Press release, "New Initiative to reduce HIV Transmission from Mother-to-Child in Low-Income Countries" Geneva, 19 June 1998

⁵ Operations research proposal. Testing the feasibility and impact of integrating voluntary HIV counseling and testing and a package of antenatal and perinatal services for reducing mother to child transmission of HIV.



- Finally, the Team noted that raising expectations in Zambia about the availability of AZT for preventing MTCT, and then not being able to deliver the intervention, could have negative outcomes

Based on the concerns discussed above, the Team does not recommend that AZT be included in demonstration projects which LINKAGES may be associated with in future in Zambia

I ASSESSMENT OF VOLUNTARY COUNSELING AND TESTING SERVICES

The Team found that VCT is being offered in Zambia, but the exact extent of coverage is unclear. The Team noted that

- Between 2,500 and 3,500 counselors have been trained in Zambia through a variety of channels. Four agencies were identified that provide HIV counseling and testing on a regular basis
- Much of the VCT in Zambia has been provided in research settings
- If given the opportunity, women in antenatal clinics would choose to be tested

The Team visited the following four VCT facilities

Kara Counseling

Kara House has provided VCT and general emotional support and counselor training since the late 1980s. Today, Kara House tests approximately 200 clients per month. Pre-test counseling and actual testing is done during the first visit. Post-test counseling is done on a return visit after test results are delivered. Clients are then referred for further medical service as needed, and/or to Kara's Post-test Clubs for more support. Clients are also provided with male and female condoms.

Kara House counselor training has always been an important part of service provided. Approximately 3,000 counselors have been trained in the last six years. Unfortunately, there has been little follow-up so it is difficult to know if or where the 3,000 counselors may be working today. It will be very important when the demonstration project needs to find some people who may be trained in HIV counseling. They may build on the previously base of knowledge that exists.

Churches Medical Association of Zambia

Over 90 Association facilities have been providing VCT services since 1993 and hospital workers are being trained to provide pre-and post- test counseling at rural mission hospitals. To



date, 140 counselors have been trained. Much of the current VCT is being targeted at four rural hospitals.

Chaimama Hospital

According to Professor Haworth (who was instrumental in the initial development of VCT in Zambia), little testing and counseling is being offered at present. Over the last ten years, 2,500 counselors have been trained. Trainees included medical workers, social workers, and teachers, 250 senior counselors have been trained and, of those, 50 were brought back to become trainers. Professor Haworth does not know the current status of any of these counselors or trainers. He believes that antenatal clinics would be a good place to offer VCT and infant feeding counseling.

Project San Francisco

This project offers VCT in a research setting and their findings advocate delivering same-day test results. Project San Francisco has trained 350 nurse-counselors (who had previously completed the Kara counseling course).

Conclusion

The demonstration project proposed for LINKAGES support will need to locate and work with doctors and nurses who have been previously trained in VCT. It will also have to make decisions about what kinds of support services may be needed for individuals tested through the demonstration project.

J ASSESSMENT OF THE MEDIA CONCERNING HIV AND INFANT FEEDING

The media does and can play an important role in advocacy and in delivering appropriate messages in addition to its usual mode of reinforcing messages and providing information about HIV and related issues, including infant feeding. The media will need to have access to experts in HIV and experts in infant feeding for accurate, up-to-date information. The NFNC and the People Living with HIV Association will be key resources in this area.

The Government of Zambia and the media are already closely coordinated. Reporters sit on advisory committees and Boards of Directors and communications experts conduct training for the local media.

In and around Lusaka, the Team noticed eight or nine billboards with HIV and STD information as well as several stories in the newspaper. Two reporters expressed interest in further information on HIV and infant feeding, prompted informally by the People Living with HIV Association and the Zambia Information Services. In addition to this local interest, the Western news associations have also been doing stories on HIV in Africa, in part resulting from the recently-held International HIV/AIDS Conference in Geneva.



The Team met with several key personnel at Zambia Information Services, and attended a meeting of their Secretariat for the IEC sub-committee. Both meetings helped to clarify roles and responsibilities of different agencies. The Secretariat will be an important asset for the LINKAGES project and it will be through the Zambia Information Services Secretariat that certain messages will be promoted.

The group, People Living with HIV and AIDS, is a network of people and associations that tries to give accurate advice to people living with HIV and advocate for services in Zambia. Most people living with HIV are of reproduction age, and the group was particularly interested in messages on infant feeding and HIV. Members informally shared their personal stories with the team, and their stories reinforced the notion that ultimately decisions related to HIV and AIDS will be made by families.

K RECOMMENDED OBJECTIVES AND NEXT STEPS FOR A DEMONSTRATION PROJECT

The Team recommends the following objectives for a demonstration project to respond to HIV and infant feeding issues:

- identify feasible, safe, and affordable alternative feeding practices that could be recommended for HIV-infected Zambian women who choose not to breastfeed (through formative research and a working group with Zambian experts),
- assess the comprehensiveness and quality of the current package of antenatal and postpartum services in Zambia and determine a recommended package of services for pilot/demonstration ANC clinics,
- introduce HIV voluntary (comprehensive) counseling and testing (including counseling on infant feeding, family planning, care, etc.) into ANC services in pilot/demonstration clinics,
- introduce postpartum clinical and community group infant feeding support for mothers in proposed pilot/demonstration clinics,
- provide referrals for HIV-infected mothers (identified through MCH centers) to appropriate community support networks/systems, and
- determine and document the impact of voluntary HIV counseling and testing (which includes counseling on infant feeding) on mothers' infant feeding behaviors and the health outcomes of their infants.



The design and implementation of this project would be done in concert with Zambian colleagues, HORIZONS and, as appropriate, USAID cooperating agencies and private voluntary agencies including those working with ZIHP

The Team recommends the following next steps to move the demonstration project forward expeditiously

- 1) Attend a second planning mission to Zambia in September 1998
- 2) Provide technical assistance to the NFNC to identify feasible, safe, and affordable age-specific infant feeding methods for HIV-infected women who choose not to breastfeed their infants UNICEF has expressed a willingness to fund rapid formative research and subsequent analysis and planning meetings
- 3) Design a workshop with Zambian and international partners to achieve consensus and generate support for the proposed breastfeeding/HIV transmission prevention demonstration project The workshop would focus on developing consensus on a site selection process (including assessing site clinics and community-based groups), agreeing on major research questions, determining a complete package of essential components of VCT in ANC (including counseling on infant feeding), and refining the roles of agency partners and donors
- 4) Provide continued refinement and final review of a draft policy
- 5) Assess the clinical and counseling skills, management, and logistics capacity at the ANC level to offer VCT, determine additional requirements (e.g., skills training, record keeping, laboratory facilities, supplies and equipment), assess community-based service capacity to provide counseling and support in conjunction with ANC and postpartum services
- 6) Develop a detailed plan with proposed demonstration site ANC staff and community-based services to meet resource requirements, prepare for, produce materials for, and conduct skills training, set up coordination between ANC and community services and resources, establish a process for rapid feedback and review,
- 7) Conduct further assessment and development of a supportive media and advocacy strategy

L OTHER ISSUES

The Team identified additional issues which LINKAGES technical assistance might be offered to address in the future in Zambia



- Assessment of current infant feeding patterns among young *Zambian* orphans and recommendations for optimal feeding/nutritional support for this population, and
- Review of reproductive health curricula for all levels of health workers with respect to HIV/AIDS (especially MTCT and infant feeding) and recommendations for indicated changes in these curricula

SCOPE OF WORK

Zambia Assessment Team for BF/HIV Transmission Initiative

I. GENERAL OBJECTIVES

LINKAGES proposes that a team of research, policy, program and research specialists on HIV and breastfeeding prepare for and conduct a 15 day needs and resource assessment visit (considering 6-day work weeks) to Zambia, tentatively scheduled during the last half of July 1998. The team would conduct the following in concert with Zambian health officials and USAID:

A. Compile an overall framework of the approach Zambia is taking to prevent HIV transmission through breastfeeding

- 1 Identify policy, research, service/product delivery, community and advocacy/communication activities in the public and private sector that influence or shed light on breastfeeding and infant feeding counseling and outreach, HIV testing, counseling and treatments in general and specifically in the antenatal care setting, private sector infant formula and feeding products and marketing,
- 2 Identify gaps in the approach that need to be filled in,
- 3 Begin to identify local and international technical, human and financial resources to help fill in those gaps

B. Assess current activities and identify needed resources to more effectively research, design and implement two key interventions identified in the "Zambia National Policy on Breastfeeding and HIV Transmission from Mother to Child"

- 1 A media advocacy strategy where key HIV and breastfeeding advocacy groups engage each other and the media to sustain the social norm of breastfeeding in the wake of high HIV prevalence,
- 2 An operations research activity that tests the impact in the antenatal care setting of HIV testing and counseling on pregnant women, and the impact testing and counseling has on seropositive women's subsequent infant feeding practices

C. Begin to develop strategies and workplans for each of the two interventions and prioritized gaps in the framework, to include

- 1 Goals and objectives
- 2 Activities, key responsible local consultants and/or institutions, technical assistance needs
- 3 Time table and budget

- 4 Follow-up action to be taken over the next 3-6 months to finish strategy development and begin implementation

II. ACTIVITIES

A. The Assessment Team

LINKAGES' team will be composed of a policy and research specialist (team co-leader), a breastfeeding and infant feeding policy and program specialist (team co-leader) and an HIV counseling and media/advocacy specialist. Each member will have worked in Zambia on related programs, and can bring a broader international perspective for consideration when identifying and assessing Zambian resources and developing strategies.

Due to the importance of this initiative and its implications on a regional and worldwide level, LINKAGES' Project Director, with assistance from key LINKAGES staff and advisors, will oversee this activity.

B. Team Scope of Work

The LINKAGES team will individually and as a team prepare for the assessment by reviewing relevant technical, programmatic and Zambia-specific documents, interviewing program and technical specialists, as appropriate and available, who work on HIV prevention, testing and counseling, breastfeeding and infant feeding, and media and advocacy in Zambia, and meet with LINKAGES staff. LINKAGES will have already set up and confirmed key meetings in Zambia for the team.

In country, the team will brief USAID and Zambia's CBOH and NFNC at the onset and at the end of its visit, and involve personnel from these agencies as available during the team visit. The team will discuss its purpose and seek additional guidance and information to undertake its objectives.

When possible and practical, team members individually and in groups will meet with community, national and international groups to review on-going relevant programs, resources, strengths and challenges, observe clinic-based and community-based activities such as counseling and mothers' support group services, interview service providers as well as clients, either individually or in groups, review additional research, policy, media and other such documents and materials made available in Zambia.

C. Team Member General Scopes of Work (specific tasks will be described in subsequent consultant commitment letters/employee task assignments.)

In addition to the team scope of work, individual members will achieve the following:

1 Policy and Research Specialist (co-team leader)

--to represent the team as needed at all relevant GOZ, USAID and international donor meetings when in-country,

- to synthesize and finalize an assessment document that includes input from other team members,
- to compile the overall framework of the approach Zambia is taking to prevent HIV transmission through breastfeeding,
- to coordinate and supervise team member assignments and interaction together,
- to work with team members to assess and begin to develop formative and operational research strategies on HIV testing/counseling of pregnant women in antenatal care settings and their subsequent infant feeding behaviors, and to begin to develop strategies and workplans, to include
 - a Goals and objectives
 - b Formative research and program activities, key responsible local consultants and/or institutions, technical assistance needs
 - c Time table and budget
 - d. Follow-up action to be taken over the next 3-6 months to finish strategy development and begin implementation

2 Breastfeeding and Infant Feeding Policy and Program Specialist (co-team leader)

- to represent the team as needed at all relevant GOZ, USAID and international donor meetings when in-country,
- to assess how breastfeeding counseling and infant feeding follow-up and care for seropositive pregnant women is conducted in Zambia, and to make recommendations to maintain or strengthen it,
- to work with the HIV Counseling and Advocacy Specialist to identify and assess the credibility and capacity of local breastfeeding advocacy groups and the mass media to work together with HIV/AIDS advocacy groups in a media advocacy program to promote breastfeeding nationally
- to assess the efficacy and effectiveness of the role of mothers' support groups on breastfeeding and infant feeding behavior of lactating women, and make recommendations to maintain or strengthen it,
- to continue to work with GOZ officials to synthesize related policies and guidelines on breastfeeding, alternative infant feeding and HIV transmission
- to continue to work with the CBOH to develop a training strategy for PHP and CHP cadre,
- to conduct a review of the policy framework with Zambia policy makers, taking into consideration what came out of World Health Assembly and the new UNAIDS guidelines
- to meet with PCI regarding the breastfeeding counseling component of their HIV curriculum.

3 HIV Counseling and Advocacy Specialist:

- to assess how HIV testing, counseling, follow-up and care for seropositive people is conducted in Zambia, especially to pregnant and lactating women, and specific to antenatal care settings,
- to identify and assess the credibility and capacity of local HIV/AIDS advocacy groups and the mass media to work together with breastfeeding advocacy groups in a media advocacy program to promote breastfeeding nationally, and to begin to develop strategies and workplans, to include
 - a Goals and objectives
 - b Formative research and program activities, key responsible local consultants and/or

institutions, technical assistance needs

c Time table and budget

d Follow-up action to be taken over the next 3-6 months to finish strategy development and begin implementation

D. Team Members

1 *Operations Research and Policy Specialist (Team Leader)* Elizabeth Preble, consultant Ms Preble has 25 years of policy and program design, planning and research experience in national and international social sector development, including health, family planning and HIV/AIDS. From 1993-97, Ms Preble directed the technical support division of USAID's AIDS Control and Prevention Project (AIDSCAP). Her responsibilities included overseeing the planning, organization, implementation and evaluation of technical activities worldwide, in this capacity, she has led evaluation and needs assessment missions. Prior to her USAID work, Ms Preble spent 12 years with UNICEF developing and managing international health policy and program area. Ms Preble developed, coordinated and managed the first UNICEF policy and program for the prevention and control of AIDS in women and children. Ms Preble is also a prolific writer of articles and papers in the area of pediatric HIV/AIDS and the impact of AIDS on African women and children.

2 *Breastfeeding and Infant Feeding Policy and Program Specialist* Nomajoni Ntombela, LINKAGES Training Advisor. Ms Ntombela brings 30 years of experience working in Africa and internationally in the field of breastfeeding, complementary feeding, maternal nutrition and LAM. Ms Ntombela was co-team leader of LINKAGES' assessment trip to Zambia in 1997 and continues to be LINKAGES' primary contact for Zambian activities. Since 1992, Ms Ntombela has been the regional coordinator of the International Baby Food Action Network in Africa. She is chairperson of its coordinating council and was a founding member of Swaziland's Infant Nutrition Action Network. A nurse-midwife and Advanced Fellow in Lactation Management, Ms Ntombela has been a Wellstart Associate since 1987. She is a Master Trainer and Master Assessor for the UNICEF/WHO Baby Friendly Hospital Initiative and has conducted numerous training courses on LAM and breastfeeding for health and policy-level staff throughout Africa.

3 *HIV Counseling and Advocacy Specialist* Dace Stone, consultant. Ms Stone is a mental health counselor and program consultant for sexual health promotion programs, including HIV testing, counseling and care, in the United States and internationally. Ms Stone was Africa Regional Coordinator for USAID's AIDSCOM project (1988-93). Her work included conducting needs assessments, developing AIDS prevention media and advocacy campaigns, and training health workers in community, workplace and one-on-one counseling in 14 countries, including Zambia. Presently, she is a therapist for people affected by and living with AIDS and is President of the Board of the Washington, DC Whitman-Walker Clinic (a nationally renowned AIDS Service Organization).

III. TIMELINE AND PRODUCTS

Preparation meetings for the trip will occur during the July 15-17 time period in Washington, DC. The in-country assessment visit will tentatively take place during the time period July 20 - August

5, 1998 A report of the assessment, to include activities, observations, contacts and initial framework, strategies and workplans, will be submitted to LINKAGES by August 31, 1998

IV. BUDGET

The following budget estimate includes LINKAGES staff and assessment team time for preparation, implementation and report-writing, travel, per diem and in-country costs, other activity-associated costs (to be based on the following

Preparation 5 days per consultant

Travel days 3 days per consultant

In-country days up to 15 days per consultant

Follow-up/de-briefing/reporting up to 5 days per consultant).

ANNEX B

LIST OF PERSONS MET

National Food and Nutrition Commission

Pricilla Likwasi, Act Exec Director
 Dilly Mwale, Principal Nutrition Officer
 Catherine Mulikita, Nutritionist
 Ruth Siyandi, Nutritionist
 Chongo Kaite, Statistician
 Rader Mugode, Nutritionist
 Mwate Chintu, National Breastfeeding Programme Coordinator

Project Concern International

Robie Siamwiza, Technical Advisor, Policy
 Masauso Nzima, Deputy Country Director
 Karen Romano, Sr Technical Advisor
 Brenda Muhyila, Program Assistant
 Sitwala Mungunda, Project Officer
 Eustina Mulenga-Besa, Acting Head Communication Officer

Central Board of Health

Dr Moses Sichone, Public Health & Clinical Systems Manager

University Teaching Hospital

Prof G J Bhat, Consultant Paediatrician
 Dr S M Phiri, Consultant Paediatrician
 Dr Chewe Luo, Consultant Paediatrician
 Dr G M Shakankale, Lect & Consultant, Paed And Dev
 Dr Velep Mtonga, Dept of Obs And Gyn
 Dr G C B Nga'ndwe, Dept of Obs And Gyn
 Dr M Katepa-Bwalya, Dept of Paediatrics
 Dr N Mugala, Dept of Paediatrics
 Maureen Chilila, Principal Tutor - Wellstart Assn
 Maureen Mzumara, Nursing Officer
 Jennifer Munsaka, Asst Nursing Officer
 Rebecca Kalwani, Reproductive & Child Health
 Margaret Mbelenga, Nursing Officer

Chilenge Health Centre

Sister in charge of antenatal, nutritionist, nurses
 Dr Liya Mutale, Superintendent
 Dr Mukendi Kazadi, Superintendent
 Dr Isabelle Mulumba, Superintendent

Kara Counseling Center

Dr Sonya Weinreich, Medical Officer

UNICEF

Peter McDermott, UNICEF Representative
 Marashetty Seenappa, Programme Officer
 Dr Zephania Mkumbwa, Project Officer, Health Section Head

Churches Medical Association of Zambia

Dr Godfrey Biemba, General Secretary
 Dr Simon Mphuka, Health Programmes Manager

Zambia Family Planning Services Project

Mary Segall, Training Advisor
 Alex M Katambala, Programme Officer

Ndola District Health Management Team

Dr Ernest Muyunda, Director
 Kunda Melody, Matron
 Dr Tito Fatchi
 Lynette Maambo
 Josephine Simanhwa, Nutritionist
 Romah Maambo, STD/HIV/AIDS Coordinator

USAID

Paul Zeitz

Horizons Project

Sam Kalibala

Family Health Trust

Ms E N Mataka, Executive Director

Network of Zambian People Living with HIV/AIDS

Clement Mufuzi, Chairman
David Chipanta, Executive Director
Chris Mumba, Member/Reporter
Doreen Cimama, Member
Simamuna Kenny, National Coordinator
Morden Mayembe

Zambia Information Services

Mr Mwafe Muluban, Reporter

Chainama College Hospital

Dr John Omara, Member of IEC sub-committee
Prof Haworth

Society for Family Health

Ms Mpunda Mwanza, Convener of Zambian Institute of Mass Communication

ANNEX C

INFORMATION REQUIRED FOR HIV/INFANT FEEDING ASSESSMENT

INFORMATION/DATA	SOURCE
HIV situation in country (esp related to antenatal women)	Govt.
Status of antenatal services (resources, ave # visits/woman, level of staff training in HIV, range of services offered, etc)	Observations and interviews, MOH
Availability, cost, and quality of VC&T services (general, and in antenatal settings)	Observations, Interviews, Govt. data
Demand for and acceptability of VC&T by pregnant woman	Research findings if available
Current infant feeding patterns (including breastfeeding, alternative, and complementary feeding) for women of HIV+, HIV-, and indeterminate HIV status	DHS, other data if available
Prevailing attitudes and beliefs about HIV and infant feeding by pregnant women and health workers	Any available data, focus group findings
Plans for introduction of AZT in antenatal settings (# sites and women planned, potential impact nationwide, implications for LINKAGES work, etc)	UNICEF, govt.
Inventory of other related research (planned, underway, or completed)	Various sources
Recommendations to LINKAGES re next steps in area of HIV and Infant feeding and media strategy	Synthesis of Team findings
Current media approach to HIV/infant feeding issues	Various sources

**ANALYSIS OF INTERVENTIONS WHICH HAVE BEEN SUGGESTED
TO PREVENT MTCT IN ANTENATAL CLINIC SETTINGS**

INTERVENTION	POTENTIAL IMPACT	COMMENTS ON POTENTIAL IMPACT	RISKS INHERENT IN INTERVENTION ITSELF	COST
Counseling on, and practice of appropriate infant feeding (related to HIV test result)	Unknown	Impact of avoiding breastfeeding (among HIV+ mothers) is likely to be high if mothers can afford and practice appropriate alternative feeding. If not, the advantages of avoiding breastfeeding may be negated by high morbidity and mortality which can result from unsafe feeding practices.	Depends on the feeding alternative chosen	Unknown
AZT (short-course Thai regimen)*	Theoretical high Actual low	Impact very high if/where AZT is affordable, however few HIV+ pregnant women will be able to afford this therapy. Poor potential for replicability given cost and other considerations.	Side effects of AZT itself may be low, but regimen requires avoidance of breastfeeding which carries its own risks.	High**
Instituting selected obstetrical practices				
a) C-Section	Low	a) While there is increasing evidence of the efficacy of C-Section to prevent MTCT in industrialized country settings, C-Section is unsafe and contraindicated in most resource-constrained settings.	Very high in most resource-poor settings	High
b) Avoidance of selected obstetrical practices such as artificial rupture of membranes, routine episiotomy and forceps delivery	Low med	b) Although theoretically effective, will only contribute to prevention of MTCT in women who would transmit intrapartum (as opposed to in utero or postpartum).	Low	Low
c) Vaginal antiseptics	Probably low	c) No evidence yet of effectiveness in reducing MTCT.	Probably low	Probably low
d) Applying universal infection control procedures during delivery	Theoretical Low Actual medium	d) Infection control procedures are essential, however, since relatively few newborns are thought to be infected nosocomially during delivery, this is likely to have little effect in reducing MTCT.	None	Probably low Probably low

* In this context, this intervention refers to provision of short course AZT (Thai regimen) for prevention of perinatal transmission (in contrast to long-term AZT for treatment of adult HIV/AIDS)

** Estimated by the Population Council at US\$250/client in Kenya

INTERVENTION	POTENTIAL IMPACT	COMMENTS ON POTENTIAL IMPACT	RISKS INHERENT IN INTERVENTION ITSELF	COST
Voluntary HIV Counsel & Testing	Unknown	Where introduced and delivered effectively, may prevent some new infections in pregnant women by reducing high risk sexual behavior during pregnancy. However, VCT is unlikely to reduce MTCT significantly by itself—rather, it is a prerequisite for being able to screen preg women for short-course AZT, to offer appropriate advice on infant feeding, and to discuss future family planning	Could be high for some HIV+ women*	High**
HIV/AIDS education	Low	Impact will likely be marginal on this particular pregnancy, because will such education will only reduce MTCT in women who are HIV- at the time of their first antenatal visit and would, without such education, become HIV+ during pregnancy***. However, if such education led to sustained safe sexual behavior, it could theoretically reduce the risk of MTCT for subsequent pregnancies	Probably none	Varies
Promotion of FP	Low	FP counseling is usually offered postpartum, rather than antenatal. FP promotion could theoretically reduce future MTCT by limiting numbers of births altogether, but no impact on MTCT in this pregnancy	None-low	Varies
Abortion counseling and provision of safe abortion services	Theoretical high Actual low	Theoretically high, if HIV+ women appeared for antenatal care early in preg, were counseled on availability of safe abortion and opted for this alternative. However, it is highly unlikely that this intervention would be widely politically acceptable	High where abortion is illegal and /or unsafe	High
Screening and treatment for STDs	Low	While treatment of STDs can help prevent primary infection in pregnant women, it is unlikely to help prevent MTCT (except perhaps by preventing oral candidiasis in the infant)	Probably none	High
Treatment of intestinal helminths	None	Beneficial for the mother, but no proven effect on MTCT	Probably none	?
Vitamin/Mineral supplements	None proven	Beneficial for the mother, but no proven effect on MTCT	Probably none	Low
Malaria prophylaxis	None proven	Beneficial for the mother, but no proven effect on MTCT	Probably none	?

* The VCT study supported by AIDSCAP in Kenya and Tanzania revealed serious consequences for some HIV+ women in discordant couples who shared their HIV status with their partners (violence, abandonment, etc)

** Estimated to be between US\$6 and US\$25/client in Zambian sites and US\$27/client in Kenya and Tanzanian research sites

*** However, the risk of MTCT is especially high from women who become HIV-infected during pregnancy

ESTIMATED COST OF BREASTMILK SUBSTITUTES IN ZAMBIA
(based on informal survey of selected supermarkets)

Commercial Breastmilk Substitutes

Brand Name	Size/Weight	Cost per Unit*	Cost for months 0-3**	Costs for months 4-6***	Total costs for months 0-6
Lactogen	500 grams (1/2 kilo)	K5,400 \$2 84	K64,800 \$34 10	K81,000 \$42 63	K145,800 \$76 73
Nan	500 grams (1/2 kilo)	K5,000 \$2 63	K60,000 \$31 58	K75,000 \$39 47	K135,000 \$71 05
SMA	500 grams (1/2 kilo)	K6,800 \$3 58	K81,600 \$42 95	K102,000 \$53 68	K183,600 \$96 63
S26	500 grams (1/2 kilo)	K7,000 \$3 68	K84,000 \$44 21	K105,000 \$55 26	K189,000 \$99 47
Pelagon	250 grams (1/4)	K3,500 \$1 84	K84,000 \$44 21	K105,000 \$55 26	K189,000 \$99 47
Infasoy	500 grams (1/2 kilo)	K7,900 \$4 16	K94,800 \$49 89	K118,500 \$62 37	K213,300 \$112 26
Cowbell (local)	500 grams (1/2 kilo)	K7,900 \$4 16	K94,800 \$49 89	K118,500 \$62 37	K213,300 \$112 26

* US\$ = 1,900 Zambian Kwacha

** calculated on basis of a requirement of 2 kg per month for infants aged 0-3 months

*** calculated on basis of a requirement of 2.5 kg per month for infants aged 4-6 months

Liquid milk

Brand name	Size/Weight	Cost per Unit*	Total costs for months 0-6****
Full Cream	1 litre	K1,300 \$ 68	K175,500 \$92 37
2% strength	1 litre	K900 \$ 47	K121,500 \$63 95
Long Life	1 litre	K1800 \$ 95	K243,000 \$127 89

**** calculated on basis of a requirement of 135 litres for total first six months of life

Cereals

Type	Weight	Cost per Unit*
Maize meal	25 kg.	K1,500 \$ 79
	12 5 kg.	K900 \$ 47
Full fat soya	500 grams	K1,200 \$ 63
Cerelac	250 grams	K3,500 \$1 84
Vitaso Baby Porridge	300 grams	K1,600 \$ 84

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ESTIMATES OF NUMBERS OF HIV-INFECTED MOTHERS AND INFANTS IN ZAMBIA PER YEAR

	(a) No of deliveries/ yr *	(b) Seroprev rate in wo 15-44**	(c) No HIV+ mothers delivering/yr (a x b)	(d) No HIV+ babies born/yr *** (c x 25)	(e) No babies infected in- utero/yr **** (d x 33)	(f) No babies infected intra- partum/yr (d x .33)	(g) No babies infected post- partum/yr (d x 33)
URBAN	160,000	27.9%	44,640	11,160	3,719	3,719	3,719
RURAL	240,000	14.8%	35,520	8,880	2,933	2,933	2,933
TOTAL	400,000	19.9%	80,160	20,040	6,680	6,680	6,680

* Source UTH. Population breakdown 40% urban, 60% rural

** Source Central Board of Health, Ministry of Health HIV/AIDS in Zambia, Dec , 1997

*** Based on assumption of ave mother to child transmission rate of 25%

****Based on UNAIDS rough est of 33% of mother-to-child transmission occurring in utero, 33% intrapartum, and 33% postpartum

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ILLUSTRATIVE LIST OF QUESTIONS FOR RAPID ASSESSMENT DISCUSSION GROUPS - LUSAKA AND NDOLA

GROUP I: HIV+ WOMEN

Objectives to gather information about

- Perceptions of HIV/BF risk and sources of that information
- Patterns of infant feeding (including BF, complementary feeding, alternative feeding, and wet nursing)
- Stigma associated with not breastfeeding
- What the HIV community support systems (and health workers) are telling mothers about HIV and BF
- Attitudes toward offering option of abortion
- Type of pre- and post- that counseling was offered (if any) together with the testing
- Consequences (if any) to informing their partner of their HIV+ status
- Patterns of antenatal care

Questions

- What do you know about the HIV/BF relationship and where did you get that information?
- How did you feed (are you feeding) your baby, and how did you decide on that method?
- If you did not breastfeed, would you experience particular harassment from your relatives, friends, neighbors?
- What kind of counseling did you get (if any) before or after your HIV test?
- Who have you told your HIV status and how did they react?
- When you had your last child, did you come for antenatal care, how many visits, and why?
- If/when you did receive antenatal care, were you given supplementary iron tablets during the visit? Why were you told to take them?

GROUP 2: MOTHER'S SUPPORT GROUP

Objectives to gather information about

- Perceptions of HIV/BF risk and sources of that information
- Patterns of infant feeding (including BF, complementary feeding, alternative feeding, and wet nursing maternal nutrition, etc)

- Possible stigma associated with not breastfeeding
- What health workers are telling mothers about HIV/BF
- Attitudes toward VC&T (is there a demand for it?)
- Patterns of antenatal care

Questions

- What do you know about the HIV/BF relationship and where did you get that information? What did your trainers teach you about HIV and breastfeeding?
- How did you feed (are you feeding) your baby, and how did you decide on that method? If women know they are HIV+, will these feeding patterns change? If so, how?
- How do most of your clients feed their babies and how did they come to that decision?
- Do mothers who do not breastfeed, would you experience particular harassment from your relatives, friends, neighbors?
- Do you think women in your community are interested in learning their HIV status?
- When you had your last child, did you come for antenatal care, how many visits, and why?
- If/when you did receive antenatal care, were you given supplementary iron tablets during the visit? Why were you told to take them?