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**MADAGASCAR HOUSEHOLD CHILD HEALTH
AND NUTRITION SURVEY**

**MADAGASCAR MINISTRY OF HEALTH AND POPULATION
DIVISION OF PREVENTIVE MEDICINE
USAID/BASICS**

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Despite the help and support of so many, errors and omissions may remain. These are the responsibility of the authors alone and we (again) beg your patience.

ACRONYMS

APPROPOP	Appui au Programme de Population (USAID bilateral family planning project)
BASICS	Basic Support for Institutionalizing Child Survival Project
DHS	Demographic and Health Survey
EPI	Expanded Programme on Immunization
IEC	information, education, and communication
MOHP	Ministry of Health and Population
NCHS	National Center for Health Statistics
ORS	oral rehydration solution
PVO	private voluntary agency
RHF	recommended home fluids
TT	tetanus toxoid vaccination
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization

EXECUTIVE SUMMARY

A household child health and nutrition survey was conducted by the BASICS project and the Division of Preventive Medicine of the Madagascar Ministry of Health and Population (MOHP) in two districts, Antsirabe II and Fianarantsoa II. These districts will be the site of future BASICS-supported interventions designed to improve the health status of the children living in the district. Ultimately it is hoped that the experiences gained in these two districts will provide the MOHP with models for improving child survival in other districts as well.

The survey was conducted in October 1996. A representative sample of 720 mothers of children aged 0-23 months were interviewed in each district. A stratified cluster sampling methodology was employed. The samples are statistically representative of the populations in each district and, with appropriate weighting of results based upon their total populations, provide estimates of indicators of health and nutritional status that are representative of the total population of the two districts. The survey results are not representative of the population of Madagascar as a whole.

Data were analyzed by BASICS/Madagascar staff in collaboration with several outside consultants during the month of November 1996. The preliminary analysis was conducted in Madagascar and discussed with BASICS personnel as well as the health planning teams from the two districts. Subsequent analysis was carried out by the consultants in the United States (Rollins School of Public Health, Emory University). Final report preparation incorporated feedback generated through this process and took place in the United States. The final report was submitted to BASICS/Washington and Madagascar in January 1997.

Major findings of the study include the following:

- **Despite reasonably high levels of coverage for prenatal services, the MOHP must improve the delivery of its defined package of services to the women attending prenatal consultations in the target districts.**

The women in the two districts demonstrate high levels of participation in prenatal services organized by the MOHP. This is documented by the survey through vaccination card verification and women's reported attendance at those clinics. The survey results suggest, however, difficulties and/or inconsistencies in the ability of the health facilities to deliver the defined package of services to all women during those sessions. Rates of vaccination coverage with tetanus toxoid, distribution of nivaquine, distribution of iron-folate tablets, etc., are all well below the reported levels of attendance.

The MOHP must study the current situation in order to better understand the reasons for these low levels of service delivery. In several cases it would appear that the problem rests with a central ministry which declares certain services to be part of a "national package of services" but does not allocate the resources necessary for local facilities to afford the delivery of those services. In other cases, low-cost changes in the organization of the delivery of services could

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prove effective in raising coverage rates (e.g., make tetanus toxoid antigen available to women at the time of pre-natal consultations rather than scheduling a follow-up visit on another day). Based upon the study of obstacles to service delivery, the health facilities in the two districts should undertake a program of operations research that would allow them to demonstrate the actions and costs required to improve rates of coverage for these important services. The results of this research would be important for the MOHP in order to better estimate the resources necessary to deliver basic services.

It is clear that the major problem with respect to these services is the ability of the MOHP to deliver them consistently and correctly. This issue should be addressed before any efforts intended to improve levels of participation or access to current services.

- **Levels of infant and young child malnutrition (particularly chronic malnutrition as represented by height/age) are very high in both of the districts included in the study. Infant feeding and breastfeeding practices appear to contribute to the high rates of malnutrition estimated by the survey.**

This survey was not designed to provide detailed information on child nutrition intake or patterns. It has provided documentation of very high levels of malnutrition (especially chronic and underweight) among infants and young children in the target districts. The information collected concerning breastfeeding patterns and duration suggests that current practices may be major factors contributing to these high rates. BASICS and the MOHP should develop a maternal IEC strategy to address these problems immediately. Additional information is needed concerning the actual dietary intakes of children and infants. This information should be incorporated into any IEC strategy aimed at nutrition issues.

- **Vaccination coverage levels in the two districts for both mothers and children do not meet MOHP targets and are not sufficiently high to eliminate morbidity and mortality caused by the target diseases (maternal and neonatal tetanus, measles, pertussis, polio, tuberculosis, diphtheria).**

BASICS and the MOHP should examine the delivery of vaccination services in the two target districts in detail in order to identify the existing obstacles to improved coverage. These may include resources, logistics and organizational issues. A plan of action should be developed to address those obstacles. An important component of that plan should be the improvement and strengthening of information system elements required to improve management of the EPI program. There is currently a significant gap between the results reported by the existing routine management information system and the survey results. This must be resolved in order to allow for better management and tracking of results. Vaccinations are clearly among the most cost effective and efficacious of child survival interventions. The vaccination of all children should be an integral part of all service delivery activities (preventive and curative) taking place at facilities in the two districts.

- **Maternal knowledge of the danger signs for common childhood diseases (diarrhea, acute respiratory infection, measles), prevention measures, and home-based treatments is low.**

The survey clearly indicates low levels of maternal knowledge concerning the prevention and treatment (both home- and health facility-based) of common childhood diseases such as ARI, diarrhea and fever. The mothers do not know the danger signs associated with these illnesses that should signal the need to seek treatment outside of the home. The potential effect of this lack of knowledge on the severity of morbidity and mortality associated with these diseases is obvious. The BASICS project should develop and implement an IEC strategy designed to improve maternal knowledge in this area.

- **There appears to be a large unmet demand for modern contraceptives and family planning services among mothers of infants and young children in the two districts.**

The BASICS project should collaborate with donors and MOHP to improve the availability, organization and delivery of family planning services. The survey suggests that there may be a significant demand for those services and products among the many women who indicated that they do not wish to have another child within the next two years. Family planning services are an important component of a primary maternal and child health package. The health planning teams of both districts should encourage the appropriate organizations and institutions to support the organization and delivery of these services. The planning teams should ensure that BASICS and others work closely with those organizations to ensure that all services are integrated into a single management and delivery framework. This is necessary in order to avoid the duplication of efforts often associated with vertical, parallel delivery mechanisms.

I. INTRODUCTION

The BASICS project in Madagascar has chosen two districts in which to concentrate its efforts to develop methods and tools to improve child survival. It is hoped that the experiences in these districts will provide demonstrable effects on infant and child mortality and in doing so provide the Ministry of Health and Population (MOHP) with a model that could be replicated in other districts in the future. In its efforts to strengthen health services capable of improving infant and child health, the BASICS project is collaborating with a number of other key partners in Madagascar. These include the World Bank, UNICEF, APPROPOP, PVOs, the US Peace Corps and others. Hopefully this collaboration will result in the development of a standard package of basic health services and interventions capable of reducing infant and child morbidity and mortality throughout Madagascar.

The two districts identified by the BASICS project as their primary intervention sites are those of Antsirabe II (1993 census population: 261,015) and Fianarantsoa II (1993 census population: 319,016). A survey of health facilities and the type and quality of service delivered in those facilities was carried out by the BASICS project in June 1996 (see Murray and Manoncourt, June 1996). The BASICS Household Child Health and Nutrition Survey described in this report was designed to complement the facility survey by providing key information about the population of the two districts that would assist BASICS to identify, plan, implement and ultimately evaluate the impact of interventions designed to improve child survival.

The survey was carried out in the field in October 1996 and data entry, cleaning and primary analysis conducted during the month of November 1996. Preliminary indicators calculated from the survey data were presented to district planning teams in late November 1996 for use in developing a three year child survival plan for each district. It is intended that the survey will also constitute baseline data for use by BASICS, the MOHP and the two target districts in evaluating the impact of those interventions.

II. OBJECTIVES

The objectives of the BASICS/Madagascar Household Child Health and Nutrition Survey may be summarized as follows:

- to assess current levels of knowledge and practices regarding the key causes of infant and child morbidity and mortality (diarrhea, malaria, malnutrition, acute respiratory infection, childhood immunizable diseases, etc.) among the mothers of children aged 0-23 months in the two target districts.
- to provide data and information required to plan, implement and manage interventions in the two target districts aimed at reducing infant and child morbidity and mortality.

- to provide baseline data to allow for the measurement of changes in trends in key child survival indicators as well as levels of maternal knowledge and practices related to child health and nutrition.

It is important to note that the survey will not provide the means to evaluate the effect of individual interventions, or even the package of interventions, on morbidity and mortality in the chosen districts. The survey, however, will allow the project and the MOHP to assess changes over time in key indicators.

III. METHODOLOGY

A single survey instrument was developed to collect data from mothers of young children (ages 0-23 months) currently residing in the two districts chosen by the BASICS project (Antsirabe II and Fianarantsoa II) on

- mother's utilization of prenatal services
- pregnancy and delivery history and practices
- current family planning practices
- vaccination status of child and mother
- breast feeding and infant nutrition practices
- recent morbidity and health services utilization
- anthropometric measures (height and weight)
- nutrition and health promotion knowledge and practices

The survey instrument was developed in English and translated into Malagasy, the national language spoken by all mothers living in the two districts. A copy of the questionnaire is attached (Appendix A). Twenty-four interviewers were trained to administer the questionnaire and formed into twelve teams. Six interview teams were assigned to each of the two districts included in the survey, Antsirabe II and Fianarantsoa II. Interviews in the field were conducted over a two-week period in October 1996.

A stratified, cluster sampling strategy was chosen for use in the survey. The sampling strategy was developed in order to be representative of the populations in each of the two districts. In each district, thirty clusters were chosen using villages and cumulative population lists obtained from the 1993 national census. In each cluster, a total of 12 mothers of children aged 0-11 months old and 12 mothers of children aged 12-23 months old were interviewed, for a total of 720 interviews in each district.

It is important to note that the stratified sampling technique utilized in the survey was chosen to give results within the desired confidence range at the district level. This allows the results of each district to be reported directly and compared against each other, but does not allow for the simple averaging of results in order to produce estimates representative of the entire BASICS

target population of the two districts. In order to produce estimates of key indicators for the population of both districts (Antsirabe II 319,016 and Fianarantsoa II 261,015), it is necessary to weight the district level results based upon their relative contribution to the total population of the two districts. All results and tables which include a population total estimate have therefore been weighted.

Data were entered using Epi-Info (version 6.04) software at the BASICS project office in Madagascar. Statistical analysis was carried out using Epi-Info (version 6.04) software at the BASICS project office in November 1996, with the assistance of two consultants (Setzer, Wilder) from the Rollins School of Public health at Emory University, Atlanta, Georgia. Analysis of vaccination coverage was carried out using COSAS (version 4.53) software. Analysis was performed using Toshiba laptop microcomputers. The final report was submitted to BASICS/Washington and Madagascar in January 1997.

IV. RESULTS AND DISCUSSION

The survey results provide important insight into the causes of infant and child morbidity and mortality in the two districts. The survey also documents the knowledge, attitudes and practices of the mothers of infants and young children in areas related to the principal causes of infant and child mortality. Examination of these results will provide BASICS and the MOHP with information necessary to target interventions to be implemented in the two districts.

The results presented in the following sections have been selected and grouped in order to highlight the most important findings of the survey. A discussion of the relevance of the results presented to the planning of infant and child health services is included. They do not represent nor portray the results of analysis of all of the data collected. A more complete presentation of the results of the analysis is found in Appendix B. The tables there are presented without commentary and are intended to complement the results presented and discussed below.

A. Description of the Population

There were no significant differences observed between the populations surveyed in the two districts with respect to either age or gender of the infants and children. The survey instrument did not include questions pertaining to the age of the mother. A certain level of "age lumping" around 6, 12 and 18 months of age is evident in the raw data (not grouped) despite efforts by interviewers to verify the birth date of all children. The overall distribution among age groups is even and there were no significant differences found. The overall gender distribution indicates that 51.1 percent of the infants and children were males and 48.9 percent females. The two districts did not differ significantly with regard to the gender distribution of the infants and children surveyed. Tables detailing the age and gender distribution of the population may be found in Appendix B.

The reported literacy level of the women surveyed appears to be quite high as compared to many other African contexts. Overall, 63.8 percent of the women interviewed indicated that they were able to read a newspaper with ease. There was no significant difference found between the two districts with regard to reported literacy. In addition to those reporting that they could read a newspaper with ease, an additional 17.3 percent of the respondent mothers indicated that they could read a newspaper with some difficulty. No significant difference was observed between the two districts on this variable. This would suggest that at least 80 percent of the mothers of children aged 0-23 months in the target districts are capable of reading simple texts. This information suggests that printed materials which convey information pertaining to the health and nutrition of their children could be read and understood by the mothers of infants and young children in the target districts.

B. Access To and Utilization of Prenatal Services

Prenatal services are an important component of any comprehensive package of services designed to improve child survival. These consultations provide a key opportunity to deliver important preventive services as well as identify high risk pregnancies. These services are essential to reducing infant, child and maternal mortality.

There are two major components to prenatal services delivered by the MOHP in the target districts: vaccination of pregnant women with tetanus toxoid to protect both mother and child from tetanus; and prenatal consultations designed to identify high risk pregnancies and deliver a defined set of services and interventions (iron folate tablets, nivaquine, etc.) to pregnant women attending the consultation clinics. Participation and/or access to these services varies and is potentially dependent upon a number factors (geographic, cultural, economic, etc.). The success of these services in reducing maternal and infant mortality rests on

- the ability to organize services so that a high proportion of women both have access to and utilize them; and
- the ability of the health service delivery system to consistently and correctly deliver the prescribed services to those women with whom they have contact.

It is not sufficient (and may even be counter-productive in the long run) to create demand and increase access to services if the ability of the health care system to correctly deliver high quality services at the moment of contact is in doubt. The results presented below suggest that it will be necessary to aggressively address these issues in order to improve basic health indicators. The presentation of survey results looks first at patterns of utilization of services by women in the target districts.

Table 1: Reported attendance at prenatal consultation(s) during most recent pregnancy by all mothers of children aged 0-23 months by district (Madagascar Household Survey, October 1996)

	ANTSIRABE II n=721	FIANARANTSOA II n=720	POPULATION (weighted avg)
YES	92.6% (668)	85.7% (617)	88.8%
NO	7.4% (53)	14.3% (103)	11.2%
TOTAL	100%	100%	100%

p< .05

There was a significant difference in the rates of reported attendance between the two districts. The survey also looked at the question of where the reported consultations took place.

Table 2: Site of reported attendance at prenatal consultation(s) during most recent pregnancy among mothers of children aged 0-23 months who attended any consultation by district (Madagascar Household Survey, October 1996)

	ANTSIRABE II n=668	FIANARANTSOA II n=617	POPULATION
HOSPITAL	4.0% (27)	7.3% (45)	5.8%
HEALTH CENTER	83.4% (557)	88.7% (547)	86.3%
PRIVATE CLINIC	7.6% (51)	0.6% (4)	3.7%
TBA	4.9% (33)	3.4% (21)	4.1%
OTHER	0% (0)	0% (0)	0%
TOTAL	100%	100%	100%

The survey results show that, overall, an apparently high (and encouraging) percentage of women (88% overall) reported attending prenatal visits during their most recent pregnancy. A high percentage of those reporting attending consultations indicated that they did so at an MOHP health center (86.3%). If attendance at clinics held at hospitals is included, the survey indicates that 92 percent of those women who reported attending clinics and approximately 81 percent of

all women visited a MOHP health facility for prenatal consultations at least once during their most recent pregnancy¹. This is encouraging as it suggests a high demand for and utilization of services of this type. It suggests that common barriers to access such as distance may not be of great importance within the context of the districts surveyed.

Targets for the MOHP delivery of prenatal services call for women to attend at least two consultations during each pregnancy. They also promote women making their initial visit as early in the pregnancy as possible (first trimester). Survey results indicate that, overall, 88.7 percent of those women who reported attending prenatal consultations and 78.8 percent of all women attended two or more, and that 20.7 percent attended more than three consultations. The mean gestational age reported at the time of first visit was 5.6 months. These results did not differ significantly between the two districts (Appendix D).

While these results suggest that an encouraging number of women attend MOHP prenatal consultations, it is still important to assess the quality of the services delivered at that time. Service delivery norms and guidelines which are not consistently applied have little impact on the health of the target populations.

The immunization of women against tetanus is an integral component of the MOHP defined package of prenatal services. The BASICS Child Health and Nutrition Survey estimated the coverage of tetanus immunization among the mothers of children aged 0-23 months in the target districts by asking to see proof of each woman's vaccination status as recorded on a standard MOHP vaccination card. In addition, women were queried as to whether they had been vaccinated and how many times.

Table 3: Proportion of all mothers of children aged 0-23 months with maternal vaccination card by district (Madagascar Household Survey, October 1996)

	ANTSIRABE II n=721	FIANARANTSOA II n=720	POPULATION
CARD AVAILABLE	54.2% (391)	54.7% (394)	54.5%
NO CARD	45.8% (330)	45.3% (326)	45.5%
TOTAL	100%	100%	100%

p>.05

Only slightly more than half of the women (54.5%) in the two districts surveyed were able to produce their vaccination card at the time of the survey. This is the only reliable indicator of

¹ The percentage may be even higher if curative and other visits are included.

participation in prenatal services and vaccination status. There is no significant difference between districts with respect to level of participation as measured by possession of a vaccination card. These results suggest that the district health teams should identify the barriers which currently prevent almost half of all women from utilizing prenatal vaccination services. The district teams should take action to eliminate or reduce these barriers in order to improve their ability to deliver important services and messages to pregnant women in their populations.

The survey did identify significant differences between the districts in the levels of delivery of specific services (see below) which are included in the package of prenatal services defined by the MOHP. It would appear, therefore, that the ability of the health services in each district to fully deliver the prescribed set of prenatal services to those women with whom they come in contact differs. The household survey did not attempt to collect information directly related to the availability or quality of services.

The MOHP has adopted WHO recommendations on the number and timing of tetanus toxoid vaccinations. The numbers of women who received tetanus toxoid vaccinations are shown below.

Table 4: Proportion of all mothers of children aged 0-23 months receiving tetanus toxoid vaccination (verified by health card only) by district (Madagascar Household Survey, October 1996)

	ANTSIRABE II n=721	FIANARANTSOA II n=720	POPULATION
TT DOSE 1	41.9% (302)	44.6% (321)	43.4%
TT DOSE 2	39.1% (282)	41.8% (301)	40.6%
TT DOSE 3	33.7% (243)	27.4% (197)	30.2%
TT DOSE 4	25.5% (184)	17.6% (127)	21.2%
TT DOSE 5	14.8% (107)	10.4% (75)	12.4%

Table 5: Proportion of all mothers of children aged 0-23 months receiving tetanus toxoid vaccination (verified by health card and history) by district (Madagascar Household Survey, October 1996)

	ANTSIRABE II n=721	FIANARANTSOA II n=720	POPULATION
TT DOSE 1	84.2% (607)	73.1% (526)	78.1%
TT DOSE 2	78.8% (568)	65.4% (471)	71.4%
TT DOSE 3	60.7% (438)	41.5% (299)	50.1%
TT DOSE 4	42.0% (303)	23.1% (166)	31.7%
TT DOSE 5	26.4% (190)	11.8% (85)	18.4%

Clearly, any inferences to be drawn regarding the ability of health services in the two districts to immunize and protect women and their newborns from tetanus depend upon which means of verification of vaccination status is used. The rates of doses administered (immunization and protection include an element of timing and are discussed below) vary significantly between those indicated by using only the available vaccination card and the more generous method of card plus the mother's verbal confirmation of number of doses received. It must also be remembered that doses administered should not be confused with rates of protection/immunization.

It is also important to note that a number of women in both districts reported attendance at prenatal consultations and/or had a vaccination card in their possession yet did not apparently receive even the first dose of tetanus toxoid (88% reported attendance and 54.5% with card, compared to 43.4% TT dose 1 as verified by card only)². This finding suggests that the MOHP is not consistently delivering the defined services to those women with whom it has contact. A more in-depth assessment of the barriers to effective service delivery may suggest that changes in the scheduling of services (e.g., making tetanus toxoid vaccinations available on the day of prenatal consultations rather than requiring those women identified as needing vaccination to return on a separate day to be vaccinated) may prove effective in guaranteeing that at least those women who attend prenatal consultations will be correctly protected. Such changes often offer

² While these differences represent 43 percent and 11 percent of the total population respectively, it is more telling to note that these differences represent approximately 49 percent and 22 percent of those women who reported attendance at a consultation or were able to produce a vaccination card at the time of the survey. This means that almost one half of those women attending a consultation and a quarter of those women who attended prenatal consultations and were given a vaccination card never received even a single dose of tetanus toxoid antigen.

significant opportunities to increase the coverage and effectiveness of programs at relatively low cost and should be examined in the target districts.

Of the women who attend prenatal consultations and who receive a first dose of tetanus toxoid (43.4% of all women when verified by card), not all continue to attend and receive the required two doses administered with the proper interval between doses to confer immunity to both mother and child. The dropout rates between successive doses of tetanus toxoid antigen are calculated and presented in Appendix E. The table shows that while a high percentage of those women who receive the first dose continue on and receive a second dose (only 8.7% dropout), there is significant drop-off each successive step of the way and the dropout rate between dose one and dose 5 is 77 percent.

The data were analyzed in order to assess which of the mothers received the correct number of doses of tetanus toxoid in the proper intervals and were therefore considered protected against tetanus at the time of the survey. Women who were considered protected at the time of delivery also confer protection to their infants and rates of maternal and neonatal protection were calculated.

Table 6: Proportion of all children aged 0-23 months and all mothers protected against tetanus at time of delivery by district (COSAS estimates using vaccination card only)(Madagascar Household Survey, October 1996)

	ANTSIKABE II n=720	FIANARANTSOA II n=720	POPULATION
CHILDREN AGED 0-23	34.6% (249)	32.2% (232)	33.3%*
MOTHERS OF CHILDREN 0-23	36.0% (259)	37.5% (270)	36.8%*

* difference not significant at .05 level

The COSAS standardized EPI program software used to perform this analysis allows for the estimation of the proportion of women and infants protected against tetanus at the time of delivery. There was no significant difference found between the target districts with respect to protection of either mothers or children. Verification of vaccination status is based solely upon the data collected from the mother's vaccination card. The use of cards only as a means of verification may have the effect of slightly underestimating the true rate, since women may lose their cards or the card may be incorrectly filled out. The survey data indicate that despite half of the women participating in prenatal services, only one third of women and children (36.8% and 33.3% respectively) appear to receive verifiable services required to consider them protected. This low level of protection (combined with the survey finding that only half of all most recent births were attended by qualified personnel, see results and discussion below) may be in part due to inaccurate record keeping by health personnel (vaccination card incorrectly filled out) and loss

of cards by mothers. Nonetheless, it would appear safe to assume that tetanus still is a significant cause of both maternal and infant mortality.

MOHP policy includes the distribution of iron-folate tablets to pregnant women attending prenatal consultations in order to reduce iron deficiency anemias among those women. The policy also calls for women to receive nivaquine tablets to be taken as malaria prophylaxis.

Table 7: Reported Practices during most recent pregnancy for all mothers of children aged 0-23 months by district (Madagascar Household Survey, October 1996)

	ANTSIRABE II n=721	FIANARANTSOA II n=720	POPULATION
REPORTED IRON TABLET USE DURING MOST RECENT PREGNANCY	4.4% (32)	8.1% (58)	6.4%
P< .05			
REPORTED NIVAQUINE USE DURING MOST RECENT PREGNANCY:			
Regularly	11.8% (85)	6.8% (49)	9.0%
Sometimes	32.6% (235)	15.3% (110)	23.1%
Not at All	55.6% (401)	77.9% (561)	67.9%

P< .001

The reported levels of iron-folate and nivaquine consumption differ significantly between the two districts and indicate that very few pregnant women are receiving these services. This is true even of the roughly 80 percent of all women who attended two or more prenatal consultations organized by the MOHP. While MOHP policy calls for the distribution of the tablets, they are rarely available at the health centers and are prohibitively expensive when purchased in private sector pharmacies (if available).

If the MOHP wishes to protect pregnant women against iron deficiency anemia and malaria, it must seek both to improve the access to and utilization of service by all pregnant women and to improve the ability of its health service personnel to deliver the specified services at the time of contact. It is not sufficient to set policy without putting the means and/or resources necessary for its implementation in the hands of the health care delivery personnel. The MOHP must assess the constraints to the consistent delivery of the defined package of prenatal services. It would appear that demand for and utilization of services among women of the target districts is high. The

MOHP should seek to capitalize on this high demand to deliver simple, effective and low-cost services such as those contained in the defined package.

The data collected on the utilization of prenatal services by women with children 0-23 months of age during their most recent pregnancy suggest that there is a high demand for service that is not being met fully by the health care delivery system. This results in lower than desirable levels of protection of mothers and children against a number of significant contributors to child and maternal mortality (maternal tetanus, neonatal tetanus, anemia, malaria). This presents a challenge as well as an opportunity for the health service in the two districts to define, plan and implement strategies to improve the delivery of key, identified services to pregnant women.

C. Reported Childbirth Practices

Information regarding mothers' use of specific health services at the time of their most recent delivery was collected during the survey. The current MOHP strategy is that all births be attended by a trained/qualified birth attendant or health care professional whether they take place in the home or a health facility. It of note that in order to be successfully implemented and have a positive effect on the reduction in maternal and neonatal mortality, this strategy does not promote efforts requiring all births to take place in an MOHP health facility (hospital or health post/center). An adequate system of referrals must be in place, however, in order to provide medical support in the case of emergencies. The availability of adequate referral capabilities was not addressed by the survey.

In order to estimate the "coverage" of attended births, the survey posed a number of questions to women regarding what they had done during their most recent delivery. Since these deliveries had all occurred in the 24 months prior to the survey, they provide a representative picture of current childbirth practices in the two districts.

Table 8: Reported childbirth practices of all mothers of children aged 0-23 months by district (Madagascar Household Survey, October 1996)

WHO CUT AND TIED THE UMBILICAL CORD DURING YOUR MOST RECENT DELIVERY?	ANT SIRABE II n=721	FIANARANTSOA II n=720	POPULATION
SELF	0.8% (6)	0.3% (2)	0.5%
FAMILY MEMBER	10.4% (75)	8.2% (59)	9.2%
TRADITIONAL BIRTH ATTENDANT (TBA)	40.5% (292)	37.5% (270)	38.9%
DOCTOR, NURSE OR MIDWIFE	47.6% (343)	54.0% (389)	51.6%
OTHER	0.7% (5)	0%	.3%
TOTAL	100%	100%	100%

Only about half of the births (51.6% overall) were reportedly assisted by a qualified health care provider (doctor, nurse, midwife). These results did not differ significantly between the two districts surveyed. The MOHP should assess the constraints to a greater number of births being attended by qualified personnel. These constraints may include limited access to qualified personnel, lack of demand and others. Ensuring that traditional birth attendants (TBAs) practice safe and correct delivery techniques might have the greatest impact in improving the "coverage" of adequate delivery services and assistance. TBAs must, however, be supported by a functional referral system in order to provide support for those deliveries which require medical attention.

Survey respondents were also asked where their most recent delivery had occurred.

Table 9:
(Madagascar Household Survey, October 1996)

WHERE DID YOUR MOST RECENT DELIVERY TAKE PLACE?	ANTSIRABE II n=718	FIANARANTSOA II n=712	POPULATION
GOVERNMENT HOSPITAL	1.1% (8)	1.4% (10)	1.3%
HEALTH CENTER OR POST	38.3% (275)	45.9% (327)	42.5%
PRIVATE CLINIC	5.6% (40)	0.7% (5)	2.9%
WITH TBA	4.6% (33)	3.8% (27)	4.2%
AT HOME	50.4% (362)	48.2% (343)	49.2%
TOTAL	100%	100%	100%

The survey results indicate that in the two districts approximately half (46.7%) of the women currently deliver their children in either a government facility (hospital, health center or health post, 43.8%) or a private clinic (2.9%), where they are (presumably) assisted by a qualified health care provider. While this may indicate an improvement over the situation in previous years, there is clearly much to be done before the MOHP can achieve its objective of ensuring that all births are assisted by qualified personnel. Again it should be noted that MOHP policy does not promote a strategy that requires all deliveries to take place in a government facility.

MOHP policy calls for all women delivering in a government facility or attended by a qualified practitioner to receive a Vitamin A capsule after the delivery. Despite the fact that, overall, almost one half of all births took place at an MOHP facility (hospital, health center or health post) (43.8%), less than 10 percent of all mothers reported receiving a vitamin A capsule post-

delivery. Overall, only 15.5 percent of the mothers delivering in a MOHP health facility received a vitamin A capsule. There was a significant difference between the districts in their rate of capsule distribution (Appendix F). Despite the difference, Antsirabe II, with the highest rate of the two, delivered capsules to only 30.7 percent of the women delivering in MOHP facilities in that district (18.6% of all women). It should be noted that Antsirabe II receives vitamin A capsules for distribution based upon its identification as a “high risk zone” by the MOHP. Fianarantsoa does not receive capsules as reflected in the low percentage of women who reported receiving vitamin A supplements (2.6% among women delivering at an MOHP facility, 3% among all women). The district health team in Antsirabe II should identify the causes for such low coverage despite the availability of the capsules.

The MOHP health service delivery system must improve upon its ability to, at a minimum, deliver a defined package of services to those mothers and infants with which it has contact. Childbirth is an important moment of contact and provides the opportunity to deliver not only medical services but also important health education messages. It is a key moment when health care providers may most effectively educate women about family planning and birth spacing methods. For example in the case of vitamin A capsules, the MOHP system was not able to deliver services to an identified target population despite its efforts in one district to ensure the availability of the necessary supplement capsules. The MOHP must therefore pursue two tracks in its planning process to improve the delivery of services to improve child survival. If it is to have a significant impact on the health and well being of women and children at the time of childbirth, the MOHP health service delivery system must (at a minimum)

- improve logistic systems, management and resource availability to ensure that all of those mothers who come in contact with the health care delivery system receive the services they require; and
- improve its ability to reach a significant percentage of its defined target population (in this case, women delivering their children at public facilities or those delivering at home attended by qualified personnel).

D. Child Vaccination Practices and Coverage

The vaccination of children against the immunizable diseases (measles, tetanus, pertussis, diphtheria, tuberculosis and polio) is a key element of any child survival program. The EPI program in Madagascar has been vaccinating children against these diseases for many years. Despite this effort, there still appear to be many children who are not vaccinated according to the recommended schedule and are therefore vulnerable to these diseases and possible death. The survey collected data on the vaccination status of children by antigen. The single indicator most often used to assess the overall effectiveness of EPI programs is the proportion of children who have received all of the vaccinations required to complete the national policy/program by the time of their first birthday. Using the data collected from their vaccination cards, children aged

12-23 months were evaluated as to whether they had been completely vaccinated before reaching their first birthday.

Table 10: Vaccination coverage verified by vaccination card for children aged 12-23 months by district (Madagascar Household Survey, October 1996)

	ANTSIRABE II n=359	FIANARANTSOA II n=360	POPULATION
BCG	89.7% (322)	62.2% (224)	74.6%•
BCG SCAR	78.8% (283)	57.5% (207)	67.1%•
DPT 1	82.2% (295)	56.7% (204)	68.2%•
DPT 2	80.8% (290)	50.6% (182)	64.2%•
DPT 3	79.1% (284)	46.1% (166)	61%•
MEASLES	70.5% (253)	37.2% (134)	52.2%•
COMPLETELY VACCINATED BEFORE THE AGE OF 12 MONTHS	54% (194)	23.1% (83)	36.9%•

• difference significant at p<.001 level

The overall rates do not meet the national (or WHO recommended) coverage rates of 80 percent set as objectives by the MOHP EPI program. They also appear to be significantly lower in some instances than the figures suggested by the routine data collected and reported by health facilities in the two districts. It should be noted that vaccination status can only be truly verified by the presence of a vaccination card for the child that is correctly filled out. It would appear that the EPI services in both districts need to improve their coverage of the target population as well as improve their ability to collect and report reliable data for supervision and management of the program.

These results are clearly below the objectives set by the nation's EPI program and probably not high enough to prevent periodic epidemics of the target diseases. The figures must be improved if the EPI program is to significantly reduce morbidity and mortality due to the target diseases. In addition, there is a significant difference between the two districts in the calculated rates of coverage. The EPI program in the district of Fianarantsoa II is clearly not operating as effectively

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as that in Antsirabe II. Issues related to access to services as well as management and delivery of services should be examined in order to identify ways to improve coverage in both districts.

Responsibility for vaccinating children must be shared between mothers and health care providers. Demand for services must exist and mothers must know when their children require services if they are to access those services effectively. When the mothers surveyed were asked the correct age at which a child should be vaccinated against measles, a large proportion (39.5% overall: 27.9% in Antsirabe II, and 49.0% in Fianarantsoa II) of mothers of children aged 0-23 months did not know the recommended age for measles vaccination and therefore the vaccination schedule for their children. (See Appendix G.) There was a significant difference between the two districts in the percentage of mothers who correctly answered the question or responded "don't know". This lack of knowledge on the part of mothers has clear and obvious implications for the EPI program. If the EPI program in Madagascar is to achieve high levels of coverage and protection of children, mothers must know when their children are "due" for vaccination. The district health teams should seek ways to educate mothers and increase demand for vaccinations in order to increase coverage and protection.

E. Breastfeeding and Nutrition Practices and Status

Promoting proper breastfeeding practices among mothers of infants and children is one of the single most effective child survival interventions available. Current MOHP policy is to promote exclusive breastfeeding of infants for the first six months of life and continued breastfeeding until (at least) the age of two years. The nutritional effects of breastfeeding for at least two years are well known. The immunologic protection provided by breastfeeding has also been shown to have a significant impact on levels of morbidity among infants and young children as well.

The importance of initiating breastfeeding soon after birth and the beneficial effects of colostrum are well documented. The practices of the women surveyed relating to early breastfeeding were recorded as part of the survey.

Forty percent of the women surveyed (40.4%) reported that they expressed and discarded the first liquid from their breasts following their most recent delivery (Appendix H.1). The possible negative impact of such a practice appears to be limited by the fact that a vast majority (90.1%) of those mothers reported that they discarded the first liquid expressed for either "a few minutes" or "less than one hour" (Appendix H.2). It would appear, therefore, that for most women this practice has little effect on the health of their infant and may be a token practice with roots in the local culture.

Table 11: Reported interval between birth and initiation of breastfeeding among all mothers of children aged 0-23 months by district (Madagascar Household Survey, October 1996)

BREASTFEEDING INITIATED	ANTSIKABE II n=721	FIANARANTSOA II n=720	POPULATION
DURING THE FIRST HOURS	33.1% (239)	9.9% (71)	20.3%
THE SAME DAY	45.1% (325)	58.2% (419)	52.3%
A DAY LATER	13.0% (94)	25.6% (184)	19.9%
A FEW DAYS LATER	8.2% (59)	5.1% (37)	6.5%
DOES NOT KNOW	0.3% (2)	0.4% (3)	0.4%
DID NOT BREASTFEED	0.3% (2)	0.8% (6)	0.6%
TOTAL	100%	100%	100%

Results indicate that 72.6 percent of women reported to have initiated breastfeeding their infants during the same day that they were born. An additional 19.9 percent reported beginning breastfeeding the following day so that by the second day of their lives, 92.5 percent of children had commenced breastfeeding. Less than one percent of mothers reported that they did not breastfeed their youngest child.

The mothers surveyed were asked whether their children aged 0-23 months were currently breastfeeding.

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Table 12: Percentage of children aged 0-23 months currently breastfed by age group and by district (Madagascar Household Survey, October 1996)

AGE (months)	ANTSIRABE II	FIANARANTSOA II	POPULATION
0-2	100% (113/113)	100% (81/81)	100%
3-5	100% (91/91)	98.8% (84/85)	99.3%
6-8	100% (95/95)	100% (117/117)	100%
9-11	100% (63/63)	90.9% (70/77)	95%
12-14	92.2% (94/102)	88.6% (70/79)	90.2%
15-17	86.5% (77/89)	71.6% (63/88)	78.3%
18-20	73.2% (71/97)	41.0% (48/117)	55.5%
21-23	50.7% (36/71)	30.3% (23/76)	39.5%
OVERALL	88.8% (640/721)	77.2% (556/720)	82.4%
NOT CURRENTLY BREASTFEEDING (any age)	11.2% (81)	22.8% (164)	17.6%

The survey results indicate that at the age of one year, 95 percent of children are still breastfeeding. (The Madagascar DHS estimated 92.5% of children nationwide to still be nursing.) After the age of 12 months, breastfeeding begins to decline until 55.5 percent of the children in the 18-20 month age group and a third of the children in the 21-23 month age group are still breastfeeding. The promotion of prolonged (at least two years) breastfed is a key child survival intervention that has a positive impact on the health of both child and mother.

Although over 50 percent of children are still breastfeeding at the age of 18-20 months, those children in the survey population who are not currently breastfeeding were, in fact, weaned at a relatively early age (14.4 months overall, see Appendix I). The most frequent reasons cited by the mothers of these children for terminating breastfeeding were "the child refused", 12.7 percent; "the child reached weighing age", 33.3 percent; and "the mother became pregnant", 28.7 percent (see Appendix J). Apparently there is a small proportion of the infant and child population in the two districts that is weaned at an age which may put them at risk for malnutrition and/or increased morbidity. It would appear that there is still a need for programs targeted to increase the duration of breastfeeding for all children.

The introduction of first foods at an appropriate age (after six months) is an important part of good infant and child nutrition. The current national policy promotes exclusive breastfeeding for the first six months of life. Women were asked at what age they had introduced first foods to their children.

Table 13: Reported age at introduction of first foods among children aged 0-23 months by district (Madagascar Household Survey, October 1996)

AGE AT REPORTED INTRODUCTION OF FIRST FOODS (months)	ANTSIKABE II n=721	FIANARANTSOA II n=720	POPULATION
<4	43.6% (314)	28.6% (206)	35.3%
4-6	42.4% (306)	61.0% (439)	52.5%
> 6	12.9% (93)	7.9% (57)	10.1%
DON'T KNOW	1.1% (8)	2.5% (18)	1.9%

These data indicate that 87.8 percent of the children in the two districts receive first foods prior to the age of six months. This is very high. The district health teams should attempt to assess the reasons why this important aspect of national infant nutrition policy has either not been transmitted effectively to mothers or is not being practiced by mothers despite their knowledge of the recommended practice.

The women in the survey were questioned about the number of feedings typically given to their children in a day. There was no effort to assess the quantity or quality of the food given at each feeding, only the number of times each day the child ate something. Clearly, good infant and young child nutrition is a function of both quantity (number of feedings as well as amount consumed at each feeding) and quality. As a result, it is important to interpret the results of this question and the notion of "correct" attributed to certain responses with some caution.

Table 14: Proportion of children aged 0-23 months receiving "correct" feeding (Madagascar Household Survey, October 1996)

ANTSIRABE II			
	0 - 5 (months) n=204	6 - 11 (months) n=158	12 - 23 (months) n=359
"CORRECT" 0-5 Months: No meals and BF>=8 times a day 6-11 Months: >=3 meals and BF currently 12-23 Months: >=5 meals whether BF or not	30.4% (62)	80.9% (128)	8.4% (30)
INCORRECT	70.6% (144)	19.0% (30)	91.6% (329)
TOTAL	101%	99.9%	100%
FIANARANTSOA II			
	0 - 5 (months) n=166	6 - 11 (months) n=194	12 - 23 (months) n=360
"CORRECT" 0-5 Months: No meals and BF>=8 times a day 6-11 Months: >=3 meals and BF currently 12-23 Months: >=5 meals whether BF or not	30.1% (50)	79.4% (154)	11.4% (41)
INCORRECT	69.9% (116)	20.6% (40)	88.6% (319)
TOTAL	100%	100%	100%

The survey results indicate that only the mothers of children in the 6-11 month age group are following correct feeding practices with respect to the number of meals (in addition to breastfeedings) that they are providing their children. There are no significant differences found between the two districts surveyed. This finding supports the survey results with respect to the early (prior to six months) introduction of first foods discussed above and perhaps an absolute lack of food given to those children over the age of one year. This may in some way also help to explain the very high levels of chronic malnutrition and stunting found in the survey population (see section on nutritional status below).

It is important to note that the survey was not designed to give detailed information as to either the quality or quantity of the diets of children aged 0-23 months in the target districts. Indications

of feeding patterns are evident from the analysis, but more detailed and comprehensive studies are required to obtain in-depth information into the true dietary patterns of the children in the district. These studies are required in order to address the health effects associated with current nutritional practices and patterns.

The survey provided limited information on household availability and access to adequate intakes of three micronutrients, iodine, vitamin A and iron. The importance of these three micronutrients in ensuring the health and well-being of both women and children is well documented. The survey results do not allow BASICS to assess whether the diets of women and children in the two target districts contain adequate levels of these three dietary components, but they do provide some insight into the coverage of programs designed to increase their availability. Efforts to increase the availability of all three micronutrients follow three basic strategic paths:

- supplementation (distribute capsules)
- dietary diversification (encourage consumption of micronutrient-rich foods)
- food fortification (enhance the micronutrient levels of commonly consumed foods)

The survey provides insight into the availability of iodized salt food fortification in households in the target districts, and supplementation programs currently delivered through MOHP prenatal (iron) and delivery (vitamin A) services.

Table 15: Household availability of iodized salt by district (Madagascar Household Survey, October 1996)

	ANTSIRABE II	FIANARANTSOA II	POPULATION
Percentage of Households with Salt at Time of Survey	77.4% (558/721)	93.9% (676/720)	86.5%
Percentage of Households Salt Samples Testing Positive for Iodine	46.1% (257/558)	25.7% (174/676)	34.9%
Percentage of Households with Access to Iodized Salt at Time of Survey	35.6% (257/721)	24.2% (174/720)	29.3%

Clearly the two districts surveyed are far from achieving the mid-decade goal set at the World Summit for Children of universal access to iodized salt by 1995. There is a significant difference in the percentage of households using iodized salt at the time of the survey. The MOHP should assess the current national policy to achieve universal access to iodized salt and ultimately the elimination of iodine deficiency disorder as a result of this strategy.

Night blindness is one of the symptoms of vitamin A deficiency. Mothers were asked whether they had difficulty seeing well at dusk, a rough indicator of the prevalence of night blindness.

Table 16: Proportion of all mothers of children aged 0-23 months reporting difficulty with vision at dusk by district (Madagascar Household Survey, October 1996)

	ANTSIRABE II n=720	FIANARANTSOA II n=720	POPULATION
Reported See Well at Dusk	93.5% (673)	91.5% (659)	92.4%
Reported Do Not See Well at Dusk	6.5% (47)	8.5% (61)	7.6%
TOTAL	100%	100%	100%

The district of Antsirabe II has received vitamin A capsules for distribution based upon it being a "high risk zone". The distribution of these capsules to women as part of MOHP child delivery services has not been successful (30.7% of women delivering in MOHP facilities and 18.6% of all women). Access to vitamin A supplements in Fianarantsoa II is very low (3% of all women) (see Appendix F).

The heights and weights of all children included in the survey were measured. These measures and the child's recorded (or reported) date of birth allowed for the calculation of the following indices of nutritional status:

- weight for height (measures wasting)
- height for age (measures stunting)
- weight for age (measures underweight)

The indicators were calculated using the Epi-Info software nutrition module which compares an individual child's measures to international standards developed by the U.S. National Center for Health Statistics (NCHS).

It should be noted that children whose indices fall between two and three standard deviations (z-score) below the median are generally considered to be *moderately malnourished*. Those falling more than three standard deviations below the median are generally considered to be *severely malnourished*. The nutritional status of children who are greater than one standard deviation below the median are considered to be *normal*. The results obtained using these indices are given below.

Table 17: Nutritional status of children aged 5-23 months by district (Madagascar Household Survey, October 1996)

WEIGHT FOR HEIGHT (WASTING)	ANTSIRABE II n=545	FIANARANTSOA II n=584	POPULATION
NORMAL	96.3% (525)	96.1% (561)	96.3%
MODERATE	2.9% (16)	3.3% (19)	3.1%
SEVERE	0.7% (4)	0.7% (4)	0.7%
MODERATE AND SEVERE	3.7% (20)	3.9% (23)	3.8%
TOTAL	100%	100%	100.1%

p>.05

HEIGHT FOR AGE (STUNTING)	ANTSIRABE II n=545	FIANARANTSOA II n=584	POPULATION
NORMAL	38.3% (209)	44 % (257)	41.5%
MODERATE	29.4% (160)	26.2% (153)	27.6%
SEVERE	32.3% (176)	29.8% (174)	30.9%
MODERATE AND SEVERE	61.7% (336)	56% (327)	58.5%
TOTAL	100%	100%	100%

p>.05

WEIGHT FOR AGE (UNDERWEIGHT)	ANTSIRABE II n=545	FIANARANTSOA II n=584	POPULATION
NORMAL	56% (305)	60.8% (355)	58.6%
MODERATE	32.7% (178)	29.3% (171)	30.8%
SEVERE	11.4% (62)	9.9% (58)	10.6%
MODERATE AND SEVERE	44% (240)	39.2% (229)	41.4%
TOTAL	100%	100%	100%

p>.05

There were no statistical differences found between the two districts with respect to the nutritional indicators calculated. It should be noted that the levels of malnutrition estimated by the survey are quite high. Almost 60 percent of the children aged 5-23 months are already showing evidence of severe chronic malnutrition. This is remarkable in a population so young.

While the levels of acute malnutrition (wasting) appear low (less than 1% severe and 3.1% moderate), over 40 percent of the population surveyed showed either moderate or severe growth retardation as measured by weight for age. Clearly the children in the survey districts are experiencing significant nutritional deficits beginning at a very early age.

The distribution of malnutrition by gender differed significantly only for height for age (stunting) and weight for age (underweight) indices. Tables indicating the gender distribution by district are found in Appendix K.1-K.2. There were significant differences shown in the distribution of all three nutritional status indicators by six month age group and district (see Appendix K.3-K.4). The association between rates of malnutrition and age is not surprising. As the children grow older, the ability of breastfeeding to satisfy their nutritional requirements is reduced. The importance of the quantity and quality of first foods and supplemental foods, even in a population of children many of whom continue to be breastfed through the age of 24 months, is undeniable. It would appear that a high percentage of the children in the survey are not receiving adequate supplemental foods even at an early age.

F. Recent Morbidity and Health Practices

Overall, 31.8 percent (weighted average) of the children in the survey districts reported some/any type of illness during the two-week period preceding the survey. The following tables examine the types and distribution of these illnesses in the survey population and give some insight into their mother's knowledge and practices when their children become ill.

Table 18: Reported morbidity during the preceding two weeks among children aged 0-23 months by age group and district (Madagascar Household Survey, October 1996)

	ANTSIRABE II				
	0-5 (mos) n=204	6-11 n=157	12-18 n=220	19-23 n=139	TOTAL n=720
ANY ILLNESS	33.8% (69)	39.5% (62)	36.8% (81)	32.4% (45)	35.7% (257)
NO ILLNESS	66.2% (135)	60.5% (95)	63.2% (139)	67.6% (94)	64.3% (463)
TOTAL	100%	100%	100%	100%	100%
	FIANARANTSOA II				
	0 - 5 (mos) n=166	6 - 11 n=194	12 - 18 n=205	19-23 n=155	TOTAL n=720
ANY ILLNESS	22.9% (38)	32.0% (62)	35.6% (73)	21.3% (33)	28.6% (206)
NO ILLNESS	77.1% (128)	68.0% (132)	64.4% (132)	78.7% (122)	71.4% (514)
TOTAL	100%	100%	100%	100%	100%

The mothers who reported that their children had been ill during the preceding two weeks were asked what type of illness it had been. In a number of cases the mothers reported that their children had experienced more than one illness during the preceding two weeks. In the following two tables, responses are broken down by the type of reported illness. In this presentation of results, for example, "any ARI" counts all children whose mothers reported ARI during the last two weeks, whether or not any other illness was reported at the same time.

From the table below we see, therefore, that in the district of Antsirabe II, 21.1 percent (152/720) of the children reportedly suffered from ARI during the previous two weeks. Among those children, however, 61 (8.5% of all children, but 40.1% of ARI sufferers) reported only symptoms of ARI. The remaining 91 children experienced symptoms of ARI **and** symptoms of some other illness.

Table 19 : Type of illness occurrence in previous two weeks for children aged 0-23 months by age group and district (Madagascar Household Survey, October 1996)

	ANTSIRABE II				
	0-5 (Mos) n=204	6-11 n=157	12-18 n=220	19-23 n=139	TOTAL n=720
ANY ARI	24.5% (50)	24.8% (39)	19.5% (43)	14.4% (20)	21.1% (152)
ARI ONLY	12.7% (26)	8.9% (14)	6.4% (14)	5.0% (7)	8.5% (61)
ANY DIARRHEA	11.8% (24)	18.5% (29)	20.0% (44)	14.4% (20)	16.3% (117)
DIARRHEA ONLY	4.4% (9)	6.4% (10)	9.5% (21)	7.9% (11)	7.1% (51)
ANY FEVER	10.3% (21)	17.2% (27)	13.2% (29)	12.2% (17)	13.1% (94)
FEVER ONLY	2.0% (4)	4.5% (7)	2.3% (5)	2.2% (3)	2.6% (19)
OTHERS	3.4% (7)	3.2% (5)	5.5% (12)	7.2% (10)	4.7% (34)
	FIANARANTSOA II				
	0-5 (mos) n=166	6-11 n=194	12-18 n=205	19-23 n=155	TOTAL n=720
ANY ARI	13.9% (23)	19.1% (37)	20.0% (41)	10.3% (16)	16.3% (117)
ARI ONLY	10.8% (18)	9.8% (19)	11.2% (23)	5.8% (9)	9.6% (69)
ANY DIARRHEA	4.2% (7)	8.8% (17)	9.8% (20)	5.8% (9)	7.4% (53)
DIARRHEA ONLY	2.4% (4)	4.6% (9)	3.9% (8)	3.9% (6)	3.8% (27)
ANY FEVER	8.4% (14)	14.4% (28)	12.7% (26)	5.8% (9)	10.7% (77)
FEVER ONLY	4.8% (8)	4.1% (8)	3.4% (7)	1.9% (3)	3.6% (26)
OTHERS	1.2% (2)	3.1% (6)	7.8% (16)	6.5% (10)	4.7% (34)

If it is assumed that the incidence of the diseases shown in the table above are distributed evenly throughout the year, it would be possible to use the "any" categories of response to calculate

estimates of the number of episodes per year that a child 0-23 months experiences. This assumption is probably truest for diarrhea. For example, if the overall population rate for “any diarrhea” is estimated to be 11.4 percent, then this would suggest that each child 0-23 months experienced approximately three episodes of diarrhea per year. While this is not remarkably high, such incidence rates coupled with the evidence of malnutrition presented above would reinforce the need to ensure that children receive prompt and proper treatment for cases of diarrhea when they occur.

Mothers were interviewed concerning their knowledge, attitudes and practices about child illness and what actions they had taken when their child was ill.

Table 20: Reported fluid intake during illness occurrence in the preceding two weeks for children aged 0-23 months by reported illness and district (Madagascar Household Survey, October 1996)

ANTSIRABE II				
	ANY DIARRHEA n=117	ANY ARI n=152	ANY FEVER n=94	ANY ILLNESS n=257
SAME AS USUAL	23.1% (27)	34.2% (52)	27.7% (26)	27.6% (71)
MORE THAN USUAL	38.5% (45)	27.9% (42)	36.8% (35)	32.7% (84)
FIANARANTSOA II				
	ANY DIARRHEA n=53	ANY ARI n=117	ANY FEVER n=77	ANY ILLNESS n=206
SAME AS USUAL	32.1% (17)	44.4% (52)	36.4% (28)	35.4% (73)
MORE THAN USUAL	50.9% (27)	23.1% (27)	33.8% (26)	26.2% (54)

Most children appear to have consumed at least a normal/usual amount of fluids during their reported illness during the last two weeks. This appears to be true no matter what the reported illness (or combination of illnesses) was. Despite the fact that the majority consumed at least as much as usual, a significant proportion (35% in Antsirabe II and 29.9% in Fianarantsoa II for “any illness”) reported to have consumed less fluids during the illness. This issue should be addressed through IEC channels to ensure that all mothers prevent dehydration in their sick children.

The types of fluids consumed is also of importance in addition to the volume consumed. The following tables show the types of fluids consumed by the children in the survey population who reported an illness in the preceding two weeks.

Table 21: Type of liquid given by mothers of children aged 0-23 months during any reported illness occurring during the preceding two weeks by district (Madagascar Household Survey, October 1996)

	ANTSIRABE II n=238	FIANARANTSOA II n=181
ORS/ODIVA	11.3% (27)	7.2% (13)
RHF (RECOMMENDED HOME FLUIDS)	47.1% (112)	58.6% (106)
TEA	51.7% (123)	33.1% (60)
FRUIT JUICE	3.8% (9)	3.9% (7)
PLAIN WATER	17.6% (42)	24.3% (44)
BREAST MILK	46.2% (110)	54.7% (99)
OTHERS	11.8% (28)	17.1% (31)

In order to assess whether there were differences in the type of fluids that mothers administered to their sick children, their responses were broken down by the type of reported illness experienced by the child during the preceding two weeks. Overall, however, it can be seen that only about 60 percent of the mothers reported giving either ORS or the recommended home fluid to their children during their illness. This suggests that there may still be a large segment of the population who has not yet heard or applied the ORS message that is central to child survival efforts.

Table 22: Type of liquid given by mothers of children aged 0-23 months during illness occurring during preceding two weeks by illness and district (Madagascar Household Survey, October 1996)

	ANTSIRABE II		
	ANY DIARRHEA (n=117)	ANY ARI (n=152)	ANY FEVER (n=94)
ORS/ODIVA	15.4% (18)	7.2% (11)	8.5% (8)
RHF	51.3% (60)	46.7% (71)	48.9% (46)
TEA	46.2% (54)	56.6% (86)	57.4% (54)
FRUIT JUICE	4.3% (5)	4.6% (7)	3.2% (3)
PLAIN WATER	21.4% (25)	16.4% (25)	12.8% (12)
BREAST MILK	47.0% (55)	48.0% (73)	43.6% (41)
	FIANARANTSOA II		
	ANY DIARRHEA (n=53)	ANY ARI (n=117)	ANY FEVER (n=77)
ORS/ODIVA	17.0% (9)	4.3% (5)	10.4% (8)
RHF	66.0% (35)	57.3% (67)	54.5% (42)
TEA	50.9% (27)	27.4% (32)	31.2% (24)
FRUIT JUICE	0% (0)	4.3% (5)	2.6% (2)
PLAIN WATER	18.9% (10)	28.2% (33)	24.7% (19)
BREAST MILK	62.3% (33)	53.8% (63)	62.3% (48)

There do not appear to be great differences in the patterns of responses given by women based upon the reported symptoms of the child. Of course the interpretation of these results is complicated by the numerous children who experienced symptoms of more than one illness.

The mothers were also interviewed as to whether their children who were ill in the two weeks preceding the survey ate more or less than usual during their illness.

Table 23: Reported food intake by children aged 0-23 months during illness occurrence during preceding two weeks by reported illness and district (Madagascar Household Survey, October 1996)

	ANTSIRABE II			
	ANY DIARRHEA n=117	ANY ARI n=152	ANY FEVER n=94	ANY ILLNESS n=257
SAME AS USUAL	25.6% (30)	32.2% (49)	25.5% (24)	29.2% (75)
MORE THAN USUAL	5.0% (6)	5.9% (9)	6.4% (6)	4.7% (12)
	FIANARANTSOA II			
	ANY DIARRHEA n=53	ANY ARI n=117	ANY FEVER n=77	ANY ILLNESS n=206
SAME AS USUAL	18.9% (10)	29.9% (35)	24.7% (19)	24.3% (50)
MORE THAN USUAL	1.9% (1)	5.1% (6)	7.8% (6)	3.4% (7)

Based upon the results above, most children reportedly consumed less food than normal during their reported illness episode during the last two weeks. This is not, perhaps, unexpected given the fact that children frequently experience a loss of appetite when sick. However, it is important that mothers recognize the need for their children to continue eating while sick and to encourage them to do so.

Table 24: Frequency of responses among all mothers of children aged 0-23 months when asked how much food to offer to a child who has been sick recently by district (Madagascar Household Survey, October 1996)

	ANTSIRABE II n=705	FIANARANTSOA II n=720	POPULATION
SAME AS USUAL	33.3% (235)	48.9% (352)	41.9%
MORE THAN USUAL	19.7% (139)	13.6% (98)	16.4%

The mothers were questioned as to how many feedings per day they had given to their sick children. (For purposes of this table, breastfeeding was not counted as a feeding.)

Table 25: Number of reported feedings in last 24 hours among children aged 0-23 months who were ill during the preceding two weeks by type of illness and district (Madagascar Household Survey, October 1996)

	ANTSIRABE II			FIANARANTSOA II		
	ANY DIARRHEA n=117	ANY ARI n=152	ANY FEVER n=94	ANY DIARRHEA n=53	ANY ARI n=117	ANY FEVER n=77
0 TO 3	58.1% (68)	54.6% (83)	45.7% (43)	71.7% (38)	65.0% (76)	66.2% (51)
4 TO 6	30.8% (36)	29.6% (45)	35.1% (33)	24.5% (13)	31.6% (37)	27.3% (21)
7 TO 9	4.3% (5)	5.9% (9)	9.6% (9)	3.8% (2)	1.7% (2)	1.3% (1)
MORE THAN 9	6.8% (8)	9.9% (15)	9.6% (9)	0% (0)	1.7% (2)	5.2% (4)

There appears to be no difference in the patterns of responses dependent upon the symptoms experienced by the child. It does appear that more mothers in Antsirabe II tended to feed their sick children more frequently (greater percentages found in the cells representing "7 to 9" and "more than 9"). Any difference noted, however, is slight and the majority of mothers in both districts reported only "0-3" daily feedings while their children were sick.

Many children will experience a loss of appetite and consume less food during an episode of illness. It is therefore important for mothers to encourage their children to eat more once they have recovered their appetite. The mothers were asked how much their children who had been ill during the previous two weeks had eaten once they had recovered.

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Table 26: Reported food intake after illness occurrence among children aged 0-23 months who were ill during the preceding two weeks by district (Madagascar Household Survey, October 1996)

	ANTSIRABE II			
	DIARRHEA n=117	ARI n=152	FEVER n=94	ANY ILLNESS n=257
SAME AS USUAL	49.6% (58)	55.3% (84)	51.1% (48)	40.5% (104)
MORE THAN USUAL	27.4% (32)	23.7% (36)	24.5% (23)	20.6% (53)
	FIANARANTSOA II			
	DIARRHEA n=53	ARI n=117	FEVER n=77	ANY ILLNESS n=206
SAME AS USUAL	43.4% (23)	54.7% (64)	42.9% (33)	45.6% (94)
MORE THAN USUAL	28.3% (15)	15.4% (18)	14.3% (11)	15.0% (31)

Approximately half the children ate the same amount as usual following an illness. In Antsirabe II, across all diseases, there were nearly equal percentages of children eating more than usual following an illness as there were children eating less than usual. In Fianarantsoa, greater percentages of children ate less following an illness than did those eating more.

Table 27: Number of reported feedings during the 24 hours following an illness among children aged 0-23 months ill during the preceding two weeks by type of illness and district (Madagascar Household Survey, October 1996)

	ANTSIRABE II			FIANARANTSOA II		
	ANY DIARRHEA n=117	ANY ARI n=152	ANY FEVER n=94	ANY DIARRHEA n=53	ANY ARI n=117	ANY FEVER n=77
0 TO 3	48.7% (57)	52.0% (79)	38.3% (36)	69.8% (37)	67.5% (79)	66.2% (51)
4 TO 6	23.1% (27)	27.0% (41)	20.2% (19)	30.2% (16)	29.1% (34)	27.3% (21)
7 TO 9	4.3% (5)	7.2% (11)	13.8% (13)	0% (0)	1.7% (2)	2.6% (2)
MORE THAN 9	7.7% (9)	13.8% (21)	12.8% (12)	0% (0)	1.7% (2)	3.9% (3)

The results of the reported numbers of feedings following an illness are similar to those reported above for feeding during an illness. Many of the children ate "0-3" per day following their illness. This did not vary greatly based upon the symptoms. It appears that children in Antsirabe II ate slightly more frequently than those in Fianarantsoa II following their illness.

The mothers were questioned regarding their knowledge of the danger signs of common childhood illnesses (ARI, diarrhea and malaria) and how they treated these illnesses in and outside of the home.

Table 28: Reported home treatment among children aged 0-23 months ill during the preceding two weeks by type of illness and district (Madagascar Household Survey, October 1996)

	ANTSIRABE II			FIANARANTSOA II		
	ANY DIARRHEA n=117	ANY ARI n=152	ANY FEVER n=94	ANY DIARRHEA n=53	ANY ARI n=117	ANY FEVER n=77
ANTIBIOTICS	19.7% (23)	16.4% (25)	13.8% (13)	17.0% (9)	10.3% (12)	9.1% (7)
OTHER DRUGS	20.5% (24)	27.0% (41)	29.8% (28)	22.6% (12)	35% (41)	32.5% (25)
TRADITIONAL	17.9% (21)	17.8% (27)	17.0% (16)	43.4% (23)	47.9% (56)	53.2% (41)
ORS	23.1% (27)	7.9% (12)	11.7% (11)	20.7% (11)	5.1% (6)	6.5% (5)
GIVE A BATH	0% (0)	1.3% (2)	1.1% (1)	0% (0)	1.7% (2)	0% (0)
NOTHING	27.4% (32)	32.2% (49)	30.9% (29)	17.0% (9)	9.4% (11)	13.0% (10)

It appears from the results given in the table above that the home treatments employed by mothers are not necessarily related to the nature of the illness. The percentage of mothers using antibiotics is roughly the same no matter whether the child experienced symptoms of ARI, diarrhea or fever (malaria). The survey did not collect data as to what antibiotic was used and that may vary among the three illnesses that were looked at. It is encouraging that the percentage of women using ORS was indeed higher when the child was reported to be suffering from diarrhea. However, a non-negligible proportion of children with other symptoms were also treated with ORS. These results suggest that there may be some confusion among mothers as to the proper means for the home treatment of common childhood illnesses.

Mothers must recognize the danger signs that would indicate that it is necessary to seek treatment outside of the home for certain childhood illnesses. Mothers were questioned as to their knowledge of the appropriate danger signs associated with ARI, diarrhea and fever. The dangers signs cited/recognized by the mothers were grouped as follows:

Recognized Danger Signs of Childhood Illnesses

- **Diarrhea:** repeated vomiting, very thirsty, high fever, many watery stools, blood in the stools, not eating/drinking well, getting sicker/very sick, change of consciousness/lethargy
- **ARI:** high fever, not eating/drinking well, fast and difficult breathing, noisy breathing, chest indrawing, cough, getting sicker/very sick, change of consciousness/lethargy
- **Fever:** high fever, not eating/drinking well, getting sicker/very sick, convulsions, change of consciousness/lethargy

Table 29: Proportion of mothers of children aged 0-23 months who know the danger sign(s) requiring immediate care when their infant or child is sick illness and by district (Madagascar Household Survey, October 1996)

	ANTSIRABE II n=720	FIANARANTSOA II n=720	POPULATION
DANGER SIGNS OF ACUTE RESPIRATORY INFECTIONS			
1 SIGN	89.9% (647)	88.2% (635)	89%
2 SIGNS	46.4% (334)	56.9% (410)	52.2%
3 SIGNS	7.4% (53)	16.7% (120)	12.5%
4 SIGNS	0.1% (1)	6.3% (45)	3.5%
DANGER SIGNS OF DIARRHEA			
1 SIGN	79.6% (573)	88.3% (636)	84.4%
2 SIGNS	31.1% (224)	49.9% (359)	41.4%
3 SIGNS	5.1% (37)	15.3% (110)	10.7%
4 SIGNS	0.1% (1)	2.6% (19)	1.5%
DANGER SIGNS OF FEVER			
1 SIGN	89.6% (645)	97.5% (702)	93.9%
2 SIGNS	18.1% (130)	36.5% (263)	28.2%
3 SIGNS	0.4% (3)	5.3% (38)	3.1%
4 SIGNS	0.0% (0)	0.1% (1)	0%

Most women knew one of the danger signs for each of the three illnesses. However less than half knew more than one and virtually none knew four of the danger signs for any of the illnesses. Since few cases present all of these danger signs, it would seem obvious that it is important for mothers to know and recognize as many as possible in order to ensure that their children receive treatment when it is necessary. The apparent lack of knowledge on the part of these mothers would appear to have a clear and potentially dangerous impact on the utilization of health services. If women do not know when their children require immediate attention, interventions intended to improve the availability of services and technologies cannot have the desired impact on infant and child health. This is an area that the BASICS project must seek to address in order to improve the utilization of basic child survival services.

The mothers were asked which of the danger signs (if any) they had seen in their children prompting them to seek outside assistance/advice or care. The proportion of mothers seeing these signs in their children by type of illness and district is given below.

Table 30: Proportion of mothers who recognized at least two danger signs in their child during the preceding two weeks causing them to seek treatment outside the home for children aged 0-23 months by illness and district (Madagascar Household Survey, October 1996)

ANTSIRABE II n=115			FIANARANTSOA II n=101		
ANY DIARRHEA	ANY ARI	ANY FEVER	ANY DIARRHEA	ANY ARI	ANY FEVER
32.2% (37)	41.7% (48)	10.4% (12)	42.6% (43)	53.5% (54)	27.7% (28)

Apparently most women who sought care for their child outside of the home did so based upon the presence of a single danger sign. These results confirm, in part, the conclusion that maternal knowledge of the important danger signs associated with childhood illnesses is quite low in the target districts. This should be improved by the BASICS project.

Despite the apparently low levels of knowledge related to the danger signs which would necessitate care outside of the home, the women surveyed did occasionally seek care or advice outside of the home in the following places/sources (multiple responses were allowed by each mother):

Table 31: Place of treatment or advice among mothers of children aged 0-23 months ill during the preceding two weeks who sought advice outside of the home by district (Madagascar Household Survey, October 1996)

	ANTSIRABE II n=115	FIANARANTSOA II n=101
HOSPITAL	0.9% (1)	0% (0)
HEALTH CARE CENTER/AID POST	59.1% (68)	48.5% (49)
PRIVATE CLINIC/DOCTOR	22.6% (26)	4.0% (4)
TRADITIONAL BIRTH ATTENDANT	1.7% (2)	19.8% (20)
COMMUNITY HEALTH WORKER	0% (0)	2.0% (2)
TRADITIONAL HEALER	0.9% (1)	5.9% (6)
PHARMACY	3.5% (4)	1.0% (1)
RELATIVES/FRIENDS	18.3% (21)	43.6% (44)
OTHERS	1.7% (2)	0% (0)

Roughly half of those seeking care did so at an MOHP health facility. This low level of utilization is probably due to multiple factors. Within the current context, however, it is safe to say that non-qualified practitioners such as friends and TBAs currently play a significant role in treating childhood illnesses in the target districts. The BASICS project should seek to improve both access **and** utilization of trained and qualified health services.

All mothers were asked where they generally went outside of the home for advice/treatment for their sick children. Eighty percent of the mothers indicated that they usually use health centers or health posts. This result seems to contradict, in part, the results reported above regarding what the women actually did during the most recent episode of illness. A large number (19% overall) indicated that they generally seek treatment or advice from relatives and friends. This result is consistent with the results presented above. Results of the type of treatments received outside of the home are shown in Appendix L.

In addition to seeking care and/or advice for their sick child outside the home, the mothers of children aged 0-23 months were asked about their knowledge of home-based treatments for ARI, fever and diarrhea.

Table 32: Proportion of all mothers of children aged 0-23 months who knew the correct home treatment when their infant or child is sick with diarrhea by district (Madagascar Household Survey, October 1996)

	ANTSIRABE II n=720	FIANARANTSOA II n=720
1 TREATMENT	87.6% (631)	85.0% (612)
2 TREATMENTS	46.0% (331)	37.8% (272)
3 TREATMENTS	5.1% (37)	6.7% (48)
4 TREATMENTS	0.1% (1)	0% (0)

Table 33: Proportion of all mothers of children aged 0-23 months who knew the correct home-based treatment(s) for an infant or child who has a fever by district (Madagascar Household Survey, October 1996)

	ANTSIRABE II n=720	FIANARANTSOA II n=720	POPULATION
1 TREATMENT	43.8% (315)	47.4% (341)	45.8%
2 TREATMENTS	3.3% (24)	9.4% (68)	6.7%
3 TREATMENTS	0% (0)	0.3% (2)	0.1%
4 TREATMENTS	0% (0)	0% (0)	0%
NO TREATMENTS	52.9% (381)	42.9% (309)	47.4%
TOTAL	100%	100%	100%

As with mothers' knowledge of the danger signs of childhood illnesses, their knowledge of appropriate home-based treatments for these illnesses is quite low. Most women knew one treatment for diarrhea (approximately 86%), but less than half knew two. Less than half of the mothers knew even one home-based treatment for children with fever. Clearly this is another area which the BASICS project should seek to address through targeted IEC activities.

The survey sought to assess the mother's knowledge of methods to prevent the same childhood illnesses.

Table 34: Frequency of responses by all mothers of children aged 0-23 months when asked how to prevent a child or infant from becoming sick with diarrhea by district (Madagascar Household Survey, October 1996)

	ANTSIRABE II n=720	FIANARANTSOA II n=720	POPULATION
IMMUNIZATION	6.5% (47)	7.6% (55)	7.1%
BREASTFEEDING	1.5% (11)	6.7% (48)	4.4%
HANDWASHING	17.1% (123)	37.8% (272)	28.5%
CLEAN WATER	24.9% (179)	61.3% (441)	44.9%
USE OF LATRINE	2.8% (20)	1.9% (14)	2.3%
OTHERS	46.5% (335)	20.3% (146)	32.0%
DON'T KNOW	23.1% (166)	16.5% (119)	19.5%
TOTAL	100%	100%	100%

Table 35: Frequency of responses by all mothers of children aged 0-23 months when asked how to prevent an infant or child from becoming sick with a respiratory infection by district (Madagascar Household Survey, October 1996)

	ANTSIRABE II n=720	FIANARANTSOA II n=720	POPULATION
IMMUNIZATION	6.3% (45)	7.5% (54)	7.0%
BREASTFEEDING	0.6% (4)	4.7% (34)	2.8%
AVOID SMOKING AREAS	3.5% (25)	2.5% (18)	2.9%
KEEP CHILD WARMLY CLOTHED	39.2% (282)	76.1% (548)	59.5%
OTHERS	40.3% (290)	10.7% (77)	24%
DON'T KNOW	23.2% (167)	17.2% (124)	19.9%
TOTAL	100%	100%	100%

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Table 36: Frequency of responses by all mothers of children aged 0-23 months when asked how to prevent an infant or child from becoming sick with malaria by district (Madagascar Household Survey, October 1996)

	ANTSIKABE II n=721	FIANARANTSOA II n=720	POPULATION
USE OF MOSQUITO NET	0.8% (6)	0.7% (5)	0.7%
KEEP THE ENVIRONMENT FREE OF PUDDLES OF WATER	7.5% (54)	10.6% (76)	9.2%
GIVE NIVAQUINE	28.3% (204)	23.2% (167)	25.5%
OTHERS	40.2% (290)	22.9% (165)	30.7%
DON'T KNOW	23.2% (167)	50.4% (363)	38.2%
TOTAL	100%	100%	100%

In general, the levels of mother's knowledge of preventive measures is low. Knowledge of malaria prevention measures is quite low. Less than one percent of the women cited bed-nets as a means of preventing malaria. The mothers were asked whether bed-nets were used in their households. The reported use of mosquito bed-nets to prevent malaria is very low in the target district population (3% overall) (see Appendix M). The survey did not collect information as to why so few households use bed-nets. Overall, only 2 percent of the children under 5 years of age are reported to sleep under a bed-net regularly. It does appear, however, that in those households which reported having a bed-net available, they are often (50%) used to protect children under the age of 5 years. Use of bed-nets is not currently at a level capable of having an impact on levels of morbidity and mortality linked to malaria.

G. Water and Hygiene

Access to and use of clean water sources and the practice of good hygiene in the household can have a significant effect on the reduction of many childhood illnesses. The survey asked several questions related to the household water source, toilet facilities and availability and use of soap for handwashing, etc.

Table 37: Reported water source (all uses) in households with children aged 0-23 months by district (Madagascar Household Survey, October 1996)

WATER SOURCE	ANTSIRABE II n=721	FIANARANTSOA II n=720	POPULATION
PUBLIC WELL	0.6% (4)	0.1% (1)	0.3%
PRIVATE WELL	12.8% (92)	0.7% (5)	6.1%
PUBLIC FAUCET	2.9% (21)	2.6% (19)	2.7%
PRIVATE FAUCET	5.7% (41)	1.0% (7)	3.1%
SPRING	71% (512)	89.6% (645)	81.2%
RIVER/STREAM	8.5% (61)	7.4% (53)	7.9%
POND/LAKE	1.1% (8)	0% (0)	0.5%
BOTTLED WATER	0.1% (1)	0% (0)	0%
TOTAL	100%	100%	100%

The survey results indicated that more than 90 percent of the households surveyed utilized a single source of water for all household needs. Most households in the two districts (81.2% overall) reported that a spring was their source for water. There was no indication as to whether these were "protected" or "improved" springs and therefore protected to some degree from pollution and/or contamination. Only 12.2 percent of the target district population reported using water from sources that could be assumed to be reasonably protected from contamination (public well, private well, public faucet and private faucet).

Table 38: Reported Type of toilet facilities in households with children aged 0-23 months by district (Madagascar Household Survey, October 1996)

TOILET TYPE	ANTSIRABE II n=721	FIANARANTSOA II n=720	POPULATION
PRIVATE-FLUSH	0% (0)	0.1% (1)	0%
SHARED-FLUSH	0%(0)	0% (0)	0% (0)
NO LATRINE	32.0% (231)	67.8% (488)	51.7%
SHARED LATRINE	33.3% (240)	24.0% (173)	28.2%
IMPROVED/VENTILATED LATRINE	34.7% (250)	7.9% (57)	20%
TOTAL	100%	100%	100

Half (51.7%) of the households reported that they did not even use a latrine. There is clearly room for a community-based project to promote latrine construction and use.

Table 39: Availability of soap in households with children aged 0-23 months by district (Madagascar Household Survey, October 1996)

	ANTSIRABE II n=721	FIANARANTSOA II n=720	POPULATION
Reported Soap Available	42.3% (305)	59.0% (425)	51.5%
Reported Soap Sometimes Available	44.9% (324)	29.4% (212)	36.4%
Produced Soap upon Request at Time of Survey	56.7% (409)	66.1% (476)	61.4%

Soap is a basic necessity to ensure cleanliness and hygiene. Slightly more than half (58.1% overall) of the households were able to show the interviewer some soap from the household at the time of the survey. A third of the households reported that they only had soap "sometimes".

H. Family Planning

Family planning services are currently offered at a limited number of health facilities throughout Madagascar and in the two BASICS target districts. These facilities are probably too few in number to have a noticeable impact on fertility in the districts (or Madagascar in general). The survey sought to assess the existing demand for these types of services as well as the limited levels of utilization that currently exist. The results generated will provide baseline data by which to measure the increase in family planning services utilization in the future.

Table 40: Reported Desire for childbearing in the next two years among all mothers of children aged 0-23 months by district (Madagascar Household Survey, October 1996)

	ANTSIRABE II	FIANARANTSOA II	POPULATION
YES	32%	31%	31.5%
NO	64%	61%	62.4%
DON'T KNOW	4%	8%	6.2%

The survey results indicate that a majority (62.4% overall) of the mothers of children aged 0-23 months do not wish to have another child within the next two years. Such a desire is consistent with a pattern of birth spacing that is beneficial to the health of both mother and children (born and not-yet-born). It is important that such a demand be satisfied by making effective contraceptive methods available to those who desire to use them. This should be accompanied by activities aimed to educate couples about the options available to those who desire to limit fertility or in some way regulate the interval between births.

Table 41: Current practice of family planning by method among all mothers of children aged 0-23 months by district (Madagascar Household Survey, October 1996)

	ANTSIRABE II n=721	FIANARANTSOA II n=720	POPULATION
PILLS	1.7% (12)	2.4% (17)	2.1%
INJECTIONS	1.8% (13)	1.7% (12)	1.7%
NORPLANT	0% (0)	0.1% (1)	0.1%
IUD	0.3% (2)	0.3% (2)	0.3%
CONDOMS	0% (0)	0.1% (1)	0.1%
SPERMICIDES	0% (0)	0% (0)	0%
TUBAL LIGATION/ VASECTOMY	0.3% (2)	0.3% (2)	0.3%
NATURAL/TRADITIONAL METHODS	4.6% (33)	12.9% (93)	9.2%
NONE	91.3% (658)	82.2% (592)	86.4%
TOTAL	100%	100%	100%
ANY METHOD	8.6% (62)	17.8% (128)	13.7%

The survey results indicate a low level of contraceptive prevalence among the survey population. It must be noted that the figure given for "ANY METHOD" includes those women who reported that they were currently practicing birth control using natural and/or traditional methods. The effectiveness of such methods is not clear, but they are clearly less effective than the other "modern" methods cited. If the utilization rate is limited to only modern methods, the rate drops to only 4.5 percent of the mothers of children aged 0-23 months of age.

Table 42: Reported contraceptive use (any method) among mothers of children aged 0-23 months by district (Madagascar Household Survey, October 1996)

	ANTSIRABE II	FIANARANTSOA II	POPULATION
All Women	8.6% (62/721)	17.8% (128/720)	13.7%
Among Those Reporting No Desire for Another Child during next Two Years	10.8% (50/465)	25.2% (111/440)	18.7%
Among Mothers of Children 0-11 Months	6.1% (22/362)	16.1% (58/360)	11.6%
Among Mothers of Children 12-23 Months	10.9% (39/358)	19.4% (70/360)	15.6%

The results confirm that those women who do not wish to have another child within the next two years have a higher rate of family planning utilization than the survey population in general. However, it does appear clear that there exists a significant level of unmet demand for family planning services and modern contraceptives.

I. Access to Media

The development of IEC campaigns will be affected by the levels of literacy among the intended audience as well as their access to traditional media.

Table 43: Reported literacy and access to mass media among mothers of children aged 0-23 months by district (Madagascar Household Survey, October 1996)

	ANTSIRABE II n=721	FIANARANTSOA II n=720	POPULATION
Percentage of Women Who Reported They Can Read Newspaper with Ease	64.5% (465)	63.3% (456)	63.8%
Percentage of Women Who Reported They Can Read Newspaper with Difficulty	12.5% (90)	21.3% (153)	17.3%
Percentage of Women Who Reported They Read a Newspaper at Least Once a Week	16.5% (119)	26.3% (189)	19.1%
Percentage of Women Who Reported They Listen to Radio at Least Once a Week	39.9% (288)	28.9% (208)	33.8%
Percentage of Women Who Reported They Watch Television at Least Once a Week	5.3% (38)	1% (7)	2.9%

Although the vast majority of the women (63.8%) reported they could read a newspaper “with ease” and 17.3 percent reported they could do so “with difficulty”, few do (only 19.1% reported that they read a newspaper once a week) and the overall levels of access to mass media channels appear low. Only one third of the women reported that they listen to a radio at least once a week. Television is available to only a small percentage of women. IEC campaigns intended to reach the mothers of infants and small children in the two target districts must clearly be based upon the development and use of channels and media beyond the traditional ones such as newspapers, radio and television.

V. KEY FINDINGS AND RECOMMENDATIONS

Survey findings may be grouped into several programmatic themes or areas. These key findings provide direction to the BASICS project and the MOHP in developing and implementing child survival interventions. Recommendations for actions based upon those key findings are discussed below. These recommendations are highlighted as part of the discussion.

- **Despite reasonably high levels of coverage for prenatal services, the MOHP must improve the delivery of its defined package of services to the women attending prenatal consultations in the target districts.**

The women in the two districts demonstrate high levels of participation in prenatal services organized by the MOHP. This is documented by the survey through vaccination card verification and women’s reported attendance at those clinics. The survey results suggest, however, difficulties and/or inconsistencies in the ability of the health facilities to deliver the defined package of services to all women during those sessions. Rates of vaccination coverage with tetanus toxoid, distribution of nivaquine, distribution of iron-folate tablets, etc., are all well below the reported levels of attendance.

The MOHP must study the current situation in order to better understand the reasons for these low levels of service delivery. In several cases it would appear that the problem rests with a central ministry which declares certain services to be part of a “national package of services” but does not allocate the resources necessary for local facilities to afford the delivery of those services. In other cases, low-cost changes in the organization of the delivery of services may prove effective in raising coverage rates (e.g., make tetanus toxoid antigen available to women at the time of pre-natal consultations rather than scheduling a follow-up visit on another day). Based upon the study of obstacles to service delivery, the *health facilities in the two districts should undertake a program of operations research that would allow them to demonstrate the actions and costs required to improve rates of coverage for these important services*. The results of this research would be important for the MOHP in order to better estimate the resources necessary to deliver basic services.

It is clear that the major problem with respect to these services is the ability of the MOHP to deliver them consistently and correctly. This issue should be addressed before any efforts intended to improve levels of participation or access to current services.

- **Levels of infant and young child malnutrition (particularly chronic malnutrition as represented by height/age) are very high in both of the districts included in the study. Infant feeding and breastfeeding practices appear to contribute to the high rates of malnutrition estimated by the survey.**

This survey was not designed to provide detailed information on child nutrition intake or patterns. It has provided documentation of very high levels of malnutrition (especially chronic and underweight) among infants and young children in the target districts. The information collected concerning breastfeeding patterns and duration suggests that current practices may be major factors contributing to these high rates. ***BASICS and the MOHP should develop a maternal IEC strategy to address these problems*** immediately. Additional information is needed concerning the actual dietary intake of children and infants. This information should be incorporated into any IEC strategy aimed at nutrition issues.

- **Vaccination coverage levels in the two districts for both mothers and children do not meet MOHP targets and are not sufficiently high to eliminate morbidity and mortality caused by the target diseases (maternal and neonatal tetanus, measles, pertussis, polio, tuberculosis, diphtheria).**

BASICS and the MOHP should examine the delivery of vaccination services in the two target districts in detail in order to identify the existing obstacles to improved coverage. These may include resources, logistics and organizational issues. ***A plan of action should be developed to address those obstacles.*** An important component of that plan should be the improvement and strengthening of information system elements required to improve management of the EPI program. There is currently a significant gap between the results reported by the existing routine management information system and the survey results. This must be resolved in order to allow for better management and tracking of results. Vaccinations are clearly among the most cost effective and efficacious of child survival interventions. The vaccination of all children should be an integral part of all service (preventive and curative) delivery activities taking place at facilities in the two districts.

- **Maternal knowledge of the danger signs for common childhood diseases (diarrhea, acute respiratory infection, measles), prevention measures and home-based treatments is low.**

The survey clearly indicates low levels of maternal knowledge concerning the prevention and treatment (both home- and health facility-based) of common childhood diseases such as ARI, diarrhea and fever. The mothers do not know the danger signs associated with these illnesses that should signal the need to seek treatment outside of the home. The potential effect of this lack of

knowledge on the severity of morbidity and mortality associated with these diseases is obvious. ***The BASICS project should develop and implement an IEC strategy designed to improve maternal knowledge in this area.***

- **There appears to be a large unmet demand for modern contraceptives and family planning services among mothers of infants and young children in the two districts.**

The BASICS project should collaborate with donors and MOHP to improve the availability, organization and delivery of family planning services. The survey suggests that there may be a significant demand for those services and products among the many women who indicated that they do not wish to have another child within the next two years. Family planning services are an important component of a primary maternal and child health package. The Health planning teams of both districts should encourage the appropriate organizations and institutions to support the organization and delivery of these services. The planning teams should ensure that BASICS and others work closely with those organizations to ensure that all services are integrated into a single management and delivery framework. This is necessary in order to avoid the duplication of efforts often associated with vertical, parallel delivery mechanisms.

APPENDIXES

APPENDIX A
HOUSEHOLD CHILD HEALTH AND NUTRITION SURVEY

BASICS MADAGASCAR
DISTRICT HOUSEHOLD SURVEY
QUESTIONNAIRE: CHILD 0 - 23 MONTHS

District _____
 Fokontanti _____
 Hamlet _____

Surveyor # _____
 Supervisor # _____
 Coordinator # _____
 Cluster # _____

1. Time of start						
2. House number						
2.a. Sex						
2.b. What is the name of the child						
3. What is the date of birth of the child? <i>(Check with the immunization/ health card/cahier)</i> <i>(If date of birth cannot be identify, try to evaluate the age with the mother)</i>	---/---/---	---/---/---	---/---/---	---/---/---	---/---/---	---/---/---
4. Age	[]	[]	[]	[]	[]	[]

First; I am going to ask you questions when you were pregnant with (name of child)

5. Do you have a vaccination/ maternal card/cahier? Yes <i>(If yes, check the card and give the dates of the vaccination)</i> No <i>(If no interview the mother)</i>	[] []					
6. TT1 Yes No Date ----	[] [] _____	[] [] _____	[] [] _____	[] [] _____	[] [] _____	[] [] _____
7. TT2 Yes No Date ----	[] [] _____	[] [] _____	[] [] _____	[] [] _____	[] [] _____	[] [] _____
8. TT3 Yes [] No [] Date ----	[] [] _____	[] [] _____	[] [] _____	[] [] _____	[] [] _____	[] [] _____
9. TT4 Yes [] No [] Date ----	[] [] _____	[] [] _____	[] [] _____	[] [] _____	[] [] _____	[] [] _____
10. TT5 Yes No Date ----	[] [] _____	[] [] _____	[] [] _____	[] [] _____	[] [] _____	[] [] _____

10. b. Had the mother received two or more doses of TT at the time of birth of this child? Yes No						
11. Did you attend any prenatal visits? Yes (<i>Go to 12</i>) No (<i>Go to 15</i>)	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
12. How many prenatal visits did you have during the pregnancy of (name of child) (<i>Check the card or interview the mother, tick the answers</i>) a. One b. Two c. Three d. More than three e. None	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
13. How many months were you pregnant, when you attend the first pre-natal visit?						
14. If yes, where did you attend prenatal visit? (<i>Tick the answers</i>) a. Hospital or PMI b. Health Care center/ c. Private clinic/Doctor d. Traditional birth attendant e. Others (specify)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> _____
15. Did you take iron tablets during the pregnancy of (name of child)? (<i>Show the pills</i>) Yes No	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
16. Did you take Nivaquine during the pregnancy of (name of child)? (<i>Prompt and tick the answer</i>) Regularly Sometimes No	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
17. During the delivery of (name of child), who tied and cut the cord? (<i>Tick the answers</i>) a. Myself b. A family member c. Traditional birth attendant d. Doctor, midwife, nurse e. Don't know f. Others(specify)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> _____

18. Where did you deliver (name of child)? <i>(Tick the answers)</i>						
a. Government hospital	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Health center/health post	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Private clinic /doctor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. With a TBA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. In the home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f Others (specify)						
19. Now, do you see well at dusk?						
Yes <input type="checkbox"/>	<input type="checkbox"/>					
No <input type="checkbox"/>	<input type="checkbox"/>					
20. Did you get a Vitamin A capsule after the delivery?						
Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>(Show the capsule)</i>						

Now I would like to ask you questions regarding the family planning

21. Do you want to have a child in the next two years?						
Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Don't know	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Do you and/or does your husband/partner currently use any method to avoid pregnancy? <i>(Tick the answers)</i>						
a. Pills	<input type="checkbox"/>					
b. Injections	<input type="checkbox"/>					
c. Norplant	<input type="checkbox"/>					
d. IUD	<input type="checkbox"/>					
e. Condoms	<input type="checkbox"/>					
f. Spermicides	<input type="checkbox"/>					
g. Tubulectomy/vasectomy	<input type="checkbox"/>					
h. Natural/Traditional methods	<input type="checkbox"/>					
i. None	<input type="checkbox"/>					
j. Others (specify)						

Now I would like to have some information about your past pregnancies?

23. All together, how many pregnancies have you had?						
24. How old were you for your first pregnancy?						

(If the woman has not been pregnant before having (name of child) , go to 28) (If the woman has already been pregnant, continue to 25) 25. What was the outcome of your previous pregnancy, before (name of child)? <i>(Prompt)</i> a. Live birth <i>(Go to 26)</i> b. Still born <i>(Go to 27)</i> c. Abortion <i>(Go to 27)</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. Is the child born still alive today	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. How many children are still alive today including (name of child)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Now I would like to have some information about (name of child)?

28. Do you have a vaccination/ health card/cahier for (name of child) Yes <i>(Check the card and give the dates of the vaccination)</i> No <i>(interview the mother)</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. BCG Yes No Date ----	<input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> _____
30. BCG Scar Yes No	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
31. Polio/DPT1 Yes No Date ----	<input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> _____
32. Polio/DPT2 Yes <input type="checkbox"/> No <input type="checkbox"/> Date ----	<input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> _____
33. Polio/DPT3 Yes <input type="checkbox"/> No <input type="checkbox"/> Date ----	<input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> _____
34.a. Measles Yes No Date ----	<input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> _____	<input type="checkbox"/> <input type="checkbox"/> _____
34.b. Is the child up to date for vaccination? Yes No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

35. At what age should be (name of child) or was vaccinated against measles? a. Specify in months b. Don't know	<hr/>					
---	-------	--	--	--	--	--

36. After (name of child) was born, when did you start breast- feeding? (<i>Tick the answers</i>) a. During the first hours? (<i>Go to 38</i>) b. The same day? (<i>Go to 38</i>) c. A day later? (<i>Go to 38</i>) e. Few days later (<i>Go to 38</i>) f. Does not know? (<i>Go to 38</i>) g. Did not breast-feed at all? (<i>Go to 37</i>)	 [] [] [] [] [] []					
--	--	--	--	--	--	--

37. If did not breast-feed, why did you not breast-feed? (<i>Tick the answers and go to question 44</i>) a. Mother sick/weak b. Child sick/weak c. Mother died d. Breast problems e. No milk f. It is not possible to BF g. Others (specify)	 [] [] [] [] [] [] <hr/>					
--	---	--	--	--	--	--

38. Did you express and throw away any of the first liquid from your breast? Yes (<i>Go to question 39</i>) No (<i>Go to question 40</i>)	 [] []					
---	----------------	--	--	--	--	--

39

41. If yes, how long did you continue to throw it away? a. Few minutes b. Less than 1 h. c. More than 1 h. d. Less than a day e. More than a day f. Don't know g. Others (specify)	 [] [] [] [] [] [] <hr/>					
--	---	--	--	--	--	--

40

42. Do you presently breast-feed (name of child)? Yes (<i>Go to question 42</i>) No (<i>Go to question 41a</i>)	 [] []					
--	----------------	--	--	--	--	--

41.a. If the woman has stopped breast-feeding, ask her why? <i>(Tick the answers and go to 47)</i> a. Mother sick/weak b. Child/weak c. Mother died d. Breast problems e. No milk f. Child refused g. Age for weaning h. Mother pregnant i. Others (specify)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>						
41.b. What age did (name of child) have when you stopped breast-feeding? (in months)							
42. Yesterday, how many times has (name of child) been breast-fed? (Prompt) a. less than eight times b. more than eight times c. Don't know	<input type="checkbox"/> 						
43. Yesterday, did you give anything else to (name of child)? <i>(Prompt each response)</i> a. Plain water b. Sugar water c. Rice water d. Juice e. Tea f. Milk Powder/Formula/condensed milk g. Fresh Milk h. Biscuits i. Semi-solid/solid foods j. Other liquids (specify) k. Other solids (specify)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>						
44. When did you or will you start feeding semi-solid or solid food to in addition to breast-feeding? <i>(Tick the answers)</i> a. Before 4 months b. Between 4 and 6 months c. After 6 months d. Don't know <i>(If (name of child) has started semi-solid or solid food., go to question 45)</i> <i>(If (name of child) has not started semi-solid or solid food., go to question 48)</i>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>						
45. Since yesterday, how many semi-solid and solid feedings did you give to him/her ?							

46. Which food? (<i>Prompt each response</i>)						
a. Rice porridge/gruel						
b. Carrot, squash, mango, papaya	<input type="checkbox"/>					
c. Meat / Fish	<input type="checkbox"/>					
d. Cassava, Maize, Potatoes ,	<input type="checkbox"/>					
Taro, Sweet potatoes	<input type="checkbox"/>					
e. Dark leafy green vegetables	<input type="checkbox"/>					
such as spinach	<input type="checkbox"/>					
f. fat/oil	<input type="checkbox"/>					
g. beans, lentils, peanuts	<input type="checkbox"/>					
h. Biscuits	<input type="checkbox"/>					
i. Sugar/honey	<input type="checkbox"/>					
j. eggs/yogurt/milk	<input type="checkbox"/>					
k. Others (specify)	<input type="checkbox"/>					
47. Does (name of child) eat on his/her own plate?						
Yes	<input type="checkbox"/>					
No	<input type="checkbox"/>					
48. While you are breast feeding, do you eat : (<i>Prompt and tick the answers</i>)						
More than usual	<input type="checkbox"/>					
Less than usual	<input type="checkbox"/>					
Same than usual	<input type="checkbox"/>					
Don't know	<input type="checkbox"/>					
49. Since yesterday, what did you eat? (<i>Prompt each response</i>)						
a. Rice						
b. Green vegetables	<input type="checkbox"/>					
c. Meat/fish	<input type="checkbox"/>					
d. Fruits	<input type="checkbox"/>					
e. Oil	<input type="checkbox"/>					
d. Others (specify)	<input type="checkbox"/>					

Now, I would like to get information regarding the health of name of child?

50. Has (name of child) experienced health problems in the last 2 weeks? (<i>Prompt and tick the answers</i>)						
a. Illness with cough	<input type="checkbox"/>					
b. Fast breathing/difficult breathing	<input type="checkbox"/>					
c. Fever	<input type="checkbox"/>					
d. Diarrhea	<input type="checkbox"/>					
e. None of the above (Go to 62)	<input type="checkbox"/>					
f. Others (specify) (Go to 62)	<input type="checkbox"/>					
51. During the illness, did (name of child) drink? (<i>Prompt and tick the answers</i>)						
a. Less than usual?	<input type="checkbox"/>					
b. About the same?	<input type="checkbox"/>					
c. More total fluids. than usual?	<input type="checkbox"/>					

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52. During the illness, what did you give to drink? (DO NOT prompt and tick the answers) a. ORS/ODIVA <input type="checkbox"/> b. RHF <input type="checkbox"/> c. Tea <input type="checkbox"/> d. Fruit Juice <input type="checkbox"/> e. Plain water <input type="checkbox"/> f. Breast milk <input type="checkbox"/> g. Others (specify) _____						
53. During the illness, did (name of child) eat: (Prompt and tick the answers) a. Much less than usual? <input type="checkbox"/> b. About the same? <input type="checkbox"/> c. More foods, than usual? <input type="checkbox"/>						
54. During the illness, how many times in 24 hours (during day and night) did you try to feed (name of child)?						
55. Did you do anything to treat (name of child) in the home when he/she developed the illness? (Tick the answers) a. Antibiotics <input type="checkbox"/> b. Other medicines and drugs <input type="checkbox"/> c. Traditional remedies <input type="checkbox"/> d. ORS <input type="checkbox"/> e. Give a bath <input type="checkbox"/> f. Nothing <input type="checkbox"/> g. Others (specify) _____						
56. During (name of child) 's illness, did you seek advice or treatment outside the home? Yes (Go to question 57) <input type="checkbox"/> No (Go to question 60) <input type="checkbox"/>						
57. If yes, what signs/symptoms caused you to seek advice or treatment? (Tick the answers. DO NOT PROMPT) a. Repeated vomiting <input type="checkbox"/> b. Very thirsty <input type="checkbox"/> c. High Fever <input type="checkbox"/> d. Many watery stools <input type="checkbox"/> e. Blood in the stools <input type="checkbox"/> f. Not eating/drinking well <input type="checkbox"/> g. Fast and difficult breathing <input type="checkbox"/> h. Noisy breathing <input type="checkbox"/> i. Chest in drawing <input type="checkbox"/> j. Cough <input type="checkbox"/> k. Getting sicker/very sick <input type="checkbox"/> l. Convulsions <input type="checkbox"/> m. Change of consciousness/lethargy <input type="checkbox"/> n. Others (specify) _____						

66

58. From whom did you seek advice or medicine? <i>(Tick the answers)</i> a. Hospital <input type="checkbox"/> b. Health Care center//aid post <input type="checkbox"/> c. Private clinic/Doctor <input type="checkbox"/> d. Traditional birth attendant <input type="checkbox"/> e. Community health worker <input type="checkbox"/> f. Traditional healer <input type="checkbox"/> g. Pharmacy <input type="checkbox"/> h. Relatives/friends <input type="checkbox"/> i. Others (specify) <input type="checkbox"/>						
59. Did the child receive any treatment? <i>(Tick the answers)</i> a. ORS/ODIVA <input type="checkbox"/> b. Recommended Home fluids <input type="checkbox"/> c. Antibiotics <input type="checkbox"/> d. Aspi.in/Paracetamol <input type="checkbox"/> e. Cough syrup <input type="checkbox"/> f. Vitamin A capsule <input type="checkbox"/> g. Anti-diarrheal <input type="checkbox"/> h. Nivaquine <input type="checkbox"/> i. Injection <input type="checkbox"/> j. Injection Quinine <input type="checkbox"/> k. IV <input type="checkbox"/> l. Traditional medicines <input type="checkbox"/> m. Nothing <input type="checkbox"/> n. Others (specify)? <input type="checkbox"/>						
60. After the illness, did (name of child) eat: <i>(Prompt and tick the answers)</i> a. Much less than usual? <input type="checkbox"/> b. About the same? <input type="checkbox"/> c. More total foods, than usual? <input type="checkbox"/>	<input type="checkbox"/> 	<input type="checkbox"/> 	<input type="checkbox"/> 	<input type="checkbox"/> 	<input type="checkbox"/> 	<input type="checkbox"/>
61. After the illness, how many times in 24 hours (during day and night) did you try to feed (name of child)?						
62. Diarrhea is a common health problem among children, what should you do at home regarding drinking and feeding when a child has diarrhea? <i>(Tick the answers)</i> a. Initiate fluids as soon as possible <input type="checkbox"/> b. Give the child more drink than usual <input type="checkbox"/> c. Give the child smaller, more frequent feeds <input type="checkbox"/> d. Feed more after diarrhea episode so that child can regain weight <input type="checkbox"/> e. Withhold fluids <input type="checkbox"/> f. Withhold foods <input type="checkbox"/> g. Don't know <input type="checkbox"/> h. Others (specify) <input type="checkbox"/>						

<p>63. What signs/symptoms would cause you to seek advice or treatment outside the home? <i>(Tick the answers)</i></p> <p>a. Repeated Vomiting <input type="checkbox"/></p> <p>b. Very thirsty <input type="checkbox"/></p> <p>c. Fever <input type="checkbox"/></p> <p>d. Diarrhea of prolonged duration (at least 14 days) <input type="checkbox"/></p> <p>e. Blood in the stools <input type="checkbox"/></p> <p>f. Not eating/drinking well <input type="checkbox"/></p> <p>g. Weakness <input type="checkbox"/></p> <p>h. Don't know <input type="checkbox"/></p> <p>i. Others (specify) _____</p>						
<p>64. Respiratory infections are also common health problems, what signs/symptoms would cause you to seek advice or treatment when a child suffers from respiratory infections? <i>(Probe and Tick the answers)</i></p> <p>a. Fast and difficult breathing <input type="checkbox"/></p> <p>b. Chest indrawing <input type="checkbox"/></p> <p>c. Fever <input type="checkbox"/></p> <p>d. Cough <input type="checkbox"/></p> <p>e. Not eating/drinking well <input type="checkbox"/></p> <p>f. Don't know <input type="checkbox"/></p> <p>g. Others (Specify) _____</p>						
<p>65. What about if your child gets fever, what actions will you take at home? <i>(Tick the answers)</i></p> <p>a. Give aspirin/Paracetamol <input type="checkbox"/></p> <p>b. Give Nivaquine <input type="checkbox"/></p> <p>c. Give both <input type="checkbox"/></p> <p>d. Give a bath <input type="checkbox"/></p> <p>e. Continue Breast-feeding <input type="checkbox"/></p> <p>f. Don't know <input type="checkbox"/></p> <p>g. Others (specify) _____</p>						
<p>66. What signs/symptoms would cause you to seek advice or treatment outside the home? <i>(Tick the answers)</i></p> <p>a. High fever <input type="checkbox"/></p> <p>b. Convulsions <input type="checkbox"/></p> <p>c. Not eating/drinking well <input type="checkbox"/></p> <p>d. Change of consciousness or lethargy <input type="checkbox"/></p> <p>e. Others (Specify) _____</p>						

67.a. Where will you go to seek advice or treatment? (<i>Tick the answers</i>)						
a. Hospital	<input type="checkbox"/>					
b. Health Care center/aid post	<input type="checkbox"/>					
c. Private clinic/Doctor	<input type="checkbox"/>					
d. Pharmacy	<input type="checkbox"/>					
e. Community health worker	<input type="checkbox"/>					
f. Traditional healer	<input type="checkbox"/>					
g. Traditional birth attendant	<input type="checkbox"/>					
h. Relatives/friends	<input type="checkbox"/>					
i. Others (specify)	_____					
67.b. After your child has recovered from being sick, how much food do you offer?						
a. much less than usual	<input type="checkbox"/>					
b. about the same as usual	<input type="checkbox"/>					
c. more than usual	<input type="checkbox"/>					
68. How can you prevent your child from getting diarrhea? (<i>Tick the answers</i>)						
a. Immunization	<input type="checkbox"/>					
b. Breast-feeding	<input type="checkbox"/>					
c. Hand washing	<input type="checkbox"/>					
d. Clean water	<input type="checkbox"/>					
e. Use of latrine	<input type="checkbox"/>					
f. Don't know	<input type="checkbox"/>					
g. Others (specify)	_____					
69. How can you prevent your child from getting respiratory infections? (<i>Tick the answers</i>)						
a. Immunization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Breast-feeding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Avoid smoking area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Keep him/her warmly clothed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Don't know	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Others (specify)	_____	_____	_____	_____	_____	_____
70. How can you prevent your child from getting Malaria? (<i>Tick the answers</i>)						
a. Use of Mosquito net	<input type="checkbox"/>					
b. Keep the environment free from puddles of water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Give Nivaquine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Don't know	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Others (specify)	_____	_____	_____	_____	_____	_____
Now to complete this interview, I would like to ask you some general questions						
71. Can you read and understand a letter or newspaper? (<i>Prompt</i>)						
a. Easily	<input type="checkbox"/>					
b. With difficulty	<input type="checkbox"/>					
c. Not at all	<input type="checkbox"/>					
72. Do you usually read a newspaper or a magazine at least once a week?						
Yes	<input type="checkbox"/>					
No	<input type="checkbox"/>					

73. Do you usually listen to radio at least once a week? Yes No	<input type="checkbox"/> <input type="checkbox"/>					
74. Do you usually watch television at least once a week? Yes No	<input type="checkbox"/> <input type="checkbox"/>					
75. Can you show me a sample/ packet of the salt used yesterday to prepare the main dish? No Salt Salt (<i>Test the salt</i>) Positive for iodine Negative for iodine	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>					
76. Where do you get water to wash your hands and dishes? (<i>Tick the answers</i>) a. Public well b. Private well c. Public faucet d. Private faucet e. Spring f. River/stream g. Pond/Lake h. Dam i. Rain water j. Truck delivery k. Bottle water l. Others (specify)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>					
77. Do you get the same water for drinking? Yes (<i>Go to question 79</i>) No (<i>Go to question 78</i>)	<input type="checkbox"/> <input type="checkbox"/>					
78. If "no". Where do you get drinking water for your family? (<i>Tick the answers</i>) a. Public well b. Private well c. Public faucet d. Private faucet e. Spring f. River/stream g. Pond/Lake h. Dam i. Rain water j. Truck delivery k. Bottle water l. Others (specify)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>					
79. Where do you go to the bathroom? (<i>Tick the answers</i>) a. Flush-personnel b. Flush-shared c. No latrine d. Common Latrine e. Improved/ventilated latrine f. Lavaka Voavoatra g. Others (specify)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>					

80. Do you have soap for hand-washing in the house?						
Yes	<input type="checkbox"/>					
No	<input type="checkbox"/>					
Sometimes	<input type="checkbox"/>					
81. (<i>Ask to see the soap</i>)						
Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
82. Is there at least one mosquito bed-net in the house?						
Yes						
No						
83. Do all children under five years sleep under it regularly?						
Yes						
No						
<i>Weigh and measure the child</i>						
84. weight: -----Kg (Older than 5 months)						
85. height: -----cm (Older than 5 months) (Lying down)						

86. Time at end					
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(Thank the mother for taking her time to answer your questions, and assure her that her input will help make the maternal and child health program in her community a better one....)

APPENDIX B

AGE AND GENDER DISTRIBUTION OF CHILDREN SURVEYED

APPENDIX B: AGE AND GENDER DISTRIBUTION OF CHILDREN SURVEYED

Age Distribution of Children Aged 0 -23 Months by District
Madagascar Household Survey, October 1996

AGE (months)	ANTSIRABE II	FIANARANTSOA II	POPULATION
0 -2	15.7% (113)	11.2% (81)	13.7%
3-5	12.6% (91)	11.8% (85)	12.2%
6-8	13.2% (95)	16.3% (117)	14.9%
9-11	8.7% (63)	10.7% (77)	9.8%
12-14	14.1% (102)	11% (79)	12.4%
15-17	12.3% (89)	12.2% (88)	12.2%
18-20	13.4% (97)	16.3% (117)	15%
21-23	9.8% (71)	10.6% (76)	10.3%
TOTAL	100% (721)	100% (720)	100%

p>.05

Gender Distribution Of Children Aged 0-23 Months by District
Madagascar Household Survey, October 1996

	ANTSIRABE II	FIANARANTSOA II	POPULATION
MALE	52.6% (379)	49.9% (359)	51.1%
FEMALE	47.4% (342)	50.1% (361)	48.9%
TOTAL	100% (721)	100% (720)	100%

p>.05

APPENDIX C

BASICS CORE INDICATORS FOR CHILD HEALTH AND NUTRITION INTERVENTIONS

APPENDIX C: BASICS CORE INDICATORS FOR CHILD HEALTH AND NUTRITION INTERVENTIONS

Selected Indicators of Child Survival and maternal and Child Health Programs and Services by District
Madagascar Household Survey, October 1996

PROGRAM INDICATORS	DEFINITION OF INDICATOR AND UNIT OF MEASUREMENT	ANTSIRABE II	FIANARANTSOA II	POPULATION
CAUSE OF SPECIFIC MORBIDITIES	PROPORTION OF CHILDREN WHO HAD BEEN SICK IN THE 2 PREVIOUS WEEKS			
	ANY ARI OR FEVER OR DIARRHEA	30.9% (223)	25.1% (181)	27.7%
	ANY ACUTE RESPIRATORY INFECTIONS (ARI)	68.2% (152)	64.6% (117)	66.2%
	ANY FEVER/MALARIA	42.1% (94)	42.5% (77)	42.3%
	ANY DIARRHEA	52.5% (117)	29.3% (53)	39.7%
NUTRITIONAL STATUS IN Z-SCORE	WEIGHT FOR HEIGHT (WASTING)	=<-1 =26.3%(143) =<-2=3.7% (21) =<-3=0.7% (4)	25.0% (146) 3.9% (23) 0.8% (4)	25.6% 3.8% 0.8%
	CHILDREN 6-11 MONTHS	=<-1 =19.1% (30) =<-2=1.9% (3)	16.0% (31) 2.1% (4)	17.4% 2.0%
	CHILDREN 12-17 MONTHS	=<-1=28.8% (55) =<-2=3.1% (6) =<-3=0.5% (1)	32.9% (55) 6.0% (6) 1.8% (3)	31.1% 4.7% 1.2%
	CHILDREN 18-23 MONTHS	=<-1=31.5% (53) =<-2=5.9% (10) =<-3=1.2% (2)	30.1% (58) 4.1% (8) 0.5% (1)	30.7% 4.9% 0.8%
	HEIGHT FOR AGE (STUNTING)	=<-1=84.2% (458) =<-2=61.8% (336) =<-3=32.4% (176)	82.4% (481) 56.0% (327) 29.8% (174)	83.2% 58.6% 30.9%
	CHILDREN 6-11 MONTHS	=<-1=68.8% (108) =<-2=30.6% (48) =<-3=8.3% (13)	70.1% (136) 29.9% (58) 7.2% (14)	69.5% 30.2% 7.7%

	CHILDREN 12-17 MONTHS	=<-1=92.1% (176) =<-2=73.8% (141) =<-3=38.2% (73)	86.8% (145) 66.5% (111) 32.9% (55)	88.2% 69.8% 35.3%
	CHILDREN 18-23 MONTHS	=<-1=96.4% (162) =<-2=83.9% (141) =<-3=53.6% (90)	94.8% (183) 81.3% (157) 54.4% (105)	95.5% 82.5% 54.1%
	WEIGHT FOR AGE (UNDERWEIGHT)	=<-1=75.4% (410) =<-2=44.1% (240) =<-3=11.4% (62)	73.5% (429) 39.2% (229) 9.9% (6)	74.5% 41.4% 10.6%
	CHILDREN 6-11 MONTHS	=<-1=58.0% (91) =<-2=19.7% (31) =<-3=4.5% (7)	54.1% (105) 21.1% (41) 3.6% (7)	5.9% 19.5% 4.0%
	CHILDREN 12-17 MONTHS	=<-1=87.4% (167) =<-2=60.2% (115) =<-3=15.7% (30)	83.2% (139) 47.3% (79) 14.4% (24)	85.1% 53.1% 14.9%
	CHILDREN 18-23 MONTHS	=<-1=84.5% 142) =<-2=55.4% (93) =<-3=14.9% (25)	91.2% (176) 55.4% (107) 14.0% (27)	88.2% 80.9% 14.6%
KNOWLEDGE OF CORRECT VACCINATION SCHEDULE	PROPORTION OF CARETAKERS WHO KNOW WHEN TO GIVE MEASLES IMMUNIZATION (AT 9 MONTHS)	62.1% (447)	31.9% (230)	45.6%

IMMUNIZATION SERVICES UTILIZATION AND TREATMENT RATE	PROPORTION OF CHILDREN COMPLETELY VACCINATED BY 12 MONTHS OF AGE	53.8% (194)	23.1% (83)	36.9%
	PROPORTION OF MOTHERS OF CHILDREN LEES THAN 12 MONTHS OF AGE WHO HAVE RECEIVED TT2+	40.4% (146)	45.6% (164)	43.3%
	PROPORTION OF MOTHERS PROTECTED AGAINST TETANUS AT THE TIME OF THEIR LAST DELIVERY	36.0% (260)	38.0% (274)	37.1%
	PROPORTION OF CHILDREN PROTECTED AGAINST TETANUS AT THEIR BIRTH	34.6% (249)	32.2% (232)	33.3%
NUTRITION KNOWLEDGE	PROPORTION OF CHILDREN BREASTFED IMMEDIATELY AFTER BIRTH	33.2% (239)	9.9% (71)	20.4%
	PROPORTION OF CARETAKERS WHO INITIATE COMPLEMENTARY FEEDING BETWEEN 6-12 MONTHS	12.8% (92)	7.9% (57)	10.0%
	PROPORTION OF CHILDREN AGED 0-3 MONTH EXCLUSIVELY BREASTFED	77.1% (108)	59.5% (66)	67.4%
	PROPORTION OF CHILDREN AGED 0-6 MONTHS EXCLUSIVELY BREASTFED	46.3% (114)	31.8% (68)	38.3%
NUTRITION PRACTICES	PROPORTION OF CHILDREN AGED 6-12 MONTHS RECEIVING AT LEAST 3 COMPLEMENTARY FEEDS PER DAY IN ADDITION TO BREASTFEEDING	80.4% (164)	80.0% (172)	80.2%
	PROPORTION OF CHILDREN OVER 12 MONTHS FED AT LEAST 5 TIMES PER DAY IN ADDITION TO BREASTFEEDING	3.5% (11)	5.9% (20)	4.8%

KNOWLEDGE FOR SEEKING CARE	PROPORTION OF MOTHERS WHO KNOW AT LEAST ONE (1) SIGN FOR SEEKING CARE WHEN THEIR INFANT OR CHILD IS SICK			
	ARI	89.6% (647)	88.2% (635)	88.8%
	FEVER	89.3% (645)	97.5% (702)	93.8%
CARETAKERS WHO KNOW 2 SIGNS OR MORE FOR SEEKING CARE IMMEDIATELY	ARI	46.4% (334)	56.9% (410)	52.2%
	DIARRHEA	31.1% (224)	49.9% (359)	41.4%
	FEVER	18.1% (130)	36.5% (263)	28.2%
DIARRHEA CASE MANAGEMENT KNOWLEDGE	PROPORTION OF CARETAKERS WITH KNOWLEDGE OF IMPORTANCE OF INCREASED FLUIDS FOR MANAGEMENT OF DIARRHEA	43.5% (313)	38.8% (279)	40.2%
	PROPORTION OF CHILDREN WITH DIARRHEA IN PREVIOUS 2 WEEKS WHO RECEIVED FLUIDS APPROPRIATELY DURING THE ILLNESS	Usual=23.1% (27) More=38.5% (45)	Usual=32.1% (17) More=50.9% (27)	28.1% 45.3%
	CARETAKERS THAT USE ORS/RHF FOR MANAGEMENT OF ANY DIARRHEA	ORS=15.4% (18) RHF=51.3% (60)	ORS=17.0% (9) RHF=66.0% (35)	16.3% 59.4%
	PROPORTION OF CARETAKERS WITH KNOWLEDGE OF IMPORTANCE OF CONTINUED FEEDING FOR MANAGEMENT OF DIARRHEA	32.8% (236)	38.3% (276)	35.8%
	PROPORTION OF MOTHERS WHO KNOW 2 SIGNS OR MORE FOR SEEKING CARE WHEN THEIR INFANT OR CHILD IS SICK WITH DIARRHEA	31.0% (224)	50.1% (361)	41.5%

HOUSEHOLD SANITATION	PROPORTION OF HOUSEHOLDS THAT SAY THEY HAVE SOAP FOR WASHING THEIR HANDS	42.4% (305)	59.0% (425)	41.5%
	PROPORTION OF THESE HOUSEHOLDS THAT SHOWED THE ACTUAL SOAP	56.8% (409)	66.1% (476)	61.9%
	PROPORTION OF HOUSEHOLDS WITH A WELL-MAINTAINED PIT LATRINE AVAILABLE	34.6% (249)	8.0% (58)	19.9%
KNOWLEDGE OF PREVENTIVE PRACTICES FOR MALARIA	PROPORTION OF HOUSEHOLDS WITH IMPREGNATED BEDNET AVAILABLE	4.9% (35)	1.4% (10)	2.9%
HOUSEHOLDS USE OF PREVENTIVE PRACTICES FOR MALARIA	PROPORTION OF CHILDREN UNDER 5 YEARS WHO SLEEP UNDER IMPREGNATED BEDNETS REGULARLY	3.6% (26)	0.4% (3)	1.8%
IRON/FOLATE SUPPLEMENT DURING PREGNANCY	PROPORTION OF PREGNANT WOMEN RECEIVING IRON/FOLATE SUPPLEMENTS DURING THEIR LAST PREGNANCY	4.4% (32)	8.1% (58)	6.4%
HOUSEHOLDS USE OF IODIZED SALT	PROPORTION OF HOUSEHOLDS CONSUMING IODIZED SALT	35.6% (256)	24.2% (174)	29.3%
SERVICE UTILIZATION AND TREATMENT RATE : ANTENATAL CARE	PROPORTION OF MOTHERS SEEN THAT HAD AN ANTENATAL CLINIC	92.6% (668)	85.7% (617)	88.8%
	ONE VISIT	11.2% (75)	11.2% (69)	11.2%
	TWO VISITS OR MORE	88.8% (593)	88.8% (547)	88.8%
SERVICE UTILIZATION AND TREATMENT RATE : ATTENDED BIRTHS	PROPORTION OF BIRTHS ATTENDED AT A HEALTH FACILITY	44.8% (323)	47.5% (342)	46.2%

APPENDIX D

NUMBER OF PRENATAL VISITS AND MONTHS PREGNANT AT FIRST VISIT

APPENDIX D: NUMBER OF PRENATAL VISITS AND MONTHS PREGNANT AT 1st VISIT

**Number of Reported Prenatal Visits and Mean Reported Gestational Age at Time of First Visit During Most Recent Pregnancy by Mothers of Children Aged 0-23 Months by District
Madagascar Household Survey, October 1996**

NO. OF VISITS	ANTSIRABE II	FIANARANTSOA II	POPULATION
0	7.4% (53)	14.3% (104)	11.2%
1	10.4% (75)	9.6% (69)	10%
2	25.8% (186)	22.8% (164)	24.1%
3	34.5% (249)	33.5% (241)	33.9%
>3	21.9% (158)	19.8% (142)	20.7%
TOTAL	100% (721)	100% (720)	100%
PERCENTAGE OF ALL WOMEN MAKING TWO OR MORE PRENATAL VISITS	82.2% (593)	76% (547)	78.8%
PERCENTAGE OF WOMEN ATTENDING PRENATAL CLINICS WHO MADE TWO OR MORE VISITS	88.8% (593/668)	88.6% (547/617)	88.7%
MEAN MONTHS PREGNANT AT TIME OF 1ST PRENATAL VISIT	5.316 (668)	5.9 (617)	5.64

APPENDIX E

DROPOUT RATE BETWEEN DOSES OF TETANUS TOXOID

APPENDIX E: DROPOUT RATE BETWEEN DOSES OF TETANUS TOXOID

Calculated Dropout Rate Between Doses of Tetanus Toxoid Vaccination (verified by health card and history) Among All Mothers of Children Aged 0-23 Months by District
Madagascar Household Survey, October 1996

DROP OUT BETWEEN DOSES:	ANTSIRABE II	FIANARANTSOA II	POPULATION
TT DOSE 1 - TT DOSE 2	6.4% (39/607)	10.5% (55/526)	8.7%
TT DOSE 2 - TT DOSE 3	22.9% (130/568)	36.5% (172/471)	30.4%
TT DOSE 3 - TT DOSE 4	30.8% (135/438)	44.5% (133/299)	38.3%
TT DOSE 4 - TT DOSE 5	37.3% (113/303)	48.8% (81/166)	43.6%
TT DOSE 1 -TT DOSE 5	68.7% (417/607)	83.8% (441/526)	77.0%

APPENDIX F

**VITAMIN A CAPSULE USE
AFTER MOST RECENT DELIVERY**

APPENDIX F: VITAMIN A CAPSULE USE AFTER MOST RECENT DELIVERY

Proportion of Mothers of Children Aged 0-23 Months Reporting Receiving Vitamin A Capsules
Following Most Recent Delivery by District

Madagascar Household Survey, October 1996

	ANTSIRABE II	FIANARANTSOA II	POPULATION
AMONG ALL WOMEN	18.6% (134)	2.6% (19)	9.8%
AMONG WOMEN DELIVERING IN MOHP HEALTH FACILITY	30.7% (87/283)	3% (10/327)	15.5%

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APPENDIX G

**KNOWLEDGE OF CORRECT AGE
FOR MEASLES VACCINATION**

APPENDIX G: KNOWLEDGE OF CORRECT AGE FOR MEASLES VACCINATION

Mothers Knowledge of Correct Age for Measles Vaccination for Children by District
Madagascar Household Survey, October 1996

	ANTSIRABE II	FIANARANTSOA II	POPULATION
RESPONDED 9 MONTHS WAS CORRECT AGE FOR MEASLES VACCINATION	62.2% (448)	31.9% (230)	45.5%
MEAN AGE GIVEN AS CORRECT AGE FOR MEASLES VACCINATION	8.5 months	7.4 Months	7.9 Months
MEDIAN AGE GIVEN AS CORRECT AGE FOR MEASLES VACCINATION	9 months	9 Months	9 Months
RESPONDED DON'T KNOW CORRECT AGE FOR MEASLES VACCINATION	27.9% (201)	49.0% (353)	39.5%

APPENDIX H

- H.1 Proportion of Women Who Expressed and Threw Away First Liquid from Breasts**
- H.2 Length of Time Women Expressed and Threw Away First Liquid from Breasts**

APPENDIX H(1): PROPORTION OF WOMEN WHO EXPRESSED AND THREW AWAY FIRST LIQUID FROM BREASTS

Proportion of All Mothers of Children Aged 0-23 Months Reporting That They Expressed and Threw Away the First Liquid From Their Breast Following the Birth of Their Youngest Child by District

Madagascar Household Survey, October 1996

	ANTSIRABE II	FIANARANTSOA II	POPULATION
EXPRESSED AND THREW AWAY FIRST LIQUID FROM BREAST FOLLOWING BIRTH	43.7% (314)	37.7% (269)	40.4%
DID NOT EXPRESS AND THROW AWAY FIRST LIQUID	56.3% (405)	62.3% (445)	59.6%
TOTAL	100% (719)	100% (714)	100%

APPENDIX H(2): LENGTH OF TIME WOMEN EXPRESSED AND THREW AWAY FIRST LIQUID FROM BREASTS

Reported Length of Time That Mothers of Children Aged 0-23 Months Threw Away Liquid Expressed From Their Breast Following the Birth of Their Youngest Child Among Those That Expressed and Threw Away First Liquid by District

Madagascar Household Survey, October 1996

	ANTSIRABE II	FIANARANTSOA II	POPULATION
A FEW MINUTES	83.8% (263)	67.7% (182)	74.9%
LESS THAN ONE HOUR	10.5% (33)	19.0% (51)	15.2%
MORE THAN ONE HOUR	2.2% (7)	7.1% (19)	4.9%
LESS THAN ONE DAY	1.0% (3)	2.6% (7)	1.9%
MORE THAN ONE DAY	1.9% (6)	2.2% (6)	2.1%
DON'T KNOW	0.6% (2)	1.5% (4)	1.1%
TOTAL	100% (314)	100% (269)	100%

APPENDIX I

AGE AT WEANING

FOR CHILDREN NOT CURRENTLY BREASTFEEDING

APPENDIX I: AGE AT WEANING FOR CHILDREN NOT CURRENTLY BREASTFEEDING

Mean Reported Age at Weaning Among Children Aged 0-23 Months Not Currently BreastFeeding
by District

Madagascar Household Survey, October 1996

	ANTSIRABE II	FIANARANTSOA II	POPULATION
PROPORTION OF ALL CHILDREN NOT CURRENTLY BREAST-FEEDING	11.2% (81)	22.8% (164)	17.6%
MEAN REPORTED AGE WHEN TERMINATED BREAST-FEEDING	14.6 MONTHS	14.2 MONTHS	14.4 MONTHS

APPENDIX J

REASONS FOR TERMINATION OF BREASTFEEDING

APPENDIX J: REASONS FOR TERMINATION OF BREASTFEEDING

Most Frequently Reported Reasons for Terminating Breast-Feeding Among Mothers of Children Aged 0-23 Months Who Have Terminated Breast-Feeding Their Youngest Child by District
Madagascar Household Survey, October 1996

	ANTSIRABE II	FIANARANTSOA II	POPULATION
THE CHILD REFUSED TO BREASTFEED	13.9% (11/79)	11.7% (19/162)	12.7%
THE CHILD REACHED WEANING AGE	26.6% (21/79)	38.9% (63/163)	33.3%
THE MOTHER BECAME PREGNANT	36.7% (29/79)	22.2% (36/162)	28.7%
PROPORTION OF MOTHERS IN SURVEY WHO HAVE TERMINATED BREASTFEEDING	11% (79/721)	22.5% (162/720)	17.3%

APPENDIX K

- K.1 Nutritional Status of Children 5-23 Months by Gender (Antsirabe II)**
- K.2 Nutritional Status of Children 5-23 Months by Gender (Fianarantsoa II)**
- K.3 Nutritional Status of Children 6-23 Months by Age (Antsirabe II)**
- K.4 Nutritional Status of Children 6-23 Months by Age (Fianarantsoa II)**

APPENDIX K(1): NUTRITIONAL STATUS OF CHILDREN 5-23 MONTHS BY GENDER (ANTSIRABE II)

Nutritional Status by Gender of Children Aged 5-23 Months
Madagascar Household Survey, October 1996

ANTSIRABE II

WEIGHT FOR HEIGHT (WASTING)	MALE	FEMALE
NORMAL	95.1% (269)	(97.7)% (256)
MODERATE	3.9% (11)	1.9% (5)
SEVERE	1.1% (3)	0.4% (1)
TOTAL	100% (283)	100% (262)

$p > .05$

HEIGHT FOR AGE (STUNTING)	MALE	FEMALE
NORMAL	30.4% (86)	46.9% (123)
MODERATE	30.7% (87)	27.9% (73)
SEVERE	38.9% (110)	25.2% (66)
TOTAL	100% (283)	100% (262)

$p < .001$

WEIGHT FOR AGE (UNDERWEIGHT)	MALE	FEMALE
NORMAL	50.2% (142)	62.2% (163)
MODERATE	34.3% (97)	30.9% (81)
SEVERE	15.5% (44)	6.9% (18)
TOTAL	100% (289)	100% (295)

$p < .01$

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APPENDIX K(2): NUTRITIONAL STATUS OF CHILDREN 5-23 MONTHS BY GENDER (FIANARANTSOA II)

Nutritional Status by Gender of Children Aged 5-23 Months

Madagascar Household Survey, October 1996

FIANARANTSOA II

WEIGHT FOR HEIGHT (WASTING)	MALE	FEMALE
NORMAL	94.9% (280)	97.2% (281)
MODERATE	4.4% (13)	2.1% (6)
SEVERE	0.7% (2)	0.7% (2)
TOTAL	100% (295)	100% (289)

$p > .05$

HEIGHT FOR AGE (STUNTING)	MALE	FEMALE
NORMAL	39.3% (116)	48.8% (141)
MODERATE	25.8% (76)	26.6% (77)
SEVERE	34.9% (103)	24.6% (71)
TOTAL	100% (195)	

$p < .01$

WEIGHT FOR AGE (UNDERWEIGHT)	MALE	FEMALE
NORMAL	54.9% (162)	66.8% (190)
MODERATE	31.2% (92)	27.3% (79)
SEVERE	13.9% (41)	5.9% (17)
TOTAL	100% (289)	100% (295)

$p < .001$

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**APPENDIX K(3): NUTRITIONAL STATUS OF CHILDREN 6-23 MONTHS BY AGE
(ANTSIRABE II)**

Nutritional Status by Age of Children Aged 6-23 Months
Madagascar Household Survey, October 1996

ANTSIRABE II

WEIGHT FOR HEIGHT (WASTING)	6 - 11	12 - 17	18 - 23
NORMAL	98.1% (155)	96.9% (185)	94.0% (158)
MODERATE	1.9% (3)	2.6% (5)	4.8% (8)
SEVERE	0% (0)	0.5% (1)	1.2% (2)
TOTAL	100% (158)	100% (191)	100% (168)

p>.05

HEIGHT FOR AGE (STUNTING)	6 - 11	12 - 17	18 - 23
NORMAL	69.6% (110)	26.1% (50)	16.1% (27)
MODERATE	22.2% (35)	35.6% (68)	30.3% (51)
SEVERE	8.2% (13)	38.2% (73))	53.6% (90))
TOTAL	100% (158)	99.9% (191)	100% (168)

p<.001

WEIGHT FOR AGE (UNDERWEIGHT)	6 - 11	12 - 17	18 - 23
NORMAL	80.4% (127)	39.8% (52)	44.7% (75)
MODERATE	15.2% (24)	44.5% (85)	40.5% (68)
SEVERE	4.4% (7)	15.7 % (30)	14.9% (25)
TOTAL	100% (158)	100% (191)	100.1% (168)

p<.001

**APPENDIX K(4): NUTRITIONAL STATUS OF CHILDREN 6-23 MONTHS BY AGE
(FIANARANTSOA II)**

Nutritional Status by Age of Children Aged 6-23 Months
Madagascar Household Survey, October 1996

FIANARANTSOA II

WEIGHT FOR HEIGHT (WASTING)	6 - 11	12 - 17	18 - 23
NORMAL	97.9% (190)	94.1% (157)	95.9% (185)
MODERATE	2.1% (4)	4.2% (7)	3.6% (7)
SEVERE	0% (0)	1.8% (3)	0.5% (1)
TOTAL	100% (194)	100% (167)	100% (193)

p<.01

HEIGHT FOR AGE (STUNTING)	6 - 11	12 - 17	18 - 23
NORMAL	70.1% (136)	33.6% (56)	18.7% (36)
MODERATE	22.7% (44)	33.5% (56)	26.9% (52)
SEVERE	7.2% (14)	32.9% (55)	54.4% (105)
TOTAL	100% (194)	100% (167)	100% (193)

p<.001

WEIGHT FOR AGE (UNDERWEIGHT)	6 - 11	12 - 17	18 - 23
NORMAL	78.9% (158)	52.7% (88)	44.5% (85)
MODERATE	17.5% (34)	32.9% (55)	41.5% (80)
SEVERE	3.6% (7)	14.4% (24)	14% (27)
TOTAL	100% (194)	100% (167)	100% (193)

p<.001

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APPENDIX L

**TREATMENT RECEIVED OUTSIDE OF THE HOME
FOR ILL CHILD**

APPENDIX L: TREATMENT RECEIVED OUTSIDE OF THE HOME FOR ILL CHILD

Treatment Received by Children Aged 0-23 Months Ill During the Preceding Two Weeks Who Sought Advice Outside of the Home by Type of Illness and District

Madagascar Household Survey, October 1996

	ANTSIRABE II		
	ANY ARI	ANY DIARRHEA	ANY FEVER
ORS/ODIVA	6.2% (5)	19.6% (10)	7.7% (4)
RECOMMENDED HOME FLUIDS	11.1% (9)	19.6% (10)	15.4% (8)
ANTIBIOTICS	37.0% (30)	27.5% (14)	25.0% (13)
ASPIRIN/PARACETAMOL	25.9% (21)	25.5% (13)	32.7% (17)
COUGH SYRUP	27.2% (22)	11.8% (6)	21.2% (11)
VITAMIN A CAPSULE	2.5% (2)	5.9% (3)	3.8% (2)
ANTI-DIARRHEAL	3.7% (3)	11.8% (6)	1.9% (1)
NIVAQUINE	2.5% (2)	2.0% (1)	1.9% (1)
INJECTION	11.1% (9)	9.8% (5)	7.7% (4)
INJECTION QUININE	1.2% (1)	2.0% (1)	1.9% (1)
IV	0% (0)	0% (0)	0% (0)
TRADITIONAL MEDICINE	12.3% (10)	5.9% (3)	17.3% (9)
NOTHING	12.3% (10)	9.8% (5)	11.5% ()

APPENDIX L (contd): TREATMENT RECEIVED OUTSIDE OF THE HOME FOR ILL CHILD

Treatment Received by Children Aged 0-23 Months Ill During the Preceding Two Weeks Who Sought Advice Outside of the Home by Type of Illness and District

Madagascar Household Survey, October 1996

	FIANARANTSOA II		
	ARI	ANY DIARRHEA	ANY FEVER
ORS/ODIVA	14.1% (10)	21.4% (6)	14.9% (7)
RECOMMENDED HOME FLUIDS	15.5% (11)	21.4% (6)	12.8% (6)
ANTIBIOTICS	32.4% (23)	39.8% (11)	25.5% (12)
ASPIRIN/PARACE TAMOL	33.8% (24)	17.9% (5)	34.0% (16)
COUGH SYRUP	5.6% (4)	0% (0)	2.1% (1)
VITAMIN A CAPSULE	0% (0)	0% (0)	0% (0)
ANTI-DIARRHEAL	7.0% (5)	25.0% (7)	14.9% (7)
NIVAQUINE	1.4% (1)	3.6% (1)	2.1% (1)
INJECTION	2.8% (2)	0% (0)	0% (0)
INJECTION QUININE	2.8% (2)	0% (0)	0% (0)
IV	0% (0)	0% (0)	0% (0)
TRADITIONAL MEDICINE	52.1% (37)	50.0% (14)	55.3% (26)
NOTHING	5.6% (4)	7.1% (2)	2.1% (1)

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APPENDIX M

PREVENTIVE MEASURES AGAINST MALARIA IN HOMES

APPENDIX M: PREVENTIVE MEASURES AGAINST MALARIA IN HOMES

Availability of Mosquito Bed-Net(s) in Households With Children Aged 0-23 Months by District
Madagascar Household Survey, October 1996

	ANTSIRABE II	FIANARANTS OA II	POPULATION
BED-NET REPORTEDLY AVAILABLE	4.9% (35)	1.4% (10)	3%
BED-NET REPORTEDLY USED REGULARLY BY ALL CHILDREN IN ALL HOUSEHOLD S UNDER 5 YEARS	3.6% (26)	0.4% (3)	1.8%
BED-NET REPORTEDLY USED REGULARLY BY CHILDREN 0-5 YEAR IN HOUSEHOLD S REPORTING BED-NET AVAILABLE	74.3% (26/35)	33.3% (3/10)	51.6%