IMPACT OF HIV ON PEDIATRIC OUTPATIENT CLINIC USE AT THE PROJET SAN FRANCISCO IN KIGALI, RWANDA

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INTRODUCTION

This is a report on the impact of the human immunodeficiency virus (HIV) on illness and the cost of health care among children in Kigali, Rwanda.

The Acquired Immune Deficiency Syndrome (AIDS) is a result of infection with the human immunodeficiency virus (HIV). Infection with HIV causes the progressive destruction of T-4 lymphocytes, an essential component of the cellular immune system. As a result, a variety of opportunistic infections which characterize HIV disease and AIDS pose a great risk to health. Common manifestations of AIDS in North America and Europe include pneumocystis carinii and Kaposi's sarcoma [1]. Symptoms and signs of AIDS listed in the WHO clinical case definition of AIDS in Central and East Africa include chronic diarrhea or fever, repeated bacterial infections and oropharyngeal candidiasis.

HIV infection is common in the United States and many developed nations where the transmission is greatest in homosexual men and intravenous drug users[2]. In Central and East Africa heterosexual contact and vertical transmission from mother to child are the principal modes of HIV transmission[3].

In Rwanda the prevalence of HIV has been well documented. The study conducted by the Rwanda HIV Seroprevalence Study Group in 1986 showed that HIV seroprevalence was 17.8% in urban areas and 1.3% in rural areas [4]. Within the urban sample two age-specific peaks were noted, with 10% of the 0-5 year olds and 30% of the 26-40 year olds testing positive for HIV. The male:female ratio in infected adults and children is approximately 1:1[5].

Three pathways for maternal-child transmission of the virus have been suggested: in utero, intrapartum, and postpartum. Fetal tissue[6], placenta[7], cervical secretions[8] and breast milk[9] have all been shown to contain HIV. Recent studies suggest that between 30 and 50% of babies born to HIV infected women will be infected with the virus[10].

51% of the total population of Rwanda is below 15 years of age, and mortality of children from 0-5 years is almost 22%[11]. There are a number of childhood diseases that contribute to a high morbidity in Rwandan children, particularly diarrheal disease, malaria and pneumonia. As a result, a large proportion of Rwanda's health resources is already devoted to children. The increased burden that the current AIDS epidemic will impose on these resources in urban areas has not been quantified.

The economic burden of AIDS derives both directly from health care costs and indirectly from the lost productivity of afflicted individuals. Studies in the US and europe have found lifetime personal health care costs generally between $30,000 and $60,000 [12]. Indirect costs are estimated to be 6-7 times higher[13]. Direct costs for children have been estimated in one study at $90,000 in NYC[14].

Limited research in Africa suggests lifetime direct costs of AIDS ranging from $100-$1600. The low costs compared with developed countries reflect low availability of health care services; the variation is due to national and regional differences in patient socioeconomic status and health care facilities. Indirect costs are estimated at $1-5000, varying by nation and region[12,15,16].

The above estimates of AIDS costs in Africa are based on theoretical models and limited empirical data. Future study will concentrate on the actual experience of seropositives and ill individuals identified through seroprevalence studies and testing, clinical care, and risk of transmission from known infected persons. Key outcome variables will be utilisation of health facilities, types of testing and care received, and care contributed by family members. Estimates of total costs for health care will include actual expenditures by the govnment, the individual, and his family, as well as the value of donated services. Indirect cost calculations will be based on lost economic earnings due to disability and death.

METHODS

Clinical Setting: The Project San Francisco (PSF), a research project of the University of California in San Francisco, is following 473 HIV positive and 997 HIV negative urban women aged 20 to 40 in a prospective study of the predictors and natural history of HIV infection. One of the services offered by the PSF is outpatient medical care at the project clinic for the subjects and their children. The project medical staff consists of 2 pediatricians available 4 days a week, an internist and a gynecologist, each available 1 day/week, and 6 full time nurses. A pharmacist oversees dispensing of medication. The laboratory is staffed by technicians who perform basic hematologic tests, stool exams for ova and parasites and thick drops for malaria. Very ill children and their mothers are referred on to Kigali's main hospital, located 500 meters from the PSF.

Subjects: A sample of 1470 women, randomly selected from a consecutive sample of 3800 prenatal care and pediatric clinic visitors at the Centre Hospitalier de Kigali (CHK), and their 4803 children have access to free health care at the PSF urban clinic. Clinic visits, laboratory tests, and medications are free of charge, and all families live within 10 Km of the dispensary in a city with good public transportation. In the first 12 months of the study, subjects reported a mean of 5.6 clinic visits for their own health care, 75% of which were to the PSF clinic.

HIV Testing: Serologic screening is done with the Wellcozyme ELISA. ELISA positive sera are confirmed with Immunoflorescence (Virion) and/or Western blot (Dupont). All women study subjects received their HIV test results as part of an education and prevention program between April and September 1988, and the test was offered at no charge to their sexual partners. In April 1989, the project began offering HIV testing for children at least 12 months of age.

In the first 4 months of testing, volunteer mothers brought in 200 children. Results were available for 156 children at the time of these analyses. All children were tested at or after 12 months of age; they were retrospectively considered positive for analyses of clinic visits prior to the to that age. All health care staff are blinded to mothers' and childrens' HIV status. Mothers did not yet know the serostatus of their children at the time of the visits analysed in this study.

Data Gathering: Data was obtained from the clinic records of children over a 5 month period from November 1988 to March 1989. These records included information on the age, sex and weight of each child, number of visits to the clinic, symptoms, laboratory tests results and medications given. Of the 4803 eligible children, 1596 attended the clinic for a total 3271 visits during the 5 month study period.

Data Analysis: Analyses were based on the assumption that cost of care is determined by cost of medication, number of clinic visits, and number of laboratory tests ordered. The variables below were stratified by age, mother's HIV serostatus and children's HIV serostatus:

1. number of visits to the clinic
2. symptoms presented
3. laboratory exams ordered and results
4. distribution of medications and cost

The average of unit prices from four pharmacies used by the project and its subjects were used for medication cost calculations. The cost of personnel time per visit was estimated using the average number of minutes spent with the receptionist, nurse, pharmacist, laboratory technician and doctor and the hourly wage of each.

Distributions and proportions were calculated, and the Mantel-Haenszel chi-squared and t-tests of significance were used when appropriate.

RESULTS

Analyses by maternal HIV status: Stratifications were first done by mother's HIV status, with the rationale that it was an available proxy for children's HIV status and would provide a much larger sample size than using children's HIV status alone. Analysis showed no difference in number of visits, cost of medications or frequency of symptoms for children of HIV positive and HIV negative mothers (Tables 1 and 2). This remained true when analyses were stratified by children's age (Appendices).

Table 1: Comparisons of health resource use by children of HIV+ mothers and children of HIV- mothers

	Mother HIV+	Mother HIV-
N eligible mothers	473	997
Mean age of mothers	28.0	29.1
N eligible children	1288	3515
Mean number of children per mother	2.7	3.5
N mothers who brought children into clinic	230 (49%)	623 (62%)
N eligible children brought into clinic	395 (31%)	1201(34%)
N visits	864	2407
Mean number of visits per child/5 months	.67	.68

Table 2: Frequency of symptoms in children of HIV+ and HIV- mothers

	Mother HIV+	Mother HIV-
% of eligible children presenting with symptom at least once in 5 months		
Cough	28%	27%
Fever	13%	14%
Diarrhea	12%	12%
Dermatitis	7%	7%
Other	21%	20%

HIV testing of children: Of the 156 children tested, 21 were HIV+ (Table 3). Twenty four percent of the children of HIV+ mothers were HIV+. Only 3 HIV+ children of HIV- mothers were identified, and these were eliminated from further analysis due to uncertainty about route and time of infection and the possibility of false positive tests (in the children) or false negative tests (in the mothers). Western blots, which are performed in the National AIDS Program laboratory, would have been useful in ruling out these possibilities. Unfortunately, they were not available to us during the time these data were prepared for analysis.

Table 3: Children's HIV serostatus by mother's serostatus.

	Children HIV+	Children HIV-	Total
Mother HIV+	18 (24%)	59 (77%)	77 (100%)
Mother HIV-	3 (4%)	76 (96%)	79 (100%)
Total	21	135	156

Analyses by children's HIV serostatus:

In each of the following tables, the results for HIV+ children vs HIV- children are presented in the first 2 columns ("M+C+" and "All C-"). At the time of the clinic visits analyzed in this study, the women subjects were aware of their own HIV test results but not yet those of their children. Because their own status (or the knowledge of it) might influence their use of the clinic as well as their decision to bring a sick child in for treatment, results for HIV- children of HIV+ ("M+C-") and HIV- ("M-C-") mothers are included for comparison in the right hand columns.

Age distributions in the different groups were similar: most of the children presenting for treatment in all groups were between 2 and 7 years of age (Table 4).

Table 4: Age distribution of children by childrens' and mothers' serostatus:

	M+C+	All C-	M+C-	M-C-
age unknown		3 (2%)	3 (5%)	
0-11 months	1 (6%)	4 (3%)	2 (3%)	2 (3%)
12-23 months	1(6%)	9 (7%)	4 (7%)	5 (7%)
24-47 months	7 (39%)	42 (31%)	16 (27%)	26(34%)
48-83 months	7 (39%)	50 (37%)	25 (42%)	25(33%)
≥83 months	2 (11%)	27 (20%)	9 (15%)	18(24%)
All	18 (100%)	135 (100%)	59 (100%)	76(100%)

Despite the small sample size, differences in indices of health care cost did become apparent when data were analyzed using the 156 children for whom serostatus was known.

Number of clinic visits: Table 5 compares the number of visits to the clinic in the different groups. HIV+ children had more often had at least one clinic visit (p=.05) and more often had 3 visits or more (p=.01) than HIV- children. HIV- children of HIV+ mothers had more repeat visits than HIV- children of HIV- mothers, but this difference was not significant (p=.10).

Table 5: Number of visits to the clinic vs childrens' and mothers' HIV status

	M+C+	All C-	M+C-	M-C-
# children tested	18	135	59	76
# visits total	45	196	96	100
# visits/child	2.50	1.45	1.63	1.32
#repeat visits/child	**1.72**	**0.90**	**1.05**	**0.77**
% of children with at least 1 visit	78%	55%	58%	53%
% of children with at least 3 visits	50%	24%	31%	18%

Symptoms: The distribution of symptoms presented in all clinic visits of children with HIV test results is given in Table 6. The proportion of visits for cough, fever, and diarrhea were similar in all groups. Proportionately more visits of HIV+ children were for dermatitis (27% vs 10%), and proportionately more visits for HIV- children for malarial syndrome (17% vs 7%).

Table 6: Distribution of presenting symptoms at clinic visits by childrens' and mothers' HIV status

	M+C+	All C-	M+C-	M-C-
N visits*	45	196	96	100
N visits with symptom:				
Cough	16 (36%)	82 (42%)	45 (47%)	37 (37%)
Fever	7 (16%)	38 (19%)	17 (18%)	21 (21%)
Diarrhea	10 (22%)	34 (17%)	17 (18%)	17 (17%)
Dermatitis	12 (27%)	19 (10%)	10 (10%)	9 (9%)
Malarial syndrome	3 (7%)	33 (17%)	9 (9%)	24 (24%)
Adenopathy	2	0	0	0
Stomachache	4	31	14	17
Cold	4	30	16	14
Anorexia	2	16	11	5
Vomiting	3	9	4	5
Oral problems	3	6	4	2
Earache	4	3	1	2
Abcess	0	2	1	1
Headache	1	4	0	4
Conjunctivitis	0	6	2	4
Worms	0	5	3	2
Other	15	68	32	36

*Many visits were for more than 1 symptom

When presenting symptoms were evaluated by child rather than by visit, clear differences emerged as shown in Table 7. In a 5 month period, HIV+ children were more likely to have been treated for dermatitis (50% vs 13%, p=.0001) and cough (56% vs 34%, p=.08). They were more likely to have been treated for diarrhea, but the difference was not significant (33% vs 20%, p=.20). The proportion of HIV+ and HIV- children treated for fever or malarial syndrome was similar. Interestingly, HIV- children of HIV+ mothers were more likely to have been treated for cough than HIV- children of HIV- mothers, though again this difference was not significant (p=.15)

Table 7: Percentage of each category of children presenting for a clinic visit with a specific symptom in a 5 month period

	M+C+ n=18	All C n=135	p	M+C- n=59	M-C- n=76	p
Dermatitis	50%	13%	.0001	13%	12%	
Cough	56%	34%	.08	41%	29%	.15
Diarrhea	33%	20%	.20	20%	20%	
Fever	22%	21%		20%	21%	
Malarial syndrome*	17%	21%		19%	22%	

* a diagnosis made on clinical grounds prior to availability of the thick drop result

Laboratory studies: The number of thick smears and stool exams ordered and their results did not show any significant differences between HIV negative and HIV positive children. One of 18 HIV+ children and 26 of 135 HIV- children had thick drops (6% vs 19%, p=.20, 2-tailed p value with Fischer's exact test).

Table 8: Percentage of each category of children receiving thick drop exams for malaria, and percentage with positive results

	M+C+ n=18	All C- n=135	M+C- n=59	M-C- n=76
Thick smears done	6% (1/18)	19%	19%	20%
Positive thick smear	0%	6%	3%	8%

Table 9: Percentage of each category of children having stool exams for parasites and percentage with positive results

	M+C+ n=18	All C- n=135	M+C- n=59	M-C- n=76
Stool exams ordered	9 (50%)	43 (32%)	18 (31%)	25 (33%)
Stools examined	5 (28%)	24 (18%)	10 (17%)	14 (18%)
Pathogens found	3 (17%)	12 (9%)	5 (8%)	7 (9%)
Pathogens/stool examined	60%	50%	50%	50%

HIV+ children were not significantly more likely to have stool exams ordered or to have them examined (a function of the mother's compliance in bringing in the sample). There were no differences in the proportion of each group who had pathogenic helminths or protozoa in their stools. (NB: The number of stool exams ordered is higher than the number of reported episodes of diarrhea because stool exams are often indicated for symptoms such as vomiting, abdominal pain, and bloating as well as for diarrhea.)

Medications: Table 10 shows the cost of medications used by the 156 children with known HIV serostatus. The amounts are per child in Rwandan francs (1 US$ = 80 FRW) and cover the period of November 1988 and January-March 1989 (on site computers did not have adequate memory to analyse medication data for the entire 5 months).

Table 10: Medication costs (in RwFr) of children by mother's and children's HIV status

	M+C+ n=18	All C- n=135	M+C- n=59	M-C- n=76
Total per child	344	226	255	204

The cost of medications prescribed for HIV+ children was 1.5 times that for HIV- children (p=.24). **This difference rose to 1.7 if HIV+ when children were compared to HIV- children of HIV- mothers (p=.13).** Medications of HIV- children of HIV+ mothers cost 1.25 that of medications of HIV- children of HIV- mothers. Though these differences are not statistically significant with such small numbers, they do indicate a tendency and give an estimate of it's magnitude.

Types of medication prescribed: HIV+ children were more likely to have received rehydration salts, vitamins, Bactrim syrup (an antibiotic often used for pneumopathies refractory to first line therapy) and dermatologic solutions than HIV- children. Table 11 lists commonly prescribed medications, and the number of times prescribed for children in each group. Those medications that HIV+ children were significantly more likely to have received are listed first, with p values shown to the right.

Table 11: Number of children for whom common medications were prescribed in each group.

	M+C+	All C-	p-value	M+C-	M-C-
Medication	n=18	n=135		n=59	n=76
Oral rehydration salts	6	9	.0003	3	6
Vitamins	6	10	.0007	3	7
Bactrim syrup	4	10	.04	2	8
Methylene blue	4	2	<.0001	1	1
Eosin	**2**	**4**	**.008**	**1**	**3**
Aspirin	8	35		13	22
Phenergan	2	28		15	13
Vermox	6	26		9	17
PPE	6	23		6	17
Otrivin	1	11		6	5
Chloramine	2	5		1	4
Benzyl benzoate	1	9		2	7
Ophthalmic tetracycline	1	8		3	5
Perdolan	2	7		2	5
Antimalarials (Chloroquine, Quinine, and Fansidar combined)	0	53		17	36
Cloxacillin	2	6		3	3
Flagyl syrup	1	9		3	6
Ampicillin	0	6		3	3
Erythromycin	0	5		2	3

DISCUSSION

This study investigated the relationship of HIV infection to several parameters of health care resource use by children in Kigali, capital of Rwanda. Use of an outpatient clinic by children over a 5 month period was evaluated; number of clinic visits, symptomatology, laboratory tests, and type and cost of medication prescribed were compared by mothers' and childrens' HIV antibody status.

The1470 women who have access to this clinic were randomly selected from among a consecutive sample presenting to prenatal care and pediatric clinics at the only hospital in the capital of Rwanda. As such, they and their 4803 children are reasonably representative of families living within a 10 Km radius of Kigali. At the time of the visits included in this study (November 1988 to March 1989), all 1470 women were aware of their HIV serology results. Testing for children was not offered until April 1989, and results for 156 children were available at the time of this study.

To increase sample size, the first set of analyses were done using maternal HIV status as a proxy for childrens'. No differences were found in number of visits, presenting symptoms, laboratory tests or cost of medications for any age group of children, suggesting that mother's HIV status was not a good proxy for children's HIV status. This was probably due to a dilution effect by HIV- children of HIV+ mothers, who would not be expected to need more health resources. If most children in the younger age group (<=3 yrs) were born to HIV+ mothers (in other words if most of the HIV+ women have been infected for at least 3 years), the dilution may be due to the 1/2 or more children who escaped infection. In the older age groups, many children may have been born prior to the mother's acquisition of the infection, and many who were born to HIV+ mothers either escaped infection or may have died before reaching 3 years of age.

When data were analysed for the 156 children with known HIV status, the results clearly indicated that HIV positive children do pose a greater burden on health services, both in terms of time and of medication costs. While small sample size prohibited detailed analyses, differences were evident in number of clinic visits, frequency and type of presenting symptom, and type and cost of medications prescribed.

HIV+ children had first and repeat clinic visits significantly more often than HIV- children, and the magnitude of this difference was striking: 50% of the HIV+ children had had at least 3 clinic visits in a 5 month period, twice as many as among HIV- children. HIV- children of HIV+ mothers used the clinic slightly more often than HIV- children of HIV- mothers, suggesting that (when the childs' results are not known) HIV+ mothers seek treatment earlier for their children, as they are advised to do for themselves.

The distribution of symptoms within visits did not differ between HIV+ and HIV- children with 2 exceptions: more visits of HIV+ children were for dermatitis, and proportionately more of those of HIV- children for malarial syndrome. The smaller proportion of visits for malaria in HIV+ children is not an indication that HIV protects against malaria but rather an an artifact of doing the distribution by visits: if HIV+ children have the same amount of malaria but more other problems than HIV- children, proportionately fewer of the visits by HIV+ children will be for malaria.

The proportion of visits for cough, fever, and diarrhea was the same in the 2 groups. This reflects the close correspondence between causes of morbidity in children in general and in children with AIDS. As noted in the introduction, major causes of morbidity in Rwandan children are diarrhea, acute respiratory illness and malaria. The symptoms of AIDS listed in the WHO clinical case definition include diarrhea, cough and fever. The crucial difference is chronicity, reflected only indirectly in our analyses by the number of repeat clinic visits.

Differences in symptomatology were striking when analyses were done by child rather than by visit. Half of the HIV+ children required treatment for dermatitis in a 5 month period, vs only 13% of the HIV-, and 56% vs 34% required treatment for cough. The proportion of HIV+ children with an episode of diarrhea was higher (33% vs 20%), but this was not significant with this small sample size. As expected, the number of episodes of malaria was the same in the two groups. Of interest also was the finding that adenopathy was a presenting symptom in only 2 children, both HIV+, corroborating the finding of Lepage, et al that adenopathy was a specific (though not sensitive) indicator of HIV infection [11].

Laboratory exams ordered for HIV positive and HIV negative children showed no significant differences either in frequency ordered or proportion of positive results. Complete information was available for thick drop screening of malaria, a test done at the time of the visit. Clinic staff often experience difficulty, however, in actually collecting stool samples once they have been ordered. This is because symptoms leading to stool exams (diarrhea, abdominal pain, vomiting, bloating) are treated empirically prior to performance of the test, and if the symptoms subside with treatment within a few days, mothers do not bother to collect a sample and return with it to the laboratory. In 37% of cases where stool exam was ordered, no results were available.

In the PSF clinic, the cost of staff time (reception, dispensary, laboratory, and pharmacy taken together) for each visit is approximately 300 francs, of the same order as the average cost of medication per visit for children. Analyses of medications prescribed show that HIV+ children were significantly more likely to require oral rehydration salts, vitamins, bactrim (trimethoprim-sulfamethoxazole) syrup, methylene blue and eosin (topical applications for dermatitis) than HIV- children. These are commonly used medications in Africa, and suggest that the increased medication costs that HIV+ children incur result from more frequent visits for common symptoms rather than from high cost medications specific for their health problems.

In conclusion, the impact of HIV infection on outpatient health resource use by children in high prevalence urban areas of east-central Africa will be appreciable and will tax already scarce supplies and overworked personnel. HIV+ children in this study had 1.9 times more clinic visits and 1.7 times more medication costs than children of uninfected mothers in a 5 month period. Prospective, large scale studies are needed to document morbidity and evaluate the efficacity of current treatment regimens for common symptoms in HIV+ children.

DIFFICULTIES ENCOUNTERED IN THE PRETEST AND SOLUTIONS FOUND FOR THE DEFINITIVE STUDY DESIGN

1. The most problematic part of this pilot study was the unexpectedly small sample of children tested. Many subjects had been requesting the test for their children for the last year; we anticipated no problems with drawing enough children once we made the test available. The sudden reluctance of the mothers was a surprise. There were a number of reasons given for it, the most important being that the women were afraid that too much blood would be drawn, thus endangering the child's health and causing him pain.

- We have tested several procedures and have now found a workable system: nurses from the pediatric service at the Centre Hospitalier de Kigali rotate at the PSF during their vacation time. Each morning and afternoon, an announcement is made to the assembled group explaining the availability of the test and showing the small amount of blood needed. These nurses are accustomed to blood draws for children and can do the procedures quickly with very little pain.

2. The system of entering information in the computer for each visit on the same day is cumbersome and leads to errors and missing information.

- The child's name and identity number will be pre-printed on forms kept in the chart. This will minimize numbering errors and coupled with a system of data entry every 2 months (rather than daily) the incidence of misplaced files should be reduced. This system will also insure that a chart does not leave the patients dossier and is always available to the health provider.

3. The form used for the visits analysed did not record duration of symptom; because the symptoms of AIDS and of common childhood maladies are the same except for duration, this prohibited good documentation of HIV related symptoms.

- Space will be provided on the form to document duration of symptoms. This aspect of record keeping is essential in determining if symptoms are within current criteria for clinical diagnosis of AIDS or ARC.

4. The limited capacity of on site computers complicated analyses.

•For the long term studies planned, the system developed for the womens' cohort studies will be used: data collection, entry, cleanup and basic analyses on site in Rwanda, a second round of cleanup and more sophisticated analyses at the University of California's Center for AIDS Prevention Studies.

5. When counting visits, it was difficult to determine whether a visit only to get laboratory results or only for routine followup should be assigned the weight of a full visit.

•Visits will be strictly defined as occasions when the child is actually attended to by a health provider, or when lab tests are ordered or performed. This will facilitate future analysis in that evaluation of costs include time spent by staff with patients. On occasions when lab results are given, or when information is given as to continuation of prescribed treatment a visit will not be entered into the chart.

FUTURE STUDY

Project development funds were used to analyse the first few months of data collected about children's visits to the Projet San Francisco dispensary in Kigali. This pretest yielded preliminary data about the impact of HIV on outpatient health resource use by children and allowed development of improved methods for data collection and analysis in a larger, more comprehensive study. Funds are being sought to address the following research questions:

- What is the morbidity and mortality associated with HIV infection in children?

- What is the impact on clinic services, and what fortified resources will be needed to meet the increased needs in the future as the epidemic progresses?

- What is the efficacity of routine treatment algorithms in HIV+ children and can more effective, cheaper algorithms be developed for this group?

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APPENDIX 1:

Age distribution of children eligible for health care at the Projet San Francisco, by mother's HIV status (column %)

Age (months)	Mother HIV + N	(%)	Mother HIV - N	(%)	Total N	(%)
0-11	109	(8%)	378	(11%)	487	(10%)
12-23	176	(14%)	433	(12%)	609	(13%)
24-47	265	(21%)	662	(19%)	927	(19%)
48-83	325	(25%)	861	(24%)	1186	(25%)
> = 84	413	(32%)	1181	(34%)	1594	(33%)
TOTAL	**1288**	**(100%)**	**3515**	**(100%)**	**4803**	**(100%)**

Proportion of eligible children in each age group that have HIV+ mothers (row%)

Age (months)	Mother HIV + N	(%)	Mother HIV - N	(%)	Total N	(%)
0-11	109	(22%)	378	(78%)	487	(100
12-23	176	(29%)	433	(71%)	609	(100%)
24-47	265	(29%)	662	(71%)	927	(100%)
48-83	325	(27%)	861	(73%)	1186	(100%)
> = 84	413	(26%)	1181	(74%)	1594	(100%)
TOTAL	**1288**	**(27%)**	**3515**	**(73%)**	**4803**	**(100%)**

APPENDIX 2:

Distribution of visits by children's age group and by maternal HIV status (column %)

Age (months)	Mother HIV +		Mother HIV -		Total	
	N	(%)	N	(%)	N	(%)
0-11	93	(11%)	408	(17%)	501	(13)
12-23	184	(21%)	437	(18%)	621	(19%)
24-35	131	(15%)	376	(16%)	507	(15%)
36-47	113	(13%)	233	(10%)	346	(11%)
48-59	91	(10.5%)	173	(7%)	264	(8%)
60-83	118	(14%)	300	(12%)	418	(13%)
>= 84	134	(15.5%)	480	(20%)	614	(19%)
TOTAL	**864**	**(100%)**	**2407**	**(100%)**	**3271**	**(100%)**

Proportion of visits in each age group that were for children with HIV+ mothers (row %)

Age (months)	Mother HIV +		Mother HIV -		Total	
	N	(%)	N	(%)	N	(%)
0-11	93	(19%)	408	(81%)	501	(100%)
12-23	184	(30%)	437	(70%)	621	(100%)
24-35	131	(26%)	376	(74%)	507	(100%)
36-47	113	(33%)	233	(67%)	346	(100%)
48-59	91	(34%)	173	(66%)	264	(100%)
60-83	118	(28%)	300	(72%)	418	(100%)
>= 84	134	(22%)	480	(78%)	614	(100%)
TOTAL	**864**	**(26%)**	**2407**	**(74%)**	**3271**	**(100%)**

APPENDIX 3:

Proportion of eligible children in each age group and maternal HIV category with at least 1 clinic visit in 5 months

Age(mos)	Mother HIV + N	(%)	Mother HIV - N	(%)	Total N	%
0-11	43/109	(39%)	188/378	(50%)	231/487	(47%)
12-23	72/176	(41%)	192/433	(44%)	264/609	(43%)
24-47	99/265	(37%)	286/662	(43%)	385/927	(42%)
48-83	107/325	(33%)	255/861	(30%)	262/1186	(31%)
> = 84	74/413	(18%)	280/1181	(24%)	354/1594	(22%)
TOTAL	**395/1288**	**(31%)**	**1201/3515**	**(34%)**	**1596/4803**	**(33%)**

Proportion of clinic visitors in each age category that have HIV+ mothers (row%)

Age(months)	Mother HIV + N	(%)	Mother HIV - N	(%)	Total N	(%)
0-11	43	(19%)	188	(81%)	231	(100%)
12-23	**72**	**(27%)**	**192**	**(73%)**	**264**	**(100%)**
24-35	52	(24%)	168	(76%)	220	(100%)
36-47	47	(28%)	118	(72%)	165	(100%)
48-59	44	(31%)	98	(69%)	142	(100%)
60-83	63	(29%)	157	(71%)	220	(100%)
> = 84	74	(21%)	280	(79%)	354	(100%)
TOTAL	**395**	**(25%)**	**1201**	**(75%)**	**1596**	**(100%)**

APPENDIX 4:

Proportion of eligible children in each age group and maternal HIV category with at least 3 clinic visits in 5 months

Age(mos)	Mother HIV + N	(%)	Mother HIV - N	(%)	Total N	(%)
0-11	13/109	(12%)	58/378	(15%)	71/487	(15%)
12-23	33/176	(19%)	57/433	(13%)	90/609	(15%)
24-47	37/265	(14%)	85/662	(13%)	122/927	(13%)
48-83	26/325	(8%)	53/861	(6%)	79/1186	(6%)
> = 84	15/413	(4%)	48/1181	(4%)	63/1594	(4%)
TOTAL	**124/1288**	**(10%)**	**301/3515**	**(9%)**	**425/4803**	**(9%)**

Proportion of children with 3 or more visits that have HIV+ mothers (row %)

Age(months)	Mother HIV + N	(%)	Mother HIV - N	(%)	Total N	(%)
0-11	13	(18%)	58	(82%)	71	(100%)
12-23	33	(37%)	57	(63%)	90	(100%)
24-35	23	(30%)	54	(70%)	77	(100%)
36-47	14	(31%)	31	(69%)	45	(100%)
48-59	11	(37%)	19	(63%)	30	(100%)
60-83	15	(31%)	34	(69%))	49	(100%)
> = 84	15	(24%)	48	(76%)	63	(100%)
TOTAL	**124**	**(29%)**	**301**	**(71%)**	**425**	**(100%)**

APPENDIX 5

Parameters of clinic use by maternal HIV status in children of all ages

	Mother HIV+	Mother HIV-	Total
Number of children eligible	1288	3515	4803
Number of children attenders	395	1206	1596
Number of visits total	864	2407	3271
Number of visits/child eligible	0.67	0.68	0.68
Number of first visits/child eligible	0.31	0.34	0.33
Number of repeat visits/child eligible	0.36	0.34	0.35
Number of 3 or more visits by child eligible	0.19	0.16	0.17
Children with at least 3 visits			
% of all children eligible	10%	9%	9%
% of all clinic attenders	31%	25%	27%

APPENDIX 6

Parameters of clinic use by maternal HIV status in children aged 0-11 months

	Mother HIV +	Mother HIV -	Total
Number of children eligible for care	109	378	487
Number of children clinic attenders	43	188	231
Number of visits total	93	408	501
Number of visits/child eligible	0.85	1.08	1.03
Number of first visits/child eligible	0.39	0.50	0.47
Number of repeat visits/child eligible	0.46	0.58	0.55
Number of 3 or more visits by child eligible	0.21	0.3	0.28
Children with at least 3 visits			
% of all children eligible	12%	15%	14%
% of all clinic attenders	30%	31%	31%

APPENDIX 7:

Parameters of clinic use by maternal HIV status in children aged 12-23 months

	Mother HIV +	Mother HIV-	Total
Number of children eligible for care	176	433	609
Number of children attenders	72	192	264
Number of visits total	184	437	621
Number of visits/child eligible	1.04	1	1.02
Number of first visits/child eligible	0.41	0.44	0.43
Number of repeat visits/child eligible	0.64	0.56	0.59
Number of 3 or more visits by child eligible	0.38	0.15	0.33
Children with at least 3 visits			
% of all children eligible	19%	13%	15%
% of all clinic attenders	46%	30%	34%

APPENDIX 8

Parameters of clinic use by maternal HIV status in children aged 24-47 months

	Mother HIV +	Mother HIV-	Total
Number of children eligible for care	265	662	927
Number of children clinic attenders	99	286	385
Number of visits total	244	609	853
Number of visits/child eligible	0.92	0.91	0.92
Number of first visits/child eligible	0.37	0.43	0.41
Number of repeat visits/child eligible	0.55	0.48	0.50
Number of 3 or more visits by child eligible	0.28	0.24	0.25
Children with at least 3 visits			
% of all children eligible	14%	13%	13%
% of all clinic attenders	37%	30%	32%

APPENDIX 9

Parameters of clinic use by maternal HIV status in children aged 48-83 months

	Mother HIV+	Mother HIV-	Total
Number of children eligible	325	861	1186
Number of clinic attenders	107	255	362
Number of visits total	209	473	682
Number of visits/child eligible	0.64	0.55	0.58
Number of first visit/child eligible	1.95	1.85	1.88
Number of repeat visits/child eligible	0.31	0.25	0.27
Number of 3 or more visits by child eligible	0.15	0.1	0.11
Children with at least 3 visits			
% of all children eligible	8%	6%	7%
% of all clinic attenders	**24%**	**21%**	**22%**

APPENDIX 10

Parameters of clinic use by maternal HIV status in children aged >=84 months

	Mother HIV+	Mother HIV-	Total
Number of children ligible	413	1181	1594
Number of children clinic attenders	74	280	354
Number of visits total	134	480	614
Number of visits/child eligible	0.32	0.40	0.38
Number of first visits/child eligible	0.18	0.24	0.22
Number of repeat visits/child eligible	0.15	0.17	0.16
Number of 3 or more visits by child eligible	0.06	0.07	0.06
Children with at least 3 visits			
% of all children eligible	4%	4%	4%
% of all clinic attenders	20%	17%	18%

APPENDIX 11

Distribution of symptoms by maternal serostatus-all ages (column %)

Symptoms	Mother HIV +		Mother HIV-		Total	
	N	(%)	N	(%)	N	(%)
Cough	360	(42%)	943	(39%)	1303	(39%)
Fever	167	(19%)	485	(20%)	652	(19%)
Diarrhea	158	(18%)	434	(18%)	592	(18%)
Adenopathy	6	(0.7%)	15	(0.6%)	21	(0.6%)
Anorexia	89	(10%)	208	(9%)	297	(9%)
Abcess	7	(0.8%)	12	(0.5%)	19	(0.5%)
Dermatosis	92	(11%)	249	(10%)	341	(10%)
Headache	13	(1%)	49	(2%)	62	(2%)
Conjunctivitis	33	(3%)	150	(6%)	183	(5%)
Stomach pain	114	(13%)	378	(16%)	492	(15%)
Oral symptoms	24	(2%)	43	(2%)	67	(2%)
Otitis	13	(1%)	21	(0.9%)	34	(1%)
Malarial syndrome	101	(11%)	344	(14%)	445	(13%)
Rhinitis	122	(14%)	413	(17%)	535	(16%)
Worms	15	(2%)	26	(1%)	41	(1%)
Vomiting	52	(6%)	167	(7%)	219	(7%)
Other	276	(31%)	686	(28%)	962	(29%)
All	864		2407		3271	
Number of symptoms/visit		1.7		1.9		1.9

APPENDIX 12

Proportion of children presenting to clinic with symptoms that have HIV+ mothers-all ages (row %)

Symptoms	Mother HIV + N	(%)	Mother HIV - N	(%)	Total N	(%)
Cough	360	(28%)	943	(72%)	1303	(100%)
Fever	167	(26%)	485	(74%)	652	(100%)
Diarrhea	158	(27%)	434	(73%)	592	(100%)
Adenopathy	6	(29%)	15	(71%)	21	(100%)
Anorexia	89	(30%)	208	(70%)	297	(100%)
Abcess	7	(37%)	12	(63%)	19	(100%)
Dermatosis	92	(27%)	249	(73%)	341	(100%)
Headache	13	(21%)	49	(79%)	62	(100%)
Conjunctiv	33	(18%)	150	(81%)	183	(100%)
Stomach pain	114	(23%)	378	(77%)	492	(100%)
Oral sympt	**24**	**(36%)**	**43**	**(64%)**	**67**	**(100%)**
Otitis	13	(38%)	21	(62%)	34	(100%)
Malarial Syn.	101	(23%)	344	(77%)	445	(100%)
Rhinitis	122	(23%)	413	(77%)	535	(100%)
Worms	15	(37%)	26	(63%)	41	(100%)
Vomiting	52	(24%)	167	(76%)	219	(100%)
Other	276	(29%)	686	(71%)	962	(100%)
All	**864**	**(26%)**	**2407**	**(74%)**	**3271**	**(100%)**

APPENDIX 13

Distribution of presenting symptoms by maternal HIV status for children aged 0-11 months (column %)

	Mother HIV+		Mother HIV-		Total	
	N	%	N	%	N	%
Cough	58	(62%)	227	(56%)	285	(56%)
Fever	21	(23%)	104	(25%)	125	(25%)
Diarrhea	14	(15%)	105	(25%)	119	(23%)
Adenopathy	1	(1%)	3	(0.7%)	4	(.8%)
Anorexia	7	(7%)	18	(4%)	25	(5%)
Abcess	2	(2%)	1	(0.2%)	3	(.6%)
Dermatosis	14	(15%)	44	(11%)	58	(11%)
Conjunctivitis	6	(6%)	28	(7%)	34	(7%)
Stomach Pain	2	(2%)	22	(5%)	24	(5%)
Oral Symptoms	0		4	(1%)	4	(0.7%)
Otitis	**0**		**3**	**(0.7%)**	**3**	**(0.5%)**
Malarial Syndrome	16	(17%)	49	(12%)	65	(13%)
Rhinitis	30	(32%)	146	(35%)	176	(35%)
Worms	1	(1%)	1	(.2%)	2	(0.4%)
Vomiting	12	(13%)	45	(11%)	57	(11%)
Other	28	(30%)	98	(24%)	126	(25%)
ALL	**93**		**408**		**501**	
Symtoms/Visit		2.3		2.3		2.3

APPENDIX 14

Proportion of children presenting with symptoms that have HIV+ mothers-age 0-11 (row %)

	Mother HIV+ N	%	Mother HIV- N	%	Total N	%
Cough	58	(20%)	227	(80%)	285	(100%)
Fever	21	(17%)	104	(83%)	125	(100%)
DIarrhea	14	(11%)	105	(88%)	119	(100%)
Adenopathy	1	(25%)	3	(75%)	4	(100%)
Anorexia	7	(28%)	18	(72%)	25	(100%)
Abcess	2	(67%)	1	(33%)	3	(100%)
Dermatosis	14	(24%)	44	(76%)	58	(100%)
Headache	0		0		0	
Conjuntivitis	6	(18%)	28	(82%)	34	(100%)
Stomach Pain	2	(8%)	22	(92%)	24	(100%)
Oral Problems	0		4	(100%)	4	(100%)
Otitis	0		3	(100%)	3	(100%)
Malarial Syndrome	16	(25%)	49	(75%)	65	(100%)
Rhinitis	30	(17%)	146	(83%)	176	(100%)
Worms	1	(50%)	1	(50%)	2	(100%)
Vomiting	12	(21%)	45	(79%)	57	(100%)
Other	28	(22%)	98	(78%)	126	(100%)
ALL	**93**	**(19%)**	**408**	**(81%)**	**501**	**(100%)**

APPENDIX 15

Distribution of presenting symptoms by maternal HIV 12-23 Months (Column %)

	Mothers HIV+ N	%	Mothers HIV- N	%	Total N	%
Cough	87	(47%)	213	(49%)	300	(48%)
Fever	42	(23%)	102	(23%)	144	(23%)
Diarrhea	51	(28%)	123	(28%)	174	(28%)
Adenopathy	0		2	(0.4%)	2	(0.3%)
Anorexia	20	(11%)	44	(10%)	64	(10%)
Abcess	2	(1%)	3	(0.6%)	5	(0.08%)
Dermatitis	16	(8%)	33	(7%)	49	(0.7%)
Headache	0		1	(0.2%)	1	(0.01%)
Conjunctivitis	9	(5%)	30	(6%)	39	(0.6%)
Stomach pain	20	(11%)	37	(8%)	57	(0.9%)
Oral prob	7	(4%)	8	(2%)	15	(0.2%)
Otitis	4	(2%)	10	(2%)	14	(0.2%)
Malarial synd	19	(10%)	51	(11%)	70	(11%)
Rhinitis	29	(16%)	96	(22%)	125	(20%)
Worms	5	(3%)	6	(1%)	11	(0.1%)
Vomiting	9	(5%)	39	(9%)	48	(0.7%)
Other	56	(30%)	124	(28%)	180	(29%)
ALL	184	(100%)	437	(100%)	621	(100%)
Symptoms/vis		2.0		2.1		2.1

APPENDIX 16

Proportion of children presenting with symptoms that have HIV+ mothers-ages 12-23 months (row%)

	Mothers HIV+		Mothers HIV-		Total	
	N	%	N	%	N	%
Cough	87	(29%)	213	(71%)	300	(100%)
Fever	42	(29%)	102	(71%)	144	(100%)
Diarrhea	51	(29%)	123	(71%)	174	(100%)
Adenopathy	0		2	(100%)	2	(100%)
Anorexia	20	(31%)	44	(69%)	64	(100%)
Abcess	2	(40%)	3	(60%)	5	(100%)
Dermatitis	16	(33%)	33	(67%)	49	(100%)
Headache	0		1	(100%)	1	(100%)
Conjunctivitis	9	(23%)	30	(77%)	39	(100%)
Stomach pain	20	(35%)	37	(65%)	57	(100%)
Oral	7	(47%)	8	(53%)	15	(100%)
Otitis	4	(28%)	10	(71%)	14	(100%)
Malarial synd	19	(27%)	51	(73%)	70	(100%)
Rhinitis	29	(23%)	96	(77%)	125	(100%)
Worms	5	(45%)	6	(55%)	11	(100%)
Vomiting	9	(19%)	39	(81%)	48	(100%)
Other	56	(31%)	124	(69%)	180	(100%)
ALL	184	(30%)	437	(70%)	621	(100%)

APPENDIX 17

Distribution of symptoms by maternal HIV
ages 24-47 months (Column%)

	Mothers HIV+		Mothers HIV-		Total	
	N	%	N	%	N	%
Cough	98	(40%)	245	(40%)	343	(40%)
Fever	47	(19%)	142	(23%)	189	(22%)
Diarrhea	56	(22%)	124	(20%)	180	(21%)
Adenopahty	3	(1%)	2	(0.3%)	5	(0.6%)
Anorexia	35	(14%)	68	(11%)	103	(12%)
Abcess	2	(.8%)	2	(0.3%)	4	(0.5%)
Dermatitis	20	(8%)	53	(9%)	73	(8%)
Headache	2	(0.8%)	2	(0.3%)	4	(0.5%)
Conjuntivitis	6	(2%)	21	(3%)	27	(3%)
Stomach pain	30	(12%)	101	(17%)	131	(15%)
Oral	4	(2%)	10	(2%)	14	(2%)
Otitis	4	(2%)	3	(.4%)	7	(0.8%)
Malarial synd	23	(9%)	99	(16%)	122	(14%)
Rhinitis	31	(13%)	89	(15%)	120	(14%)
Worms	1	(0.4%)	8	(1%)	9	(1%)
Vomiting	15	(6%)	38	(6%)	53	(6%)
Other	69	(28%)	153	(25%)	222	(26%)
ALL	**244**	**(100%)**	**609**	**(100%)**	**853**	**(100%)**
Symptoms/vis		1.8		1.9		1.9

APPENDIX 18

Proportion of children with symptoms that have HIV+ mothers ages 24-47 months (row%)

	Mothers HIV+		Mothers HIV-		Total	
	N	%	N	%	N	%
Cough	98	(29%)	245	(71%)	343	(100%)
Fever	47	(25%)	142	(75%)	189	(100%)
Diarrhea	56	(31%)	124	(69%)	180	(100%)
Adenopathy	3	(6%)	2	(4%)	5	(100%)
Anorexia	35	(34%)	68	(66%)	103	(100%)
Abcess	2	(50%)	2	(50%)	4	(100%)
Dermatosis	20	(27%)	53	(73%)	73	(100%)
Headache	2	(50%)	2	(50%)	4	(100%)
Conjuntivitis	6	(22%)	21	(78%)	27	(100%)
Stomach pain	30	(23%)	101	(77%)	131	(100%)
Oral	4	(28%)	10	(71%)	14	(100%)
Otitis	4	(57%)	3	(43%)	7	(100%)
Malarial synd	23	(19%)	99	(81%)	122	(100%)
Rhinitis	31	(26%)	89	(74%)	120	(100%)
Worms	1	(11%)	8	(89%)	9	(100%)
Vomiting	15	(28%)	38	(72%)	53	(100%)
Other	69	(31%)	153	(69%)	222	(100%)
ALL	**244**	**(29%)**	**609**	**(71%)**	**853**	**(100%)**

APPENDIX 19

Distribution of symptoms by mothers serostatus
48-83 months (Column%)

	Mothers HIV+		Mothers HIV-		Total	
	N	%	N	%	N	%
Cough	84	(40%)	156	(53%)	240	(35%)
Fever	39	(19%)	75	(16%)	114	(17%)
Diarrhea	22	(10%)	48	(10%)	70	(10%)
Adenopathy	0		6	(1%)	6	(.8%)
Anorexia	20	(9%)	49	(10%)	69	(10%)
Abcess	0		0		0	
Dermatitis	26	(12%)	64	(13%)	90	(13%)
Headache	2	(0.9%)	10	(2%)	12	(2%)
Conjuntivitis	7	(3%)	23	(5%)	30	(4%)
Stomach Pain	33	(16%)	97	(20%)	130	(19%)
Oral	11	(5%)	14	(3%)	25	(4%)
Otitis	4	(2%)	3	(.6%)	7	(1%)
Malarial Synd	23	(11%)	69	(14%)	92	(13%)
Rhinitis	23	(11%)	52	(11%)	75	(11%)
Worms	3	(1%)	7	(1%)	10	(1%)
Vomiting	10	(5%)	21	(4%)	31	(4%)
Other	72	(34%)	157	(33%)	229	(33%)
ALL	209	(100%)	473	(100%)	682	(100%)
Symptoms/vis		1.8		1.8		1.8

APPENDIX 20

Proportion of children presenting with symptoms that have HIV+ mothers-ages 48-83 months (row%)

	Mothers HIV+ N	%	Mothers HIV- N	%	Total N	%
Cough	84	(35%)	156	(65%)	240	(100%)
Fever	39	(34%)	75	(66%)	114	(100%)
Diarrhea	22	(31%)	48	(68%)	70	(100%)
Adenopathy	0		6	(100%)	6	(100%)
Anorexia	20	(29%)	49	(71%)	69	(100&)
Abcess	0		0		0	
Dermatitis	26	(29%)	64	(71%)	90	(100%)
Headache	**2**	**(17%)**	**10**	**(83%)**	**12**	**(100%)**
Conjuntivitis	7	(23%)	23	(77%)	30	(100%)
Stomach pain	33	(25%)	97	(75%)	130	(100%)
Oral	11	(44%)	14	(56%)	25	(100%)
Otitis	4	(57%)	3	(43%)	7	(100%)
Malarial synd	23	(25%)	69	(75%)	92	(100%)
Rhinitis	23	(31%)	52	(69%)	75	(100%)
Worms	3	(3%)	7	(7%)	10	(100%)
Vomiting	10	(32%)	21	(68%)	31	(100%)
Other	72	(31%)	157	(68%)	229	(100%)
ALL	**209**	**(31%)**	**473**	**(69%)**	**682**	**(100%)**

APPENDIX 21

Distribution of symptoms by maternal HIV ages >= 84 months (Column %)

	Mothers HIV+		Mothers HIV-		Total	
	N	%	N	%	N	%
Cough	33	(25%)	102	(21%)	135	(22%)
Fever	18	(13%)	62	(13%)	80	(13%)
Diarrhea	15	(11%)	34	(7%)	49	(8%)
Adenopathy	2	(1%)	2	(0.4%)	4	(0.6%)
Anorexia	7	(5%)	29	(6%)	36	(6%)
Abcess	1	(0.7%)	6	(1%)	7	(1%)
Dermatitis	16	(12%)	55	(11%)	71	(11%)
Headache	9	(7%)	36	(7%)	45	(7%)
Conjunctivitis	5	(4%)	48	(10%)	53	(9%)
Stomach pain	29	(22%)	121	(25%)	150	(24%)
Oral	2	(1%)	7	(1%)	9	(1%)
Otitis	1	(0.7%)	2	(0.4%)	3	(0.4%)
Malarial synd	20	(15%)	76	(16%)	96	(16%)
Rhinitis	9	(7%)	30	(6%)	39	(6%)
Worms	5	(4%)	4	(.8%)	9	(1%)
Vomiting	6	(4%)	24	(5%)	30	(5%)
Other	51	(38%)	154	(32%)	205	(33%)
ALL	**134**	**(100%)**	**480**	**(100%)**	**614**	**(100%)**
Symptoms/vis		1.7		1.7	1.7	

APPENDIX 22

Proportion of children with symptoms who have HIV+ mothers ages >= 84 months (row%)

	Mother HIV+ N	%	Mother HIV- N	%	Total N	%
Cough	33	(24%)	102	(76%)	135	(100%)
Fever	18	(23%)	62	(77%)	80	(100%)
Diarrhea	15	(31%)	34	(69%)	49	(100%)
Adenopathy	2	(50%)	2	(50%)	4	(100%)
Anorexia	7	(19%)	29	(81%)	36	(100%)
Abcess	1	(14%)	6	(86%)	7	(100%)
Dermatitis	16	(22%)	55	(77%)	71	(100%)
Headache	9	(20%)	36	(80%)	45	(100%)
Conjuntivitis	5	(10%)	48	(90%)	53	(100%)
Stomach pain	29	(19%)	121	(81%)	150	(100%)
Oral	2	(2%)	7	(78%)	9	(100%)
Otitis	1	(33%)	2	(67%)	3	(100%)
Malarial syn	20	(21%)	76	(79%)	96	(100%)
Rhinitis	9	(23)	30	(77%)	39	(100%)
Worms	5	(56%)	4	(44%)	9	(100%)
Vomiting	6	(20%)	24	(80%)	30	(100%)
Other	51	(25%)	154	(75%)	205	(100%)
ALL	**134**	**(22%)**	**480**	**(78%)**	**614**	**(100%)**

APPENDIX 23

Summary table: indices of clinic use by age group

	0-11	12-23	24-47	48-83	>=84
Number of children eligible for care	487	609	927	1186	1594
Number of children clinic attenders	231	264	285	362	354
Number of visits total	501	621	853	682	614
Number of visits by child eligible	1.03	1.02	0.92	0.57	0.38
Number of first visits by child eligible	0.47	0.43	0.41	0.30	0.22
Number of repeat visits by child eligible	0.55	0.59	0.50	0.27	0.16
Number of 3 or more visits /child eligible	0.28	0.33	0.25	0.11	0.06
Children with at least 3 visits					
% of all children eligible	14 %	15 %	13 %	7 %	4 %
% of all clinic attenders	31 %	34 %	32 %	22 %	18 %