

**A Household Survey of Maternal and Child
Health in the Mount Frere Health District,
Eastern Cape**

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B.Sc. B.Sc. (Med.)(Hons.)

Submitted to:

Faculty of Health Sciences, University of Cape Town

(in fulfillment of Masters of Philosophy (M.Phil.) Degree in Epidemiology)

August 1998

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**by
James Irlam
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This thesis is submitted to the Faculty of Health Sciences, University of Cape Town, in fulfillment of the requirements for the Masters of Philosophy (M.Phil.) Degree in Epidemiology.

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ABSTRACT

A cross-sectional household survey of maternal and child health was conducted in the Mount Frere health district of the Eastern Cape in August / September 1997.

The aim was to describe key aspects of maternal and child health to inform the planning activities of the District Health Management Team (DHMT). A participatory process was followed, in order to develop research capacity within the district, and to facilitate interaction between health workers and the community.

Methods

Structured questionnaires were used by local research trainees to gather data from each household on:

- household demographics;
- deaths in household since April 1994;
- household access to water and sanitation;
- children under five years;
- children aged 5 to 15 years;
- deliveries in the past 12 months;
- knowledge of prevention and transmission of HIV / AIDS.

Focus group discussions around the key findings were conducted with community members and clinic nurses to provide a qualitative component.

Results

A high proportion of children under the age of 16, high household density, high unemployment, migrant labour, and absent mothers, are some of the defining demographic characteristics which affect the status of maternal and child health in the district. Access to health services is constrained by distance, lack of transport, and poor roads.

Registration of births and deaths is poor, and the crude birth and death rates were found to be significantly higher than the “official” provincial rates. Tuberculosis, diarrhoea, trauma and homicide are notable features of the overall mortality profile, although the majority of deaths were classified “ill-defined / unknown”. Diarrhoea and pneumonia accounted for half of all infant deaths. Eight out of ten deaths due to diarrhoea in under fives occurred at home, but knowledge and use of oral rehydration solution is poor.

Access to clean drinking water and sanitation is a major concern, with almost three quarters of homes using unprotected sources, a third more than 30 minutes walk from the nearest source, and a half having no toilet. Areas of the district with particularly poor environmental health indicators were identified.

Immunisation coverage among children 1-4 years is poor. Coverage for all vaccines except BCG falls well short of the national target of 90%, and fewer than 1 in 3 children was fully immunised with valid doses at the age of one year. Long intervals between doses and a high "dropout" rate between subsequent doses was observed. The road to health card (RTHC) could be produced for just over a half of under-five children.

The proportion of home deliveries is high (45%), and traditional birth attendants (TBAs) therefore play an important role in this community. Nine out of ten mothers had attended antenatal clinic at least once, but almost half reported receiving no tetanus toxoid and no WR test for syphilis during their antenatal visits. More than a half of all mothers was using no family planning method at the time of the survey.

Almost all 15-49 year-olds had heard about HIV / AIDS, but one in five did not know how HIV is transmitted, and a third did not know how it could be prevented.

Recommendations

A detailed set of recommendations with action points for the DHMT was developed in a district workshop around the following key issues:

1. Improving access to health care, including road access, mobile clinic coverage, and waiting facilities for expectant mothers.
2. Promoting health in the community, by means of integration of health promotion into all health programmes, and more involvement of communities.
3. Improving the quality of care in the existing health facilities and services, including minimising missed opportunities for immunisation, and promoting home-made oral rehydration (sugar-salt) solution.
4. Improving the district health information system, especially the registration of vital events, and the provision of feedback to district health managers.
5. Identifying areas of further research, including the reasons for home deliveries, management of diarrhoea at home, and the use of traditional healers.

Conclusion

The participatory research process that was used has helped to build research capacity in the district, to provide a deeper insight into community health problems, to highlight the value of health workers listening to the people they serve, to further collaboration between the disciplines, and to develop specific action plans. This is a process that should be followed in all research conducted in health districts.

ACKNOWLEDGEMENTS

I would like to acknowledge and thank the many people who have assisted in this study.

Members of the Interim District Health Management Team for their support of the research and for their involvement in the discussions: Mr. Hanson Magaqa, Matron Gogo, Matron Gwegwe, Mr. FN Rubulana (District Nutrition Officer), Mrs Siyoyo (Admin Officer), Mr. Mahahasi (District EHO) and Mr. Thando Cengimbo.

The tribal authorities for giving permission for the research.

The members of the local research team for the fieldwork: WS Ntayiya and N Nomabunga (Health promotion officers); N. Manciya, B. Dishi, P Mbanyana, NG Beba, NC Mguzumbane, P Ngejane, SA Ntshengulana (Environmental Health Officers); BH Mhlauli (Mntwana clinic nurse), PT Mdokwe (Mnceba clinic nurse); K Magayiyana, N Ngejane (District Office and PHC staff); B. Zulu (development worker for Isinamva NGO).

Kuku Magayiyana, Boniwe Zulu, and Moira Irlam for the data entry.

The Community Health Workers for compiling the household sampling frame.

The community members and clinic nurses who agreed to be interviewed.

Members of the Regional Office for their support and involvement: Mr Chauke Tyekela, Mrs Bandezi, Mr. Sipiwo Yose and Mr. Litha Klaas.

The staff of Isinamva Community Development Centre (Zola Magida and Victoria Kohli) for hosting the workshops and meetings so efficiently.

I would like to thank Dr Rodney Ehrlich and Dr. Peter Barron for their comments on earlier drafts of the report.

A special word of thanks to my supervisor Dr David McCoy of the Initiative for Sub-District Support (ISDS), Health Systems Trust, for his insightful comments and contributions to the report.

The financial support of the Department for International Development (UK) through the ISDS is acknowledged with thanks.

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1. INTRODUCTION

1.1 Background to Mount Frere

The Mount Frere health district is one of eleven sites that are part of the Initiative for Sub District Support (ISDS), which aims to provide a package of sustained interventions to help inform and support the process of health systems development in South Africa. The district lies within the former Transkei (Region E), and comprises the magisterial districts of Kwabacha and Tabankulu in the Eastern Cape province (Map of Mount Frere health district: Appendix I).

The 1996 census figures for the district, as adjusted by the DBSA, indicate a total population of 292 184¹. It is thought that over 90% of the people live in a non-urban setting in small villages or scattered homesteads². The health status of the people is thought to be amongst the worst in the country due to decades of impoverishment and neglect. TB, malnutrition, and infectious diseases, including acute respiratory infections, diarrhoeal diseases, and vaccine-preventable conditions, all contribute significantly to maternal and child morbidity and mortality^{2,3}.

There is, however, a lack of data to substantiate this. No data on births or disease notifications for 1996 were available from the magistrate's office, and only 983 deaths had been registered for the whole of 1996. This translates to a crude death rate (3.4 deaths per 1000 population) which is far lower than the estimated provincial rate of 5.7 per 1000⁴, and indicates that the under-registration of deaths is also a problem. In the province as a whole, only 8.7% of all births and 26.7% of all deaths were thought to have been registered⁵. The problem of under-registration of vital events is therefore not unique to Mount Frere.

As far as births were concerned, data from hospital birth registers was available for only two fifths of the total expected number of deliveries for the district. This indicates that many women deliver either at home or in facilities outside the district.

1.2 Purpose of the Study

Appropriate and useful information is a crucial part of health planning. Given the lack of reliable existing information, the need for a community-based survey to inform the planning activities of the interim District Health Management Team (DHMT) was recognised. Similar surveys have been undertaken in rural districts in KwaZulu⁶, and in the Bizana district of the former Transkei⁷, where they have provided indicators for evaluating changes in the status of health and the health services.

A participatory research process was deemed appropriate for this survey, in order to develop research capacity in the district, and to demonstrate to the District Health Management Team (DHMT) managers the use of community-based surveys in operational planning and evaluation of the health service.

A team of local health workers was therefore selected to undergo training in health systems research, to participate in the development of the questionnaires and workplans, and to undertake the fieldwork. It was hoped that their participation would help to give them better insight into the health of the community that they serve.

The DHMT were also to be involved in identifying the key issues raised by the survey, and in developing recommendations and specific plans of action to address these issues.

1.3 Aim

To describe key features of maternal and child health status in the Mount Frere district to inform district health management.

1.4 Objectives

- i. To describe the main demographic features of the district.
- ii. To construct a profile of mortality.
- iii. To describe access to water and sanitation.
- iv. To determine the immunisation status of children aged 12-60 months.
- v. To describe the treatment of recent episodes of diarrhoea.
- vi. To describe utilisation of health services for children.
- vii. To describe features of maternal health in mothers who had delivered in the past 12 months.
- viii. To assess knowledge about the prevention and transmission of HIV/ AIDS.

2. METHODS

The protocol was approved by the Ethics and Research Committee of the Health Sciences Faculty of the University of Cape Town. Consent to undertake the study was also obtained from the District Health Management Team and the tribal authorities in the Mount Frere district.

2.1 Study design

This is a descriptive cross-sectional design, consisting of a questionnaire survey of households, and following a participatory research process. Focus group discussions around the key findings were conducted to add a qualitative component to the study.

2.2 Population and sampling

The study population comprised the residents of households located within the areas served by four remote clinics chosen by the DHMT: Mntwana, Lugangeni, Mdyobe and Mangqamzeni. Two of these clinics fall within the Kwabacha magisterial district, and two in the Tabankulu magisterial district. Fieldwork was undertaken over 2 weeks in August/September 1997.

A random sampling strategy was applied to a sampling frame of all households in each tribal area (*isigodi*) compiled by local community health workers (CHWs), with the assistance of tribal leaders. All the households in each *isigodi* were numbered and listed, and then stratified into two groups: houses within one hour of walking or travel to the nearest clinic, and houses more than one hour of walking or travel away from the nearest clinic. This criterion is based on the WHO (HFA2000) indicator for monitoring accessibility to health care, viz. “local health care, including availability of at least 20 essential drugs, within one hour’s walk or travel”⁸.

A total of 616 households was sampled from the lists using a random number table. The sample size was calculated using the STATCALC module for cross-sectional studies of the EpiInfo statistical software, with “Distance from clinic; ≤ 1 hour or > 1

hour” as the independent variable, and “Road-to-Health card (RTHC) seen for under 5 children” as the dependent variable. In the national Community Agency for Social Enquiry (CASE) household survey⁹ in October 1995, a RTHC was seen for 47% of African children in rural areas, and this proportion was used as the expected prevalence in this study for the sample size calculation. To show a statistically significant difference of 15% in the proportions between the 2 distance strata with the standard 95% confidence and 80% power, it was calculated that a sample of 185 would be required in each stratum.

Assuming that the CASE⁹ finding that 60% of African households had under five children applied to this study population, required 308 households to be sampled in each of the 2 distance strata, or 616 households in total, to obtain sufficient under fives. Approximately equal numbers of households were sampled in each clinic “catchment” area, as shown in Table 1, to ensure a good geographic spread of households.

A sampling plan was worked out for the 2 weeks of fieldwork, which required each of the team of 14 interviewers to visit 5 - 6 households per day. In the event of there being no-one present at the sampled household, the interviewers were instructed to visit the next nearest household instead, due to the extreme difficulties imposed by limited transport (a single vehicle for 2 weeks only) on returning to households at a later date. Households that could not be found were to be excluded from the sample, as were those that refused to respond.

Table 1: Household sample by clinic area

Clinic area	Households in sampling frame	Households sampled	Sampling fraction (%)
Mntwana	3683	159	4
Lugangeni	742	157	21
Manggamzeni	578	146	20
Mdyobe	590	154	21
Total (< 1 hr from clinic)	1550 (28 %)	295 (48 %)	19
Total (> 1 hr from clinic)	4043 (72 %)	321 (52 %)	8
TOTAL	5593	616	11

2.3 Training of the research team

The local research team consisted of 14 health workers made up of health promotion officers, environmental health officers, professional nurses and an NGO worker. Prior to commencing the fieldwork, they underwent 4 days of training in health systems research. This training was based on the HST manual for Health Systems Research¹⁰ and involved the trial development of research proposals and questionnaires. The team also developed a workplan and budget for the fieldwork.

2.4 Household data collection

A questionnaire was developed to gather data from each household on:

- household demographics;
- deaths in household since April 1994;
- household access to water and sanitation;
- children under five years;
- children aged 5 to 15 years;
- deliveries in the past 12 months;
- knowledge of prevention and transmission of HIV / AIDS.

The questionnaire was developed with the local research team and, where possible, was consistent with questions used in a Multi-Indicator Cluster Survey questionnaire developed by Management Sciences for Health (MeSH)¹¹, and the national Community Agency for Social Enquiry (CASE) household survey.⁹ The final questionnaire was translated into Xhosa, and pre-tested by the research team on 20 households in a nearby rural community. As a result of the pre-testing, some modifications were made to the phrasing and translation of certain questions. A copy of the final questionnaire is shown in Appendix II.

Each questionnaire was preceded by a standard introduction and brief explanation of the purpose of the study. Individual verbal consent from each household was obtained following an explanation of the aim and objectives of the study, and the fact that

confidentiality of the information would be ensured. During the fieldwork, two households could not be found, reducing the total sample size to 614. There was no one present in 88 households (14.3%), which were replaced in the sample by visiting the next nearest household.

Data on the composition and demographic profile of the household (sex, age, residence, and employment status) were collected by interview with the household head or proxy. The same respondent was asked about all deaths that had occurred in the household since the April 1994 elections (date of death, age, sex, place of death and cause of death), and about their knowledge of the prevention and transmission of HIV and AIDS.

A random numbered selection was made of one of the children under 5 years (whether present or not), and data on this child was obtained from the child's caretaker. The caretaker was the mother in half the cases, the grandmother in a third, and a sister, aunt, or other close relative for the remainder. Dates of immunisations given, and the number of growth monitoring points plotted on the chart, were obtained from the child's Road-to-Health card (RTHC), if available. If the RTHC could not be produced, the caretaker was asked to recall the child's previous immunisations, and these responses were recorded without dates. Data on one randomly chosen child in the age group 5-15 years was also obtained from the caretaker of that child.

Delivery details of all women in the household who had delivered in the past 12 months were obtained by questioning the women directly, or, if they were not present, one of the other women in the household.

2.5 Data entry and analysis

Data from the household questionnaires were entered into the Epi-Info software by members of the research team. The data were checked, cleaned, and analysed by the author.

2.6 Focus group discussions of key survey findings

The main findings of the survey were presented to groups of mostly female community members (200 in total), and separate groups of clinic nurses in each of the four areas for discussion, using a standardised discussion protocol (Appendix III). The groups were facilitated and recorded by members of the research team, following some training in focus group discussion techniques. The comments made during these discussions provided some qualitative background to the findings, and contributed to the development of the recommendations.

3. RESULTS

3.1 Demographic features

Demographic data on 614 households containing 4 066 people were collected. The average size of a household, which usually consists of a number of separate dwellings, was 6.6 people (range 2 to 14). This is higher than a previous provincial estimate of 4.7 in 1995¹².

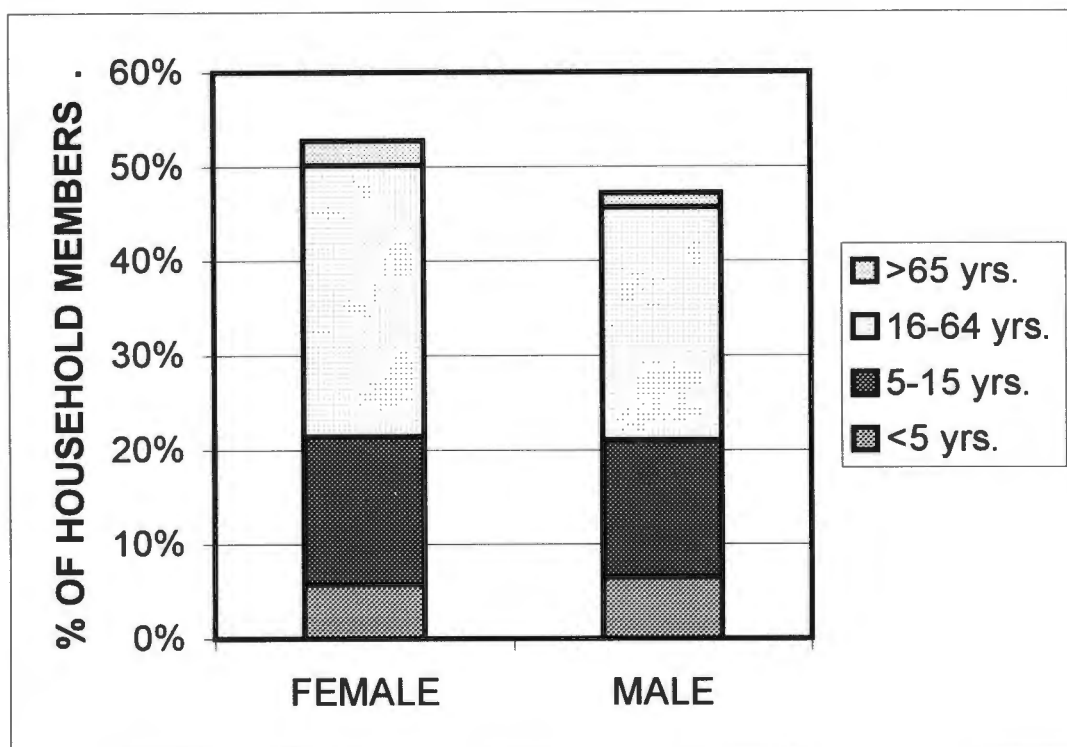
There were 83 infants (2%), 496 under-5s (12%), and 1231 children between the ages of 5 to 15 years (30%). Therefore, 42.5 % of all household members were children under the age of 16 years (Table 2). A total of 335 households (55%) had at least one child under the age of five years. These findings are similar to the 1995 October Household Survey¹², which found 14.3% of the population in the Eastern Cape under the age of five years, and the 1992 CASE survey⁹, which found that 58% of all African households had at least one child aged five years or younger.

A birth certificate could be produced for only 27 (8%) of the 335 under 5 children sampled. This is comparable to an estimate of 8.7% birth registration in the E. Cape by the Medical Research Council⁵.

**Table 2: Age and sex of household members (n=4 066)
(including members absent at the time of the survey)**

	Female		Male		Total		Cum. %
	No.	%	No.	%	No.	%	
< 12 m.	43	2	40	2.1	83	2.0	2.0
12-23 m.	45	2.1	59	3.1	104	2.6	4.6
2 - 4 yr.	144	6.7	165	8.6	309	7.6	12.2
5 - 15 yr.	639	29.8	592	30.8	1231	30.3	42.5
16-64 yr.	1169	54.5	1001	52.1	2170	53.4	95.9
65 yr. +	106	4.9	63	3.3	169	4.2	100.0
TOTAL	2146	100	1920	100	4066	100	

Figure 1: Age and sex of household members (n=4 066)



Almost a third (29%) of the 16-64 year age group (n=2170) were migrants who return either weekly (5.5%), monthly (17%), or less often than monthly (77.5%). Although almost a quarter of females in this age group is migrants, men form the majority of the migrant worker group. The female to male ratio amongst the permanent (non-migrant) adult residents is 1.4:1, i.e. three women for every two men. This is a lower ratio than found in a 1984 study in rural Transkei³, which found the female: male ratio to be 2:1. This is most likely due to an increase in the number of men retrenched by the mining industry, a feature reported in the focus group discussions.

Table 3: Migrancy in the 16 - 64 year age group

	Female		Male		Total		Cum. %
	No.	%	No.	%	No.	%	
Non-migrant	905	77.4	627	62.6	1532	70.6	70.6
Comes home weekly	18	1.5	17	1.7	35	1.6	72.2
Comes home monthly	51	4.4	57	5.7	108	5	77.2
Less often than monthly	194	1.2	298	29.7	492	22.7	99.9
Not known	1	0.1	2	0.2	3	0.1	100.0
TOTAL	1169	100	1001	100	2170	100	

Unemployment is a key feature of this community. Almost two thirds (65%) of adults in the age group 16-64 years, excluding scholars, are unemployed. The unemployment rate for the Eastern Cape in 1994 was estimated at 45% by the October Household Survey¹², highlighting the acutely disadvantaged status of the Mount Frere and surrounding districts.

Table 4: Employment status in the 16-64 yr. age group

	Female		Male		Total	
	No.	%	No.	%	No.	%
Employed*	227	19.4	340	34.0	567	26.1
Unemployed	671	57.4	381	38.1	1052	48.5
Schooling	257	22	268	26.8	525	24.2
Not known	14	1.2	12	1.2	26	1.2
TOTAL	1169	100	1001	100	2170	100

(*includes self-employment)

3.2 Mortality profile

A total of 161 deaths since April 1994 was reported by 147 (24%) households. These are listed by reported cause or symptoms of death in Table 5. Due to the uncertainty about the exact cause, almost half the deaths (45%) were classified as “ill-defined”. These included responses such as “asthma” (12 deaths), “headache” (6 deaths), and “stomach ache” (7 deaths) which were considered too unspecific for classification.

Table 5: All deaths in past 3 years by cause

Reported cause	No.	%
Ill-defined (73) and unknown (7)	80	49.6
Diarrhoea	19	11.8
TB	13	8.1
Trauma - unspecified (9); motor vehicle accident (5); mine accident (1)	15	9.3
Homicide	8	5.0
Pneumonia	6	3.7
Cancer	4	2.5
Cardiac failure	4	2.5
Stroke	4	2.5
Diabetes	2	1.2
Maternal deaths*	2	1.2
Hypertension	1	0.6
Kwashiorkor	1	0.6
Burns	1	0.6
Measles	1	0.6
TOTAL	161	100

(* one was apparently due to eclampsia in May 1996, and one during a caesarian section in hospital)

Forty of the 161 deaths occurred in the past year, which is equivalent to a crude death rate (CDR) of 9.8 deaths per 1000 population [95% C.I. = 7.1; 13.2]. This is significantly higher than the provincial CDR estimate of 5.7 per 1000⁴.

There was a total of 34 deaths under the age of five years since April 1994, 12 (35%) of which were attributed to diarrhoea (Table 6). Among infants, diarrhoea and pneumonia accounted for half of all deaths, and 3 perinatal deaths were reported. Almost three fifths (57%) of all the deaths in children under five years occurred at home, although for diarrhoea, the proportion of home deaths was even higher (83%).

Table 6: Under-5 deaths in past 3 years by cause

Reported cause of death	Under 1	%	1 - 5 years	Total	%
Diarrhoea	10	37.1	2	12	35.3
Pneumonia	4	14.8	1	5	14.7
Kwashiorkor	1	3.7	0	1	2.9
Measles	1	3.7	0	1	2.9
Perinatal pathology	3	11.1	0	3	8.8
Ill - defined/Unknown	8	29.6	4	12	35.3
TOTAL	27	100.0	7	34	100.0

In the last year, 109 births were reported. This would extrapolate to an estimated crude birth rate of 26.8 per 1000 [22.2; 32.1], of which 105 were live births. This crude birth rate is significantly higher than a provincial estimate of 17.3 based on hospital deliveries in 1994¹³.

Four infant deaths were reported in the past year. However, the numbers were too small to give a reliable indication of the district's infant mortality rate (47.6 [17.6; 102.4]). A study conducted in the rural Transkei in 1980³ estimated the IMR to be as high as 130, whereas provincial estimates are 56.3 per 1000¹⁴.

Although there were only two maternal deaths from the sampled households, respondents in 11 households knew of a friend or relative who had either died during pregnancy, following an abortion, or during childbirth in the past year.

3.3 Environmental health

More than two thirds (71% [67.5; 74.7]) of households use water from unprotected sources (pond/ river/ stream/ dam) for drinking purposes, and almost a third (32% [28.3; 35.7]) take longer than half an hour to reach the nearest source of drinking water on foot. This is a significantly worse situation than the findings of the CASE survey⁹ for rural Africans (32% of households using an unprotected source; 18% more than half an hour from the nearest source).

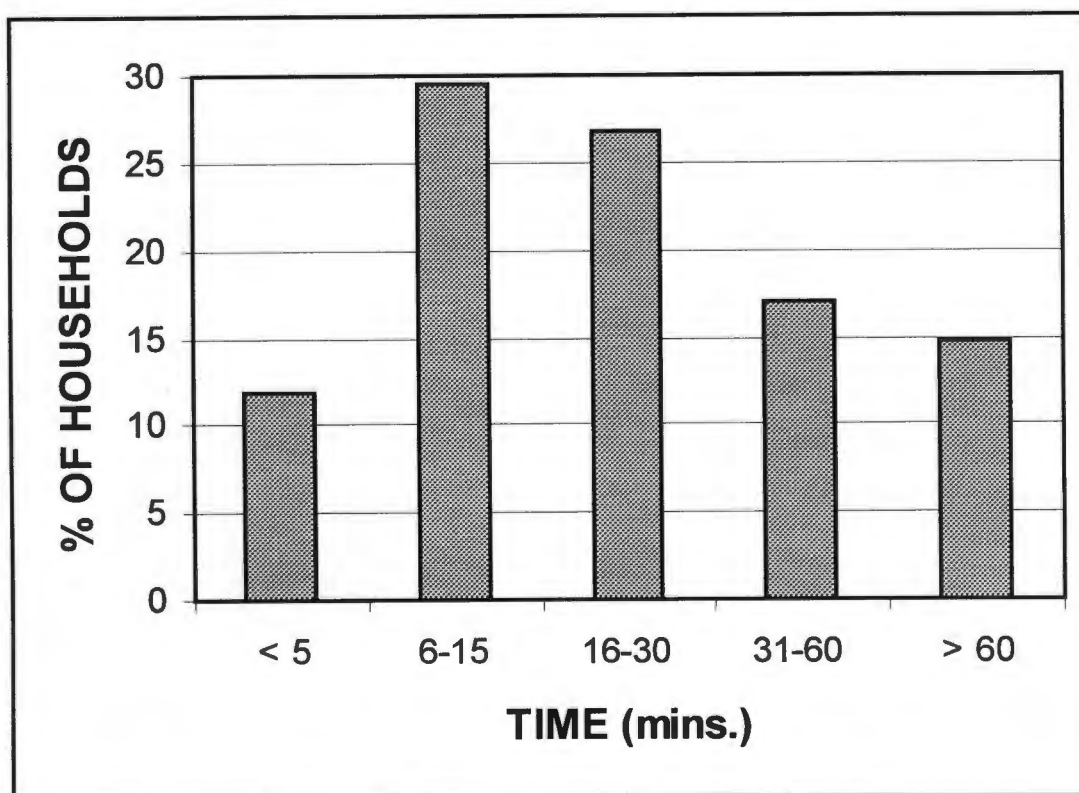
Table 7: Water source

Source	No.	%
Pond/ river/ stream/ dam	437	71.2
Public tap	105	17.1
Protected spring	41	6.7
Tap in dwelling	16	2.6
Borehole / handpump	8	1.3
Other	7	1.1
TOTAL	614	100

Table 8: Time taken to walk to nearest source of drinking water

Time	No.	%
< = 5 mins.	73	11.9
6 - 15 mins.	181	29.5
16 - 30 mins.	164	26.7
31 - 60 mins.	105	17.1
> 60 mins.	91	14.8
TOTAL	614	100

Figure 2: Time taken to walk to nearest source of drinking water



Just under a half of the households (47% [43.3; 51.2]) reported having no toilet. This is comparable to the CASE findings for traditional households (44%)⁹, but worse than the provincial indicator of 35%¹³. Fewer than 1 in 10 households have pit latrines with a ventilation pipe to carry away odours and make them less attractive to flies. Households more than an hour from the nearest clinic were significantly more likely not to have a toilet and to use an unprotected source of drinking water ($p < 0.01$) than those in closer proximity.

Table 9: Type of sanitation

Type	No.	%
None	290	47.2
Unventilated pit latrine	269	43.8
Ventilated pit latrine	53	8.6
Flush	2	0.3
TOTAL	614	100

In Mangqamzeni and Mdyobe areas, the environmental health indicators (unprotected water source; nearest source >30 min. away; no toilet) were significantly worse than for households in Mntwana and Lugangeni. For example, two thirds of households in Mangqamzeni and Mdyobe did not have toilets compared to only a third in Mntwana and Lugangeni, 85% compared to 58% used an unprotected source, and 41% versus 24% were more than half an hour from the nearest water source ($p < 0.0001$ for all).

3.4 Health of children under 5 years

3.4.1 The Road to Health Card

The Road-to-Health card (RTHC), containing the child's immunisation dates and record of growth monitoring visits, could be produced by just over half of the caretakers (54% [49; 59.6]) of the 335 under fives in the sample. Significantly more mothers (65%) were able to produce the RTHC than other caretakers (44%; $p < 0.01$). There was no significant difference in the proportion of RTHCs seen between the 2 "distance from clinic" strata ($p = 0.575$), or between the clinic areas ($p = 0.133$).

3.4.2 Immunisation

The immunisation status of the 121 children aged 1 to 4 years with RTHCs is shown in Table 10. The discrepancy between the “Dose received” and “Valid dose” columns is due to doses that were given too early (or where the date was unknown) and which are therefore considered “invalid”. Although about two-thirds (65%) of children had received all their doses by the time of their first birthday, only half of these had received valid doses. In other words, less than a third of all sampled children (30%) were fully immunised at the age of one year. Only 32 of 97 eligible children (33%; [24.2; 42.8]) had received their second dose of measles, due at 18 months.

Many children had also been left unprotected for periods of time due to the fact that doses were given much later than the scheduled age. For example, almost half the children (46%) received their first dose of DPT more than a month after the scheduled age.

There were no significant differences in completed immunisation status between the clinic areas ($p=0.232$), or between the “distance from the clinic” strata ($p=0.138$).

Table 10: Immunisation status of children 1-4 years with RTHC (n= 121)

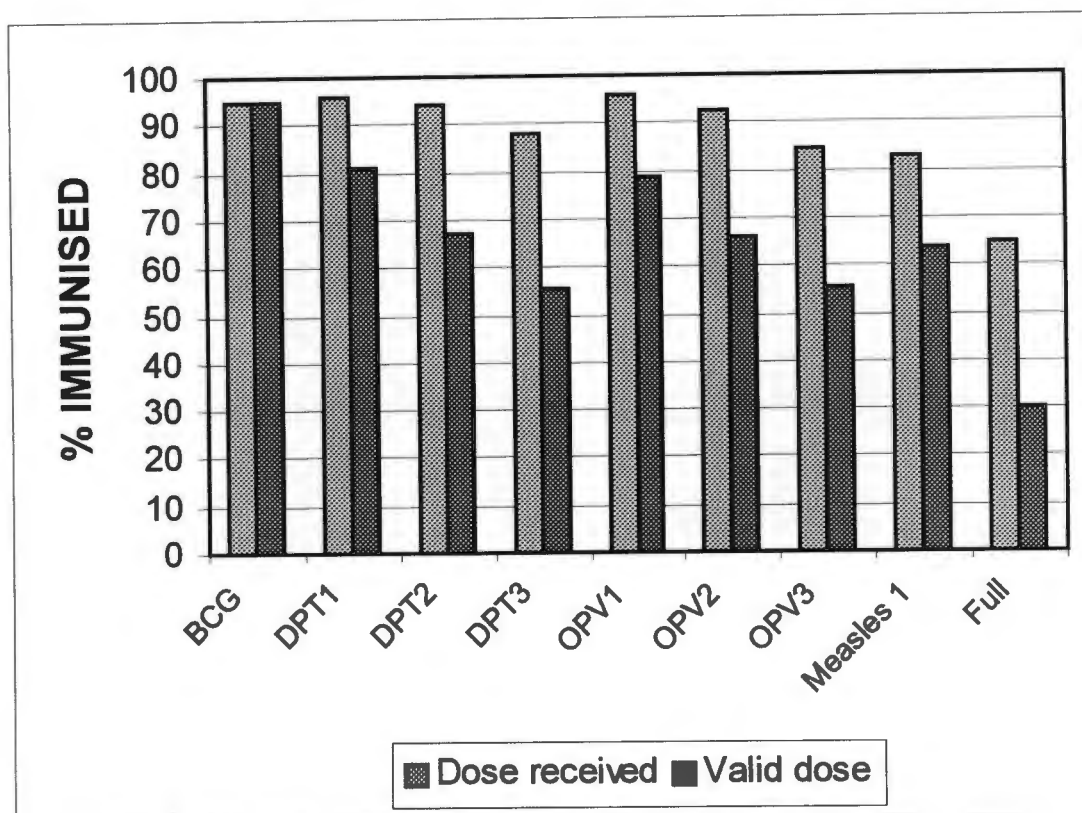
Vaccine	Dose received		Valid dose [§]		95 % C.I. [#]
	No.	%	No.	%	
BCG	115	95.0	115	95.0	90.0 , 98.0
DPT1	116	95.9	98	81.0	73.3 , 87.2
DPT2	114	94.2	81	66.9	58.2 , 74.9
DPT3	106	87.6	67	55.4	46.4 , 64.1
OPV1	116	95.9	95	78.5	70.5 , 85.1
OPV2	112	92.6	80	66.1	57.3 , 74.1
OPV3	102	84.3	67	55.4	46.4 , 64.1
Measles 1	100	82.6	77	63.6	54.8 , 71.8
Fully imm.*	78	64.5	36	29.8	22.1 , 38.3

* Fully immunised at 1 year = 1 BCG; 3xDPT; 3xPolio; 1 measles

[§]Valid doses are those given at or after the scheduled age and at the correct intervals (one BCG anytime after birth; first dose of polio and DPT after 6 weeks, and subsequent doses 4 weeks apart; and first dose of measles after 8.5 months)

[#] The precision of the “valid dose” coverage estimates is given by the 95% confidence intervals (C.I.) - these range from 7% to 9%, which is comparable with the 10% precision of the EPI 30x 7 methodology.

Figure 3: Immunisation status of children 1 - 4 years with RTHC (n= 121)



Of the 209 1-4 year-old children sampled, 88 (42%) did not have a RTHC available. If all these children were assumed to have been fully immunised, then the proportion of children who were “fully immunised” would rise to a “best estimate” of 59.3%. If, however, all these children were assumed not to have been immunised at all, then the proportion of children who were “fully immunised” would drop to a “worst estimate” of 17.2%. In those cases where the RTHC was *not* present, however, only four children (1.2%) were reported to have no card because they had never been immunised.

3.4.3 Growth monitoring

Just under half (48%) of the under 1 year children with a RTHC available, had been growth monitored once a month. On average, children in this age group were weighed once every 2.3 months, while the 1-4 year agegroup were weighed on average every 6.5 months.

3.4.4 Diarrhoeal disease

Ninety three respondents (28% [23; 32.6]) reported the child having had diarrhoea *in the past month*. When asked about the type of treatment given, 20% had used some form of oral rehydration solution (ORS) at home. However, only a quarter (24%) of *all* respondents knew the correct formula for making sugar-salt solution (SSS) i.e. eight level teaspoons of sugar; 1/2 level teaspoon salt; 1 litre water.

There were no significant differences in reported incidence of diarrhoea between the areas ($p=0.183$), nor in knowledge of the SSS formula between mothers and other caretakers ($p=0.404$). The proportion of households more than an hour from the nearest clinic that reported diarrhoea was greater than those nearer the clinics (< 1 hour travel), but this difference did not reach statistical significance ($p=0.085$).

The child received treatment at the nearest clinic in two thirds of cases, with the remainder taking the child to a traditional healer, hospital, or GP. Over two fifths (45%) of the children were given enemas during the most recent episode of diarrhoea. The enemas used usually consisted of traditional herbs, or soap mixed with water.

Table 11: Type of treatment for diarrhoea in past month (n=93)

Type of treatment	No.	%
Treated at clinic	62	67
Given enema	42	45.2
ORS at home	19	20.4
Treated by traditional healer	5	5.4
Treated at hospital	3	3.2
Treated by GP	2	2.1

Due to an error by some of the interviewers, not all caretakers were asked about the causes of diarrhoea, but of those who were ($n=210$), almost half (47%) said that they did not know. “Teething problems” was the response of a quarter of respondents, with fewer than a tenth mentioning “dirty water” as a cause.

A quarter of all the respondents had sought treatment for the child in the past month, most often (77%) at the nearest clinic. The main reasons for seeking treatment were diarrhoea (34%), cough accompanied by high temperature, and stomachache. Approximately half of the sample (48%) lives within one hour's walk or travel from the nearest clinic, and nine out of ten (88%) households usually reach the clinic by foot. There were no significant differences in type of health service utilisation between the "distance from the clinic" strata ($p=0.65$), nor between the different areas ($p=0.14$).

Table 12: Reason for using health service for children under 5 years (n=82)

Reason	No.	%
Diarrhoea	28	34.2
Cough and high temp.	15	18.3
Stomach ache	10	12.2
Chest pains / tightness	8	9.8
Fever	7	8.5
Sores	4	4.9
Other	10	12.2

3.5 Health of children aged 5 to 15 years

The caretakers of 478 children aged 5 to 15 years were asked about the health of these children. Seven out of 10 children were in junior primary, and of these, 86% were receiving free food at school. This is an improvement on the findings from the 1992 CASE household survey⁹, which estimated that 67% of primary school children were receiving PSNP (Primary School Nutrition Programme) meals.

One sixth (14%) of the caretakers reported the child having difficulties learning at school, and 14% of respondents reported that in the past month the child had been sick or injured enough to miss school. Of the children who had missed school, four fifths had been taken to the nearest clinic or hospital, mostly for headaches and upper respiratory tract infections.

3.6 Maternal Health

Data were collected on 109 deliveries that occurred in the past 12 months, including those who had died during childbirth. The average age of the women delivering was 26.5 years (range 15 to 48). 21 births (19% [12.7; 27.5]) were to teenage mothers; and 18 (16.5%) to women older than 35 years. The teenage pregnancy rate in the Eastern Cape in 1993 was estimated at 13.3%, and in the same year 16% of *national* births were to women over 35 years of age¹⁵. Three perinatal deaths in the past 12 months were reported.

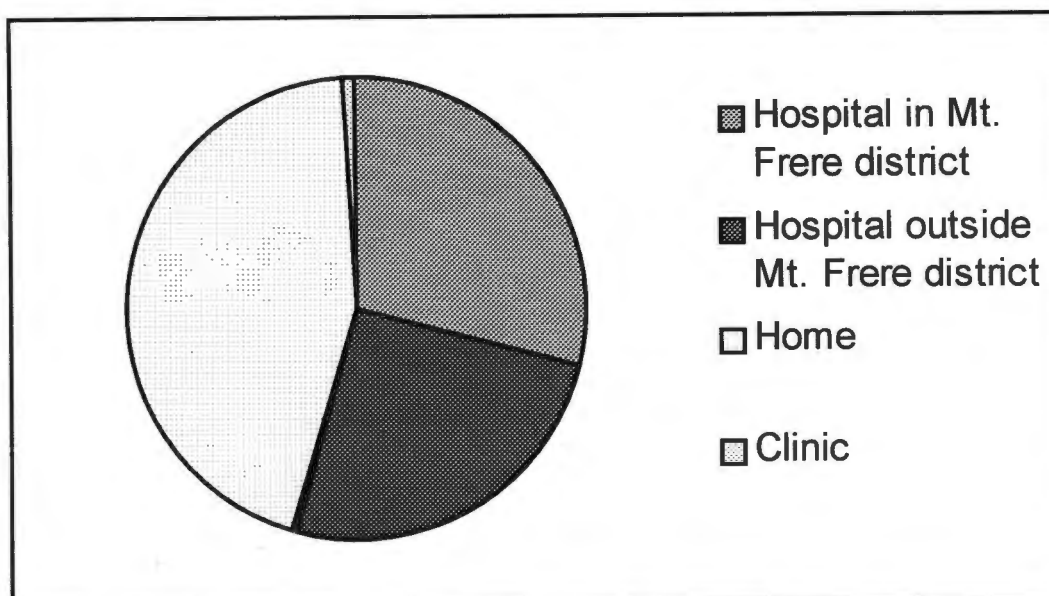
More than two fifths of the births (45% [35.8; 54.4]) occurred at home (CASE⁹ finding for rural Africans = 30%). These home births were attended by a traditional birth attendant in one third of cases, a family member, a neighbour or nobody at all (in 2 cases). A greater proportion of women living more than an hour from the nearest clinic delivered at home (51%), compared to those less than an hour away (33%). This difference approached statistical significance ($p=0.06$).

Twenty-seven of the fifty-nine hospital births (46%) occurred at hospitals outside the Mt Frere district, and only one birth occurred in a clinic (Mdyobe). In most cases, the attendant was a midwife. Caesarian sections were performed in only 3 cases, and 3 deliveries were assisted by means of vacuum or forceps extraction. One mother had died in Umtata General Hospital during a caesarian section.

Table 13: Place of delivery

Place of delivery	No.	%
Hospital	59	54.1
Home	49	45
Clinic	1	0.9
TOTAL	109	100

Figure 4: Place of delivery



Of the 98 women who provided information on **antenatal clinic attendance**, 87 (89% [81.3; 94]) had attended antenatal clinic at least once during their pregnancy, so about 10% were unbooked deliveries. The average number of visits was 3.6 (range = 1 to 10). Most clinic attendees had had their blood pressure checked, but only about a half reported receiving tetanus toxoid (55%), or being tested for syphilis (53%).

Table 14: Antenatal clinic attendance*

	Yes	%	No	%	Don't know	%
Blood pressure checked?	76	87.4	8	9.2	3	3.4
Received tetanus toxoid?	48	55.2	32	36.8	7	8.0
WR Test for syphilis?	46	52.9	34	39.1	7	8.0

* Data obtained from 98 women on antenatal clinic attendance; 87 of these (89%) had attended at least once during their pregnancy

More than half of all mothers (55% [45.6; 64.2]) who delivered in the past 12 months were using no **family planning** method at the time of the survey. Injectables were the most popular method, being used by 28% of respondents.

Table 15: Family planning method used at present

Family planning method	No.	%
None	60	55
Injectables	30	27.5
Oral pills	7	6.4
Other	7	6.4
Not known	3	2.8
Sterilised	2	1.8
TOTAL	109	100

3.7 HIV / AIDS

The principal respondent in each household was asked about their knowledge of how HIV is transmitted, and how it can be avoided. Those in the reproductive age group 15-49 years were significantly more likely to have heard of AIDS than those over 50 (93.8% [90.9; 96] vs. 85.8% [80.9; 89.8]; $p=0.001$). They were also more likely to know that it can be transmitted by sexual intercourse (75.7% vs. 64.4%; $p=0.005$) and prevented by use of condoms (53.8% vs. 30.2%; $p<0.0001$). Nevertheless, a fifth of respondents in this age group (18%) did not know how HIV is transmitted, and a third (34%) did not know how it could be prevented.

3.8 Focus group discussions of key survey findings

Poor access to health services was a prime concern of the focus group participants. The improvement of roads and extended coverage of mobile clinic services were suggested, and a need was expressed for more Community Health Workers and traditional birth attendants to conduct home visits, provide health promotion, and encourage community development. It was felt that incentives from government and other role-players would lead to strengthening of this work.

Concern was also expressed about the high and increasing rate of unemployment, mainly due to extensive retrenchments on the mines in recent years. This is seen as contributing to an increase in theft, assaults, murder, domestic abuse, alcoholism, and malnutrition. It is usually the women and mothers who bear the brunt, and consequently the health of children suffers. When mothers are working, children are usually left in the care of their grandparents or close relatives. Against this background, participants spoke of the need to champion women's rights, establish women's self-help projects, and encourage the sharing of responsibilities within families. More health services dedicated to women's health and staffed by health workers with counseling skills are desired.

Poor access to water and sanitation is another prime concern, and there was a perception that the "*RDP is only for the few and not for the majority*". People felt that the government should be lobbied to fund water development projects. The involvement of local community structures in such projects, and the employment of local people, was seen as crucial to the fostering of a sense of ownership, and hence the sustainability, of these projects.

The importance of the Road-to-Health card (RTHC) was recognised, but it was said that when these cards are lost many mothers or child caretakers don't bother to replace them. The fact that many children are cared for by their grandmothers, who often forget to bring the cards or do not see them as important, was mentioned. Thus the messages about the RTHC need to be targeted to elderly caregivers in particular.

The high incidence of diarrhoea was attributed to the use of impure water, and it was recognised that more emphasis needs to be placed on how to prevent dehydration by the use of oral rehydration fluid. Nurses and CHWs are recognised as the primary sources of health information, and the health talks they give are seen as contributing to a decrease in cases of kwashiorkor. The use of enemas in strong doses, reportedly encouraged by traditional healers, was blamed for children often being referred to the clinic in a severely dehydrated and near-fatal condition.

The inaccessibility of the health services was said to be one of the main reasons for the use of traditional healers. They are also popular because they understand and respect people's cultural values. It was felt that traditional healers need to be "incorporated" into the health service, with a system of referral between the nearest clinic or hospital being set up.

Traditional birth attendants (TBAs) also provide an accessible and culturally acceptable service. It was felt that the community should choose candidates for training. The clinic nurses felt that more TBAs and community health workers should be trained.

Effective health promotion was seen as a priority by both community members and clinic nurses. The clinic nurses felt that the health promotion officers need to spend more time in the clinics and doing home visits, stressing the importance of good hygiene, and working on demonstration projects in toilet-building and spring protection. There is frustration at the shortage of staff and resources, which limits the time they can spend on health promotion. The clinic nurses also expressed the need for further training in counseling and clinical skills.

All members of the groups had heard about HIV / AIDS, although some asked for further explanation about the mode of transmission and means of prevention. Members felt that a high-profile AIDS campaign was needed to target the youth, emphasising lifeskills and responsible sexual behaviour. Parents were concerned about the youth playing with condoms at schools, as they felt this undermined the acceptability of condoms for preventing HIV and other sexually transmitted diseases.

4. DISCUSSION

4.1 Demographic features

A population with a large proportion of children, high household density, high unemployment, migrant labour and absent mothers, are some of the defining demographic characteristics which affect the status of maternal and child health in Mount Frere.

The fact that a birth certificate could only be produced for fewer than one in ten children under five indicates the massive under-registration of births. There are national plans to allow clinics to register births, which should make the process of registration far more accessible¹⁶. Since the majority of births and deaths occur at home, however, a promotion campaign targeted at mothers and the heads of households is also required.

Although it was not possible to make a reliable estimate of the district Infant Mortality Rate, other studies as well as other features of the survey would indicate that it is probably very high. This underlines the importance of improving both child health services, as well as support to child caretakers in Mount Frere.

The crude birth and death rates were found to be significantly higher than the “official” provincial rates, and high birth and death rates partially indicate the degree to which the area is under-resourced and under-developed.

The relatively high proportion of migrant workers in the sampled households points to another underlying cause of poor health. Migrancy is a social phenomenon common in South Africa that has contributed to a break down in the social and family structures of households. This has negative impacts on health through, for example, the separation of mothers from their children and the spread of sexually transmitted disease from urban to rural areas¹⁷.

4.2 Mortality Profile

The nature of this study did not allow for an accurate analysis of mortality patterns. The proportion of deaths classified as “ill-defined” is therefore high. However, the survey was able to highlight tuberculosis, diarrhoea, trauma and homicide as notable features of the mortality profile in Mount Frere. Such a profile reflects the burden of poverty, chronic illness, and violence that is typical of many impoverished regions of the country.

According to the 1997 South African Health Review, between 15% and 20% of deaths are classified as being “ill-defined”¹⁷. This underlines the need throughout the country for more reliable mortality statistics, especially in the rural areas. Improving the death registration system should be one of the initial focus areas in the development of a district health information system.

4.2.1 Childhood mortality

Among infants, the high proportion of deaths due to diarrhoea is consistent with the childhood mortality findings of Irwig and Ingle³ in rural Transkei in 1980. They found that about 75% of infant deaths occurred in the post-neonatal period, and suggested on the basis of clinical experience and studies elsewhere, that most of these were associated with diarrhoea.

Deaths in children from diarrhoea are preventable and must therefore be a health priority to be addressed by the District Health Management Team. The fact that so many children are dying from diarrhoea also indicates that mothers and caretakers of children need to be targeted for health promotion so that they can be empowered to provide better health care for their own children.

The reduction in childhood deaths from diarrhoea and other infectious diseases in developed countries has been largely due to socio-economic improvement rather than the provision of health care³. There are, however, important and simple health interventions that can help to prevent childhood deaths.

The use of simple oral rehydration solutions, for example, is a strategy¹⁸ that can reduce morbidity and mortality of diarrhoea. More time spent by health workers with mothers of children with diarrhoeal disease has been shown to result in higher awareness of oral rehydration, regardless of the level of maternal education¹⁹. This survey found that only one in five caretakers had used some form of oral rehydration solution the last time their child had diarrhoea, and only one in four knew the correct formula for sugar-salt solution.

This underlines the importance of teaching child caretakers how to make and use oral rehydration solution, and of constantly reinforcing the message. Further investigation into the home management of children with diarrhoea may be a useful avenue of further study.

The finding that eight out of ten childhood deaths due to diarrhoea occurred at home, underlines the tragedy of families who have such poor access to health care. The use of CHWs may be an important strategy for improving access to health care and health information. CHWs live in the community and understand attitudes and beliefs about health, which makes them more accessible and acceptable than the health service to many people.

4.2.2 Maternal mortality

Only two maternal deaths were reported in the survey. One occurred during a caesarian delivery in Umtata General Hospital, and the other was apparently due to eclampsia. However, eleven respondents reported that they knew of a friend or relative who had died during pregnancy, childbirth or an induced termination of pregnancy in the past year. This information is insufficient, however, for a reliable estimate of the maternal mortality rate (MMR), due to deficiencies in recall, possible concealment of information, and the small sample size.

The monitoring of maternal deaths and the MMR is an important way for evaluating and measuring both the health status of a population, and the overall quality of health

care provision in a given area. The Department of Health has recently introduced a new maternal mortality reporting form that will, it is hoped, be used by health districts to collect this set of important data. The District Management Team will have to stress the importance of routinely collecting information on maternal and perinatal deaths, and providing timely feedback to health workers at the facilities.

Given the high number of home deliveries, however, measures to capture information about maternal deaths that occur at home will have to be considered. The sisterhood survey²⁰ design is one indirect technique that is relevant to contexts such as these.

4.3 Environmental health

The findings of both the survey and group discussions show that access to clean drinking water and adequate sanitation is a major concern. Almost three-quarters of households use unprotected sources of water, and fewer than 1 in 10 households use acceptable methods of sanitary waste disposal such as ventilated-improved pit latrines. It is therefore not surprising that diarrhoeal disease is so common.

Health promotion on sanitation (ventilated pit toilets) and the purification of drinking water, whether by environmental health officers or CHWs, needs to be accompanied by a visible commitment to improving the quality of environmental health. The involvement of NGOs, local community structures, and the employment of locals is a strategy which has been successful elsewhere²¹ and which has the support of this community. Water development projects are underway in parts of the district, under an ongoing initiative of the Department of Water Affairs, but much still has to be done.

The survey also showed that within Mount Frere, some areas (the Mangqamzeni and Mdyobe areas) had significantly poorer environmental health indicators than others. It seems therefore that a mechanism to help health districts map out their most needy areas in terms of environmental health improvements might be very useful.

4.4 Child Health

4.4.1 The Road to Health Card (RTHC)

It is of concern that a RTHC could only be produced for just over a half of the under fives sampled, and that many elderly child guardians apparently do not recognise the importance of this record. Although mothers were more likely to have the RTHC than other guardians, one in three of them could not produce the card. This finding underlines the necessity of promoting understanding, particularly among elderly child guardians, of the importance and correct use of the RTHC.

4.4.2 Immunisation

Immunisation coverage amongst children 1-4 years is poor. Once invalid doses (given too early or at the incorrect intervals) have been discounted, coverage at one year for all vaccines except BCG falls well short of the national EPI target of 90% coverage for each vaccine by the year 2000. The fact that fewer than 1 in 3 children was fully immunised with valid doses by the age of one year, and that the intervals between doses are often unacceptably long, makes improving the EPI programme an urgent priority for the district.

An 8.3% drop-out between the DPT 1 dose and the DPT3 dose was also observed. This indicates that mothers fail to return for subsequent doses, which could be due to the physical inaccessibility of the immunisation service, inadequate promotion of the importance of completing the schedule, or a shortage of vaccines at the clinic as previously reported².

Every opportunity must therefore be used to remind mothers and caretakers of the correct schedule, and to ensure that the health services are not responsible for any missed opportunities. An adequate supply of vaccines, and a functioning cold chain, must therefore be maintained at all times. Determining the reasons for missed immunisation opportunities is a key issue for ongoing research and attention.

Periodic surveys using the standard EPI cluster survey methodology may be one way of monitoring the immunisation status of children in the district, and of utilising and strengthening research skills.

4.4.3 Growth monitoring

The policy guidelines for health facility-based nutrition interventions in South Africa²² recommend that a child should come for growth monitoring five times in the first year of life. Although three quarters of children under 1 in this survey met this standard, there is room for improvement.

In addition to the frequency of growth monitoring, the quality of the service needs to be assessed. International experience has shown that growth monitoring is a useful activity when used as a health promotion strategy at an individual and community level²³. This requires that the clinic staff know how to weigh and plot accurately, are able to interpret the growth charts effectively, communicate this to the child caretakers, and are able to counsel caretakers individually.

A clinic-based study to assess the quality of the service provided and to identify areas of improvement is therefore recommended. Ways in which the activity of growth monitoring can be converted into a community-based and community-owned health promotion activity also need to be found.

4.5 Maternal Health

The proportion of home deliveries in this community is very high. This is to be expected where access to health facilities is poor, but in some cases women may choose to deliver at home as this is where they receive support from people close to them (*comment made in group discussion*). In order to reduce the incidence of maternal and perinatal deaths, however, it is important that “high risk” women deliver in an adequately equipped and staffed health facility. This requires the provision of

more information about safe motherhood, as well as the removal of physical barriers to access. eg. providing waiting areas for expectant mothers at all health facilities^{24,25}.

Although 89% of women who delivered in the previous year had attended antenatal clinic, there is room for improvement. In the Bizana district of the Transkei, for example, it was found that 97% had attended at least once for antenatal care⁷. What is of concern, however, is that almost half of the women surveyed reported receiving no tetanus toxoid (TT) and no WR test for syphilis during their antenatal visits. Some women who had attended antenatal clinic four or five times during their pregnancy reported that their blood pressure was never checked, nor did they receive TT or a syphilis screening test.

The use of family planning also needs to be encouraged. A community-based distribution and education strategy for family planning in Malawi, involving the training of volunteer distribution agents, has been successful in increasing contraceptive use²⁶. This is a strategy which could be attempted in Mt Frere, using CHWs or other volunteers to broaden the acceptability and accessibility of the existing service. It is also imperative, however, to ensure that supplies of contraceptives are always available at the health services, which has often not been the case in the past².

4.6 HIV / AIDS

In view of the rapidly increasing prevalence of HIV/AIDS in the country, it is imperative that all those who are or will be sexually active are well informed as to how HIV is transmitted, and how it can be prevented. Although most people had heard of HIV/AIDS, it is of concern that a fifth of respondents in the 15-49 year age did not know how HIV is transmitted, and a third did not know how it could be prevented.

Knowledge is the first step to changing sexual behaviour, and more effort therefore needs to be put into communicating the essential messages around HIV / AIDS, particularly to the risk groups in this community, such as schoolchildren, young adults, migrant workers and their sexual partners.

4.7 Traditional Healers and Traditional Birth Attendants

Traditional healers and traditional birth attendants play a prominent role in health care delivery in the Mount Frere district. Cooperation with traditional healers has been proposed by some^{27, 28}, but resisted by others^{29, 30}. However, it is generally recognised that much needs to be done to “bridge the gap” between traditional and modern medicine, possibly by starting with joint meetings of traditional healers and health workers to explore areas of co-operation³¹. The potential dangers of enemas need to be emphasised, and further research into the use and effects of traditional enemas, which have been little studied³², should be undertaken.

There was, however, some scepticism among nurses in the Mount Frere district about the feasibility of such cooperation, with the late referral and deaths of children poisoned by enemas being cited as an example of the harmful effects of traditional health practices.

The fact that traditional birth attendants (TBAs) were present at a third of the births underlines the importance of their role in this context, as described by other authors^{33, 34}. Other countries have recognised the importance of TBAs, and have implemented simple interventions to improve the quality of care they provide by, for example, providing them with “birth kits” to help ensure clean and hygienic cord management²⁴.

4.8 Limitations in the methodology

No one was present at the time of the survey in 88 (14%) of the randomly sampled households. If these non-responding households differ significantly (with respect to the variables being studied) from those households that were used to replace them, then the survey results may be affected by a selection bias.

Respondents’ recall of, for example, details of deaths in the past 3 years, treatment-seeking behaviour in the past month, and deliveries in the past year, is a potential

source of information bias. The likelihood of such bias increases when proxy respondents were used in the absence of the desired respondent from the household.

Details and dates of vaccines given were recorded from the child's road-to-health card, but the fact that almost half the children had no RTHC means that their vaccination history, as stated by the respondent, could not be validated.

The questionnaire is another potential source of information bias, due to questions that were not correctly understood by the respondents. One question was excluded from the analysis for this reason after the research team reported difficulties with it. It was reported, however, that all other questions were well understood.

Although all interviewers were trained to administer the questionnaire, and were involved in pre-testing it, the possibility exists that they did not all follow the correct protocol for questioning the respondents. The question about knowledge of diarrhoea, for example, was not asked as intended of all respondents. Errors of this sort are another potential source of information bias.

The purpose of the study and the confidentiality of the responses was explained prior to asking any questions, in order to encourage the respondents to disclose all relevant information. Where sensitive information was requested, about mortality for example, there may, however, have been some concealment of information due to mistrust about the interviewers' intentions. This "observer" bias is another type of information bias common to community-based surveys.

The focus group discussions, while providing a useful qualitative component to the study, were not representative of the community as a whole, in that they consisted mostly of women who were available at the time of the facilitators' visits during the week. Thus the opinions of men and working women (with the exception of the clinic nurses) may not be adequately reflected. Broader consensus and discussion around these issues has since taken place, however, and will continue as part of the ongoing process of district development in Mt. Frere.

5. RECOMMENDATIONS FOR THE DISTRICT HEALTH TEAM

The main purpose in conducting the survey was to strengthen district health management activities, by using the findings as a starting point for developing strategies and plans to improve the quality of care.

The key findings were therefore summarised and discussion points identified to form a framework for small-group discussion (Appendix IV) at a two-day workshop with members of the research team, the District Management Team, and members of the Regional Office. The four issues that were seen as central to the improvement of maternal and child health status and health services in the Mount Frere health district were:

- a) improved access to health care;
- b) promoting a better understanding of health in the community;
- c) improving the quality of care in the existing health facilities and services;
- d) developing the district health information system.

In addition, issues that require further research were identified.

These discussions produced recommendations and specific action points around each of these issues, which are summarised below.

5.1 Access to health care

Improve road access to the clinics

- Regional and district offices should liaise with Public Works Department about the upgrading of roads.
- Regional and district offices should liaise with the provincial Department of Health to lobby for the development of roads on behalf of Region E.

Extend clinic opening hours where feasible

- The clinic supervisor should discuss the issue of opening hours with clinic staff and clinic committees. Any decision to increase the hours into the night must be accompanied by measures to improve security.

Improve the mobile clinic service to areas that are not within close proximity to a fixed clinic

- The DHMT, the mobile clinic supervisor and the environmental health officers should map out the current mobile clinic routes and identify areas that are not adequately covered (eg. more than 10 km away from the nearest health facility).

Provide waiting facilities at clinics or hospitals for expectant mothers

- At present, there are no waiting facilities at all in Mount Frere. The DHMT needs to decide where waiting facilities would best be located, and integrate these facilities into their physical and capital works planning process.
- Clinic nurses and clinic supervisors should initiate discussions with communities about whether community structures close to the clinics and hospitals could be used.

Develop the role of Community Health Workers (CHWs)

- The district should be proactive in meeting with CHWs to plan how the service they provide can be supported and developed.

5.2 Promote a better understanding of health in the community

Integrate “health promotion” into all primary health care programmes

- The regional health promotion officer needs to ensure that health promotion is central to the planning of all primary health care programmes.
- The three district health promotion officers need to establish a more strategic and efficient work plan for themselves, which will promote collaboration with clinic nurses, the mobile services and other sectors of the health service.

Involve communities more in health promotion

- The district health promotion officers should involve communities more in special “health days” (eg. World AIDS Day, TB Day, Breastfeeding Day, Child Protection Week). School competitions to design health promotion posters around these themes were suggested.
- Community health workers should be more involved in health promotion in the community.

Resolve the personnel issues amongst health promotion officers

- The regional and provincial offices should address the issues surrounding the appointment of staff and the district staff establishment, as these are a cause of demoralisation.
- The “career paths” of health promoters need to be defined.

Improve the availability of health promotion resources

- The regional health promotion office needs to approach the Department of Health and other resource centres for locally relevant materials for the regional resource centre.

Support traditional birth attendants (TBAs) in providing antenatal and intra-partum care

- Nurses and midwives should meet with TBAs to plan health promotion around relevant topics (eg. correct home management of a normal childbirth; identifying harmful practices; and encouraging helpful practices).

5.3 Improve the quality of care in the existing health facilities and services

Develop a standard message about oral rehydration for children with diarrhoea

There is inconsistency in the advice given about oral rehydration. Some clinic nurses are issuing oral rehydration therapy (ORT) sachets when they are available, and

advising mothers to make sugar-salt solution (SSS) otherwise. Not all nurses were certain about the quantity of salt to be added, and the lack of ingredients in several clinics made it impossible to demonstrate the SSS formula.

- To avoid confusing the community with conflicting messages, clinics should stop issuing ORT sachets and advise instead on how to make SSS at home.
- All clinic nurses should receive in-service training on the correct formula and use of SSS

Ensure that opportunities for immunisation are not missed

- The health facilities should revert to the practice of special immunisation days, as this has merits for both staff and mothers. This practice should not, however, prevent children from being immunised whenever the opportunity exists.

Provide regular in-service training to nursing staff

- The PHG coordinator and the clinic supervisor should ensure that clinic nurses receive in-service training on a regular basis.
- All nursing staff should be provided with clinical guidelines, referral criteria, and standing orders.

Improve the supply of essential services and equipment to clinics

- The Environmental Health services should approach the Dept. of Public Works about upgrading the clinics' poor water supply
- The Regional Office needs to follow-up with Telkom about the provision of telephones to the clinics.
- The clinic supervisor needs to ensure that heating equipment is provided to all clinics.

Improve the state of environmental hygiene in Mary Theresa Hospital

- The environmental health services should work with the Hospital Infection Control Team in improving the environmental hygiene of Mount Frere hospital.

5.4 Develop the district health information system

Comprehensive guidelines for developing the health information system in districts have been developed³⁵ and are being applied in Mount Frere. The following specific recommendations were made in the district workshop:

Improve the registration of births and deaths

- The district health management team (DHMT) should ensure that clinic nurses are adequately trained and supported to register births, in accordance with the new policy.
- Communities should be informed via the local media, schools, the welfare department, churches and non-governmental organisations of the importance of registration of births and deaths.
- Health promotion officers should encourage the registration of deaths through funeral parlours and burial clubs.
- The District Information Officer should collate all data on births and deaths in the district.
- The Initiative for Sub-District Support (ISDS) should contract a review of the death notification process, including the classification of causes of death, and the training needs of those completing the notification forms.

Improve and develop a system for maternal and perinatal death reporting

- The ISDS and MCH programme coordinator should develop a system for reporting perinatal deaths.
- The newly introduced national maternal mortality reporting form and procedure should be evaluated.
- Clinic supervisors should ensure that all nurses are trained to fill in the death reporting forms, and that reporting is done completely and correctly.
- The district health team should audit the perinatal and maternal mortality reports to identify shortcomings in the MCH service, and take steps to correct them.

Improve the routine facility-based data collecting system

- Reports on the data collected from the newly introduced clinic registers should be produced quarterly by the district Information Officer for the clinic supervisor, and the district and regional offices.

5.5 Issues requiring further research

- Research into the current and existing management of diarrhoea at home should be conducted in order to develop appropriate health promotion messages.
- Research into the reasons why so many women are choosing to deliver at home is required, in order to develop strategies for increasing the proportion who give birth in health facilities.
- Collaboration with traditional healers is viewed with skepticism by some of the clinic nurses. Further research into areas of collaboration and the attitudes of both nursing staff and traditional healers would be helpful.

6. CONCLUSION

District health workers such as clinic nurses, health promotion officers, and environmental health officers are not usually expected to conduct formal community-based research activities. Although there have been a number of health systems research projects conducted by people working within the health services, these are usually facility-based. Part of the reason for this is that community-based research can be logistically difficult, expensive, and time-consuming, especially in rural areas such as Mount Frere where the lack of transport, poor roads and physical inaccessibility pose major challenges.

Despite these difficulties, the experience of undertaking research with local health workers in this district has been positive. The process of participation has been an essential feature that has benefited the broader process of district development.

Firstly, the trainees have been equipped with a range of research skills, which can be applied in their own areas of interest, and in future surveys in the health district. In the words of one member of the research team: *"I learnt that without doing research we cannot identify some of the problems in our communities"*. Interest has been stimulated in conducting research into other issues of interest, such as the *"use of enemas"*, *"the practices of traditional healers"*, and *"the attitudes of teenagers, health workers, and parents towards family planning"*.

Secondly, the process has focussed their attention on some of the major health problems facing mothers and children in the district: *"The survey gave me more insight into how people live, especially in the rural and remote areas.. and into the health problems that they have"*; *"I am now aware of the extent of inaccessible health services in the community"*.

Thirdly, the contributions from the community members in the focus group discussions also highlighted the value of health workers being expected to listen to people's experiences and attitudes: *"I learnt about the need to be empathetic and understand the community when they come to the clinic"*.

The multi-disciplinary nature of the research team (nursing, environmental health and health promotion staff) was deliberate, and helped the research team members to see that : "*...the involvement of all disciplines is necessary to speed up the work*". It is hoped that this experience of collaboration will not only improve working relationships in future, but also reinforce the fact that many of the health problems in Mount Frere can only be properly solved through a multi-disciplinary approach.

A participatory process of report-back and discussion was another important feature of this study. This took the form of workshops with the research team and with district and regional office staff in order to discuss the results, to identify the key issues, and to formulate specific action plans to address these. Involvement of the local role-players in this task is essential to ensuring implementation of the recommendations, which is the principal basis on which the usefulness of the study will be judged.

Some of the recommendations arising from this study can probably be generalised to other rural districts in South Africa, and can therefore be used to set clear priorities for focussed research and intervention in these areas. The research process that has been followed in Mount Frere could also be usefully replicated in other districts, although some refinement of the methodology is necessary to minimise potential sources of bias.

A technical report on this study, with emphasis on the recommendations for district health managers, has been produced and widely disseminated to all those interested in doing action-oriented research at district level. It is hoped that this report will inform the ongoing process of district health development in southern Africa.

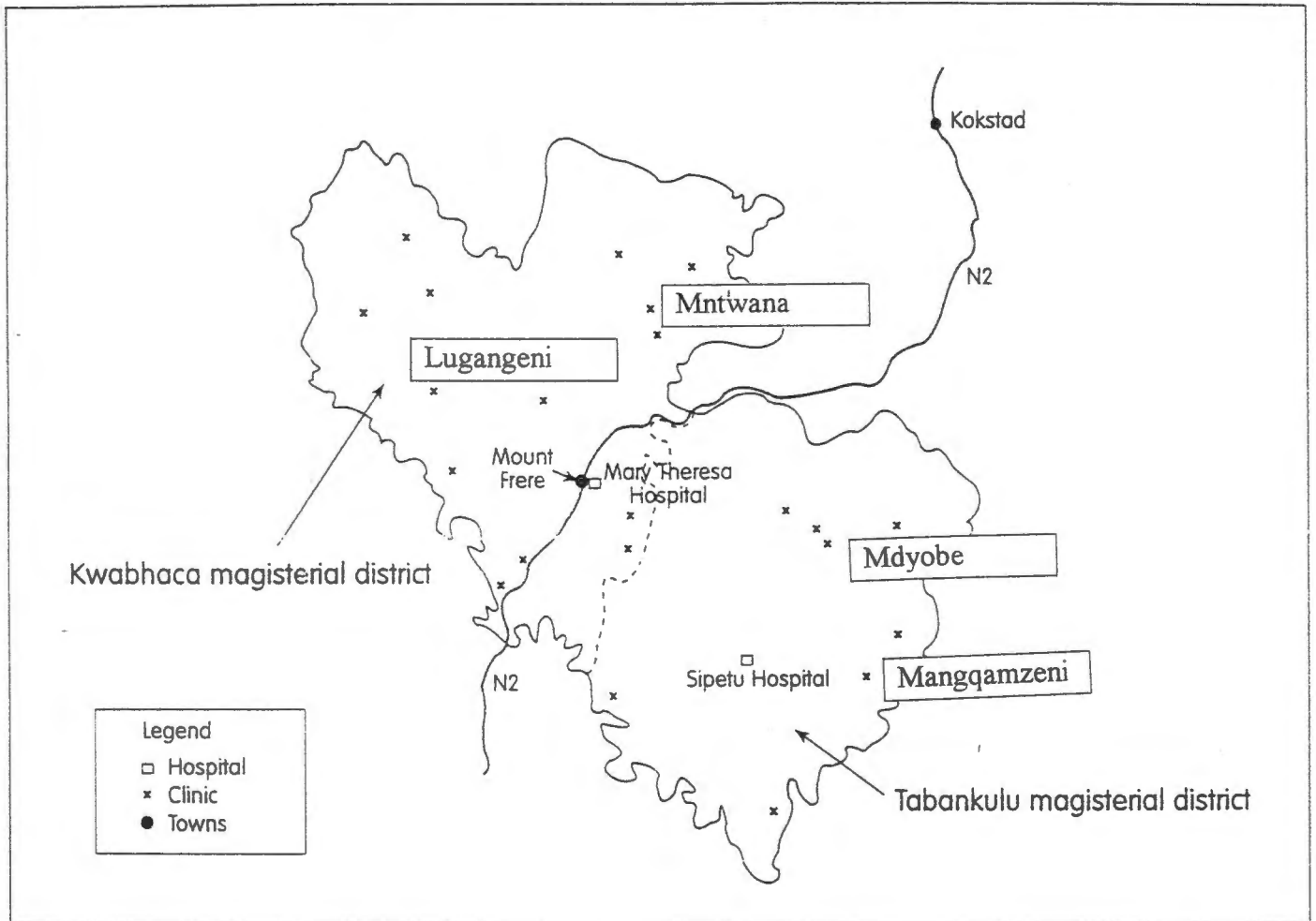
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Map of the health facilities in Mount Frere Health District



HOUSEHOLD SURVEY OF MATERNAL AND CHILD HEALTH
(ENGLISH TRANSLATION)
MT. FRERE HEALTH DISTRICT - SEPTEMBER / OCTOBER 1997

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Initials of field researcher : _____

Date of interview : _____

Checked by : _____

Supervisor's name

Name of area : _____

Name of local headman : _____

Name of the head of this household : _____ Male / Female

Household number (as recorded on sampling frame) : _____

Nearest clinic : _____ (1 = Mntwana; 2 = Lugangeni;
3 = Mangqamzeni; 4 = Mdyobe)

Means of usual transport to nearest clinic _____ (1 = Taxi;
2 = Private car;
3 = Walk;
4 = Other)

Time taken to reach nearest clinic by usual means of transport : _____

(1 = less than 1 hour; 2 = greater or equal to 1 hour)

**HOUSEHOLD SURVEY OF MATERNAL AND CHILD HEALTH
(ENGLISH TRANSLATION)
MT. FRERE HEALTH DISTRICT - SEPTEMBER / OCTOBER 1997**

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A. HOUSEHOLD INFORMATION

Please complete the following table on ALL MEMBERS OF THE HOUSEHOLD by interviewing the head of the household or most senior member present.

PLEASE TICK THE MAIN RESPONDENT

	Initials	Sex	AGE						Residence P/W/M/Y	Employment status
			< 12 m.	12-23 m.	< 5 yrs.	5-15 yrs.	16-64 yrs.	65 +		
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										

Age (tick appropriate category)

- < 12 m. if age less than 12 months (*birthdate after 1 Sept. 1996*)
- 12-23 m. if age 12-23 months (*birthdate from 1 Sept. 1995 to 31 Aug. 1996*)
- < 5 yrs. if age less than 5 years (*birthdate after 1 Sept. 1992*)
- 5-15 yrs. if age from 5 to 15 years (*birthdate from 1 Sept. 1981 to 31 Aug. 1992*)
- 16-64 yrs. if age from 16 to 64 years (*birthdate from 1 Sept. 1932 to 31 Aug. 1981*)
- 65+ if age 65 years and older (*birthdate before 1 Sept. 1932*)

Residence

- P = permanent resident
- W = comes home weekly
- M = comes home monthly
- Y = comes home less often than monthly

Employment status

- E = employed elsewhere
- S = self-employed
- U = unemployed
- F = schooling
- = not applicable

* SPECIFY PLACE OF RESIDENCE IF NOT AT HOME

**HOUSEHOLD SURVEY OF MATERNAL AND CHILD HEALTH
(ENGLISH TRANSLATION)**

MT. FRERE HEALTH DISTRICT - SEPTEMBER / OCTOBER 1997

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A1. Has anyone in your household died in the last 3 years
(since the April 1994 elections) ? _____

- a) Yes
- b) No

A2. If yes, please could you tell me the following about each death :

Date of death	Age at death	Sex	Place of death	Cause of death

A3. Do you know of a friend or relative who has died during pregnancy or childbirth in the past year ? _____

- a) Yes
- b) No

A4. If yes, can you describe the cause of death ?

A5. Do you know of a friend or relative who has had an abortion in the past year ? _____

- a) Yes
- b) No

A6. If yes, did any of these people die as a result of having had an abortion ? _____

- a) Yes. Specify _____
- b) No

HOUSEHOLD SURVEY OF MATERNAL AND CHILD HEALTH
(ENGLISH TRANSLATION)
MT. FRERE HEALTH DISTRICT - SEPTEMBER / OCTOBER 1997

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A7. What is the household's main source of **drinking** water: _____

- a) Tap in dwelling
- b) Public tap
- c) Borehole / handpump
- d) Protected spring
- e) Pond / river/ stream/ dam
- f) Other (specify) _____

If source is outside the home:

A8. How long does it take to walk to nearest source of drinking water ? _____

- a) less than or equal to 5 mins.
- b) 6-15 minutes
- c) 16-30 minutes
- d) 31-60 minutes
- e) longer than 1 hour

A9. What type of toilet do you use? _____

- a) Flush
- b) Ventilated pit latrine
- c) Pit latrine
- d) Bucket
- e) None

**HOUSEHOLD SURVEY OF MATERNAL AND CHILD HEALTH
(ENGLISH TRANSLATION)
MT. FRERE HEALTH DISTRICT - SEPTEMBER / OCTOBER 1997**

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B. HEALTH OF CHILDREN BELOW FIVE YEARS (Birthdate after 1 Sept. 1992)

Choose one child under 5 years at random from the list in Table 1, and ask the caretaker of this child to answer the following questions

Write d/k if the respondent does not know the answer.

B1. What is the relationship of the respondent to the child ? _____
(mother, aunt, grandmother, sister etc.)

B2. What is the sex of the child? _____

a) Male

b) Female

(Ask to see the child's birth certificate and road to health card)

B3. Is the caretaker able to produce the birth certificate ? _____

a) Yes

b) No

B4. Is the caretaker able to produce the road to health card? _____

a) Yes

b) No

B5. Record the dates when each of the following doses of vaccine were given.
If the card is not present, ask the caretaker whether he/she can recall the details.
(0 = not given; d/k = don't know when given)

Date of birth _____

BCG	_____	POLIO 1	_____
DPT1	_____	POLIO 2	_____
DPT2	_____	POLIO 3	_____
DPT3	_____	MEASLES1	_____
		MEASLES2	_____

B6. Record the number of growth points plotted on the chart _____

HOUSEHOLD SURVEY OF MATERNAL AND CHILD HEALTH
(ENGLISH TRANSLATION)
MT. FRERE HEALTH DISTRICT - SEPTEMBER / OCTOBER 1997

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B7. Has this child had diarrhoea in the past month? _____

- a) Yes
- b) No

B8. How was the child treated the last time he/she had diarrhoea? _____

(Please tick all that apply)

- a) With oral rehydration solution (ORS) at home
- b) Treated at clinic
- c) Treated by traditional healer
- d) Other.

Specify _____

B9. Do you know how to make oral rehydration solution? _____

- a) Yes
- b) No

B10. If yes, can you tell me what formula you use to make it?

B11. Was the child given an enema the last time he / she had diarrhoea? _____

- a) Yes
- b) No

B12. If yes, what was used as an enema?

Specify _____

B13. What do you think is the cause of diarrhoea?

HOUSEHOLD SURVEY OF MATERNAL AND CHILD HEALTH
(ENGLISH TRANSLATION)
MT. FRERE HEALTH DISTRICT - SEPTEMBER / OCTOBER 1997

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R.C. HEALTH OF CHILDREN AGED 5 - 15 YEARS (birthdate from 1 Sept. 1981 to 31 Aug. 1991)

Choose one child aged 5 - 15 years at random from the list in Table 1, and ask the caretaker of this child to answer the following questions.

Write d/k if the respondent does not know the answer.

C1. What is the relationship of the respondent to the child ? _____
(mother, aunt, grandmother, sister etc.)

C2. Age of child _____

C3. Sex of child _____

- a) Male
- b) Female

C4. What level of school does the child attend ? _____

- a) Pre-school
- b) Junior primary
- c) Senior primary
- d) High
- e) None

C5. Does the child receive free food at school ? _____

- a) Yes
- b) No

C6. Does the child have any difficulties learning at school ? _____

(eg. slow learner; poor concentration; hyperactive) ?

- a) Yes - Specify _____
- b) No

HOUSEHOLD SURVEY OF MATERNAL AND CHILD HEALTH
(ENGLISH TRANSLATION)

MT. FRERE HEALTH DISTRICT - SEPTEMBER / OCTOBER 1997

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D. HEALTH OF ALL WOMEN WHO HAVE DELIVERED IN PAST 12 MONTHS

Please complete for ALL WOMEN who have delivered in the past 12 months, including those who died during childbirth.

Age of mother	Date of delivery	Place of delivery	Birth attendant	Type of delivery (NVD / CS)	Outcome of MOTHER (Alive/ dead)	Outcome of BABY (Alive/ dead)	No. of ANC visits	Blood pressure checked?	No. of doses of TT given	WR test?	FP method used at present

TT = tetanus toxoid doses received during pregnancy (in upper arm) WR test = blood test for syphilis

Place of delivery

Hospital - specify NAME OF HOSPITAL

Clinic - specify NAME OF CLINIC

General practitioner (GP) - specify where

Home

Born before arrival (BBA)

Type of delivery

NVD = normal vaginal delivery

C/S = caesarian section

Birth attendant

MW = Hospital or clinic midwife

Dr. = Hospital doctor

GP = General practitioner

TBA = Traditional birth attendant

Fam = Family/ neighbour

O = None

Family planning (FP) method used at present

O = None

IUD = Intrauterine device

Inject. = Injectables

Pill = Oral pills

Ster = Sterilized

Specify other methods

**HOUSEHOLD SURVEY OF MATERNAL AND CHILD HEALTH
(ENGLISH TRANSLATION)
MT. FRERE HEALTH DISTRICT - SEPTEMBER / OCTOBER 1997**

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E. KNOWLEDGE OF HIV AND AIDS

E1. Age of respondent _____

E2. Sex of respondent _____

a) Male

b) Female

E3. Have you heard of a disease called AIDS ? _____

a) Yes

b) No

E4. How is AIDS transmitted ?

(Please tick all that apply)

a) Sexual intercourse _____

b) Transfusion of infected blood _____

c) Mother to child _____

d) Sharing blades or needles _____

e) Don't know _____

f) Other. Specify _____

E5. How do you think one can avoid getting AIDS ?

(Please tick all that apply)

a) Using condoms during each sexual intercourse _____

b) Sex with only one other partner _____

c) No sex - abstinence _____

d) Don't know _____

e) Other. Specify _____

THANK YOU

FOCUS GROUP DISCUSSION GUIDE FOR FACILITATORS

A focus group discussion (FGD) is a group discussion of 6-12 persons guided by a facilitator, during which group members are encouraged to talk freely and spontaneously about a certain topic. If you are not able to record the discussion on video- or audiotape, appoint someone to record the discussion and observations on paper.

The **purpose** of a focus group discussion is to find out in depth what the participants know, think, or do about health problems; or what their opinions are about the strengths and weaknesses of the health service, and how these can be addressed.

Some points for conducting an effective focus group discussion (FGD)*:

- Invite participants at least a day in advance.
- Conduct the discussion in an undisturbed place, with seating arranged in a circle.
- Introduce yourself as facilitator, introduce the person recording the discussion, and ask the participants to introduce themselves.
- Explain carefully the purpose of the discussion, the kind of information needed, and how the information will be used.
- Encourage discussion by being enthusiastic and showing interest in the group's opinions. React neutrally to both verbal and non-verbal responses.
- Be aware of your own and the participants' non-verbal communication (body language, tone of voice, facial expressions). The person recording should note these as well.
- Encourage involvement from *all* participants by using eye contact and people's names, redirecting questions, and avoiding being placed in the role of the "expert".
- Maintain interest by listening carefully and moving the discussion from topic to topic when appropriate.
- At the end of the meeting, summarise the main issues, check for agreement, and ask for additional comments.
- Thank the participants, and let them know how their contributions will be used.
- Review the recorded notes or video-/ audiotapes immediately after the discussion and record any additional observations or comments about the group dynamics.

=====

Name of clinic / clinic area _____

Names of participants _____

Name of interviewer _____

Name of recorder _____

Date _____ Time began _____ Time ended _____

◆ **Causes of death**

Does this profile of common causes of death agree with your experience?

Can you clarify reported causes such as "stomach ache", "*phika*", "chest pains"?

Which of these deaths are preventable, and how?

◆ **Unsafe drinking water**

What are the dangers of drinking water from unprotected sources?

How can we educate parents about these dangers?

How can we encourage households to purify their drinking water?

◆ **Lack of toilets**

What are the dangers of not using toilets?

How can we educate parents about these dangers?

How can we encourage households to build ventilated pit toilets?

◆ **Low number of birth certificates**

Why is it important to register births?

Why don't parents register births?

How can we encourage parents to register?

◆ **Many caretakers unable to produce Road-to-Health cards**

Why was this so? Is this an accurate reflection of the situation?

What can be done to increase the number of children having Road-to-Health cards?

◆ **Many children do not complete their immunisation schedule**

Why? What can be done to reduce the number of "drop-outs"?

◆ **Many of the doses given are not valid**

What can be done to make sure that children are brought for immunisation at the right time?

◆ **Treatment of diarrhoea**

Are mothers encouraged to use ORS for treatment of diarrhoea at home?

Are they taught about ORS when they bring their children to the clinics?

In what other ways can they be taught about ORS?

◆ **Knowledge of causes of diarrhoea**

How can knowledge about the causes and prevention of diarrhoea be improved?

Why is the belief about "teething" as a cause of diarrhoea so widespread?

◆ **Use of enemas**

What are the dangers of using enemas?

How can child caretakers be taught about the dangers?

◆ **Treatment-seeking behaviour**

Are traditional healers consulted more often than these results suggest?

What conditions are they usually consulted for?

What, if any, working relationship does the clinic have with local traditional healers?

What are your opinions about working with traditional healers?

◆ **Deliveries**

What are the obstacles to mothers delivering in health institutions?

What can be done to overcome these obstacles?

How can the quality of the antenatal service be improved?

How can use of family planning be promoted?

◆ **Knowledge of HIV/AIDS**

What is currently being done to educate people about HIV/AIDS?

What can be done to encourage safe sexual behaviour?

FRAMEWORK FOR GROUP DISCUSSIONS

1. Access to health services

Survey findings

- Poor access to health care is a primary concern of communities
- Three quarters of households are more than an hour from the nearest clinic.
- The main means of transport to the nearest clinic is on foot.
- One in five (19%) children under five had been taken to a clinic for treatment in the past month
- One in twenty under five children (5%) had been taken to a traditional healer or GP for treatment in the past month
- Almost half (45%) of births occur at home.
- Almost half of the hospital births (46%) had occurred at hospitals outside the Mt Frere district
- More than two thirds (71%) of households use water from unprotected sources for drinking purposes; a third (32%) take longer than half an hour to reach the nearest source; about half (47%) have no toilet

Discussion points

- What can be done about improving road access to the clinics ?
- Are the clinics' working hours convenient for communities ? If not, what alternatives do you suggest ?
- Can the mobile clinic services be extended ? If so, where are the priority areas ?
- Where do waiting facilities for expectant mothers need to be established ? What are the minimum requirements for these facilities ?
- In what ways is the health service working together with VHWs, TBAs, and traditional healers ? How can this be done more effectively ?
- What is being done to improve access to water and sanitation ?
- What areas of co-operation exist with Community-based organisations (CBOs) and NGOs ? What can be done to improve co-operation ?

2. Health promotion

Survey findings

- Effective health promotion is seen as a priority by clinic nurses and community members.
- Lack of a team approach, shortage of time and resources, and lack of skills in counselling are obstacles to effective health promotion.
- Nurses and VHWs are recognised as primary sources of health information.
- The road-to-health card (RTHC) could be produced by only three fifths of child caretakers
- Only one in three (36%) children aged 1-4 years could be confirmed as fully immunised at the age of one year
- Half the children under one year (48%) are being weighed once a month; among those 1-3 years, a third are weighed once every 2-3 months.
- Two fifths (40%) of infant deaths in the past 3 years were due to diarrhoea

- Only one in five child caretakers had used sugar-salt solution (SSS) at home the last time their child had diarrhoea
- Only one in four (24%) respondents knew the correct formula for making SSS
- Over two fifths (45%) of children were given enemas during the most recent episode of diarrhoea
- Almost half (47%) the respondents did not know what causes diarrhoea
- One in five respondents aged 15-49 did not know how HIV is transmitted; one in three (34%) did not know how it can be prevented.

Discussion points

- How can a team approach to health promotion be encouraged ?
- What are the priority topics for health promotion ? Who are the target groups ?
- What special strategies are required ?
- In what ways can communities be involved in health promotion ?
- What resources are required ?
- What further skills and training are required ?
- How can health promotion be evaluated ?

3. Quality of service

Survey findings

- Only one in three (36%) children aged 1-4 years could be confirmed as fully immunised at the age of one year
- Only about a half of antenatal clinic attenders had received tetanus toxoid (55%) or had been tested for syphilis (53%).
- Community discussion groups voiced the need for more health services dedicated to women's health
- Clinic nurses identified the need for further training in counselling
- Clinic nurses are frustrated by the shortage of staff and resources for undertaking health promotion

Discussion points

- What needs to be done to improve the delivery of vaccines and the maintenance of the cold chain ?
- How can missed opportunities for immunisation be minimised ?
- How can the quality of the growth monitoring activities be improved ?
- What are the deficiencies in the antenatal clinic service ? How can these be addressed ?
- How can the quality of health services for women be improved in the district ?
- How can staff be better supported in their roles as service providers ?

4. District health information system

Survey findings

- - No existing health indicators were available for comparison

- No data on births or notifications of disease were available from the magistrate's office for 1996
- Latest census data is 7 years old (1991)
- Only 8% of under fives had birth certificates.
- Late registration of births is the norm
- The majority of deaths are not registered.
- Most reported causes of deaths (45%) are not well-defined.
- One maternal death and three perinatal deaths were reported in the previous year
- Only 57% of child caretakers could produce a RTHC

Discussion points

- How can the registration of births and deaths be improved ?
- What needs to be done to ensure that the details of all perinatal and maternal deaths are recorded ?
- Which health indicators need to be monitored routinely ? How will this be done ?
- Which indicators can be determined by means of periodic surveys ?

5. Areas requiring further investigation

- Missed opportunities for immunisation
- Quality of growth monitoring
- Treatment of children with diarrhoea at home
- Effects of herbal enemas being used
- Reasons for home deliveries
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