HEALTH AND HEALTH CARE OF THE PRESCHOOL CHILD IN HOUT BAY

S V DELPORT

A DISSERTATION SUBMITTED TO THE DEPARTMENT OF PAEDIATRICS AND CHILD HEALTH OF THE UNIVERSITY OF CAPE TOWN IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE M MED (PAED)

NOVEMBER 1987

DECLARATION

This dissertation is my own work. I did, however, receive the assistance of many colleagues as indicated in the acknowledgements. This dissertation has not been presented for any other degree of another University.

SIGNED: Signed by candidate DATED: 20·5·88

The work reported in this dissertation was performed in the Child Health Unit of the Department of Paediatrics and Child Health, University of Cape Town

ACKNOWLEDGEMENTS

I thank -

Dr Marion Jacobs, who supervised this project. Her guidance and assistance was much appreciated.

Dr Derek Yach and Judy Katzenellenbogen of the Institute of Biostatistics of the Medical Research Institute of South Africa for their advice on the design of the study, and assistance in the data analysis.

The Medical Officer of Health of the Divisional Council of the Cape and the Medical Superintendent of the Day Hospitals Organisation for permission to use their records and facilities.

Mrs D Phillips for her valued assistance in the data collection.

Drs Brigette Brice and Colin Archebald who assisted with the clinical assessment of the children.

The staff of the Community Health Centre in Hout Bay for their cooperation and assistance.

Dr Dave Greenfield for his support.

Dr Paul Roux for reviewing the manuscript and his valuable criticisms. Dr Mike Power for assistance with the graphics and Mrs Lynore Heüer for her expert typing.

ABSTRACT

At present not enough is known about the health of preschool children in the poorer communities of Cape Town. This study, was undertaken to assess the health and health care of preschool children in one such community: that of the Hout Bay harbour township.

A clinic and community-based surveillance programme was devised to make this assessment.

Data were obtained by monitoring the records at the Community Health Centre in the township. A study sample of 214 children from the community was also selected by random stratified cluster sampling. This sample was assessed by means of a questionnaire and a full physical examination.

Analysis of data was performed on the IBM main-frame computer.

A large number of medical problems were identified on screening the community sample. Most of these problems were minor ones and could be managed appropriately at the Health Centre.

On the basis of the referral patterns and the small number of newly diagnosed functionally important health problems, the provision of health care in the area was considered to be adequate.

The high immunisation rate in the preschool children and the excellent attendance figures at the child health clinics indicates that the services provided are well utilised by the population[1].

Dental caries was found to be a major health problem in the area. A strong case for the introduction of a dental health educational programme and for the fluoridisation of drinking water can made on the basis of these findings.

An ongoing health screening programme would be beneficial. It could be accomplished by utilising appropriately trained nursing personnel[2].

CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

PNMR	Perinatal mortality rate
IMR	Infant mortality rate
SES	Socioeconomic status
GP	General Practitioner
CHC	Community Health Centre

1. INTRODUCTION AND LITERATURE REVIEW

The health of preschool children has become the focus of much attention in the world, with the realization that much of the mortality and morbidity suffered by young children can be prevented by very simple interventions.

Regular surveillance of young children can detect many remediable conditions which can then be treated early[3]. For many health authorities, the problem is how best to provide such a service[4].

In Cape Town, child health services are administered mainly by the local authorities, which provide preventive and promotive care, and the hospitals, which provide curative care. In addition, services to meet special needs such as school health are provided by different authorities, while the private sector provides for those who are able to pay a fee for service.

Many discussions have been held among health authorities on how to provide preschool children with more efficient health care to prevent illness and detect and treat medical problems early. At present not enough is known about the adequacy of the health services for pre-school children. Existing services may not meet the needs of children and their families. For this reason, it was felt that an assessment of health service needs in a defined area was necessary to determine the adequacy of child health services for pre-school children in Cape Town. As problems are greatest in poor communities it was decided to

conduct an assessment in such an area: the Hout Bay Harbour township.

There is some evidence that families most in need of help do not use the facilities, particularly in poorer areas[4]. Brimblecombe[5] put the emphasis on utilisation of services, and his law of inverse care states that 'better-off families whose need is generally least make optimal use of the services provided, while poorer families whose need is commonly greatest make the least use of available resources'.

A good measure of the utilisation of services for preschool children is the attendance at child health clinics and the immunisation rates of the preschool population[1]

It is well known in many areas that attendance at child health clinics is disappointing. In Westminister, Patterson found that 77% attended the 6 week examination but only 52% attended at 2 years and 44% at 4 1/2 years[1]. The National Child Development Study found that three-quarters of children under one year were taken to a clinic but subsequently only half of them continued to attend[6].

The adequacy of services available may be gauged firstly by the number of health problems requiring treatment detected by screening[7], and secondly by the number of patients requiring referral to other centres for treatment[8].

Both adequacy and utilisation of medical resources are especially important for children, since they have the disadvantage of being totally dependent on others to recognise their health needs and ensure that the necessary care is obtained.

Hout Bay Harbour township represents one of the many areas in Cape Town which have a low socioeconomic status[9,10,11]. Recent studies also indicate that the area has high perinatal and infant mortality rates[10,11]. These facts are illustrated in Figures 1 and 2. In the Hout Bay Harbour area the infant mortality rate (IMR), which traditionally has been considered one of the most reliable indices of the general health of a community[12] exceeds the mean IMR of the coloured population in Cape Town[13]

An anthropometric study of coloured school children in the township undertaken in 1982, showed that a significant number of children were undernourished[14] It was not known whether this was also true for the preschool children.

1.1 THE COMMUNITY IN THE HOUT BAY HARBOUR TOWNSHIP

The influence of the social environment upon growth and development, health and disease has been confirmed in many studies and is common knowledge[15] Therefore, in a study of child health it is necessary to include some kind of description of the way of life of the children and their families.

Figure 1A:
Spatial Variation of PNMR

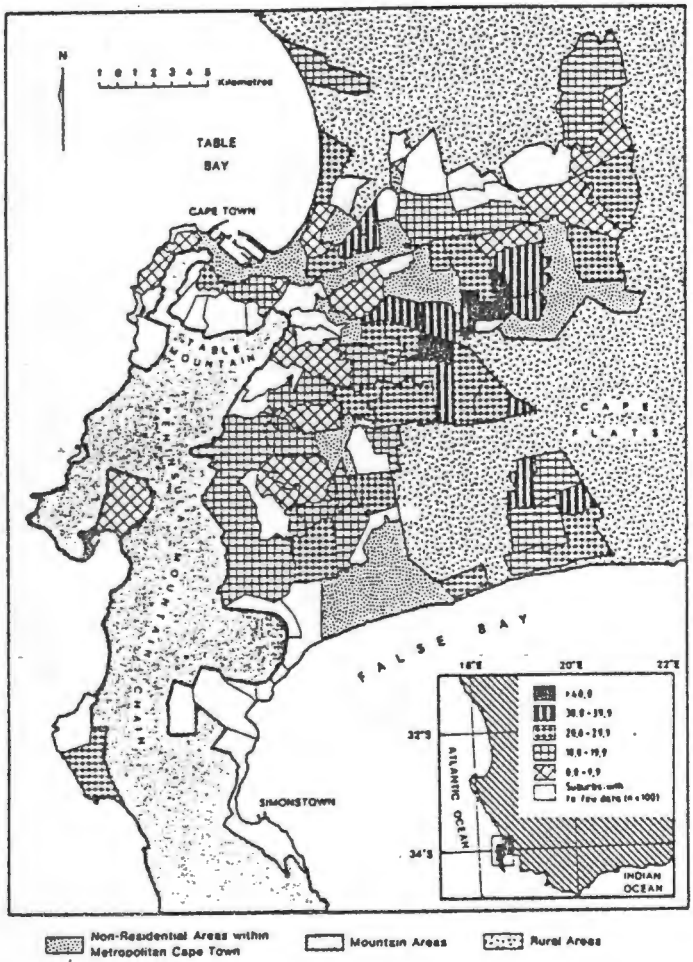

Figure 1B:
Spatial Distribution of Suburbs in Cape Town Ranked by SES and PNMR

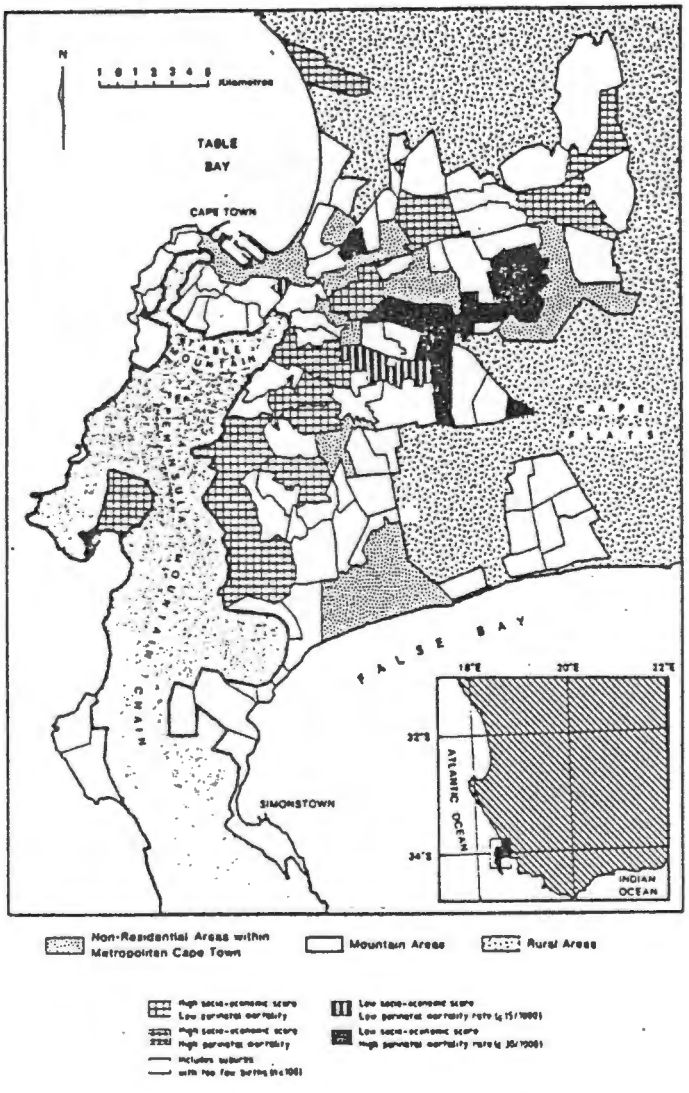

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Figure 2A:
Spatial Distribution of IMR

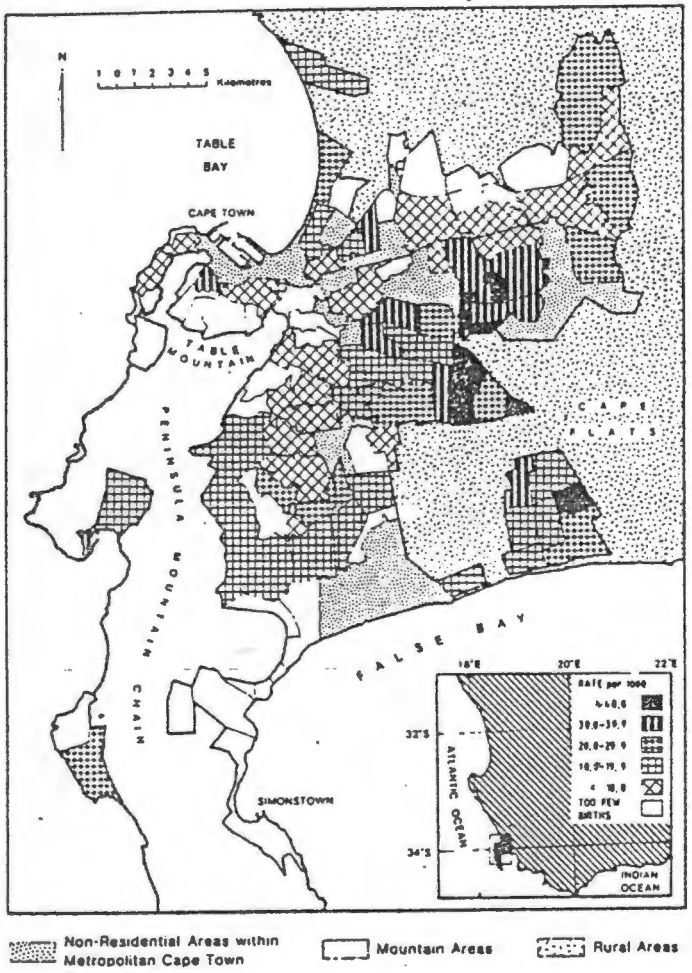
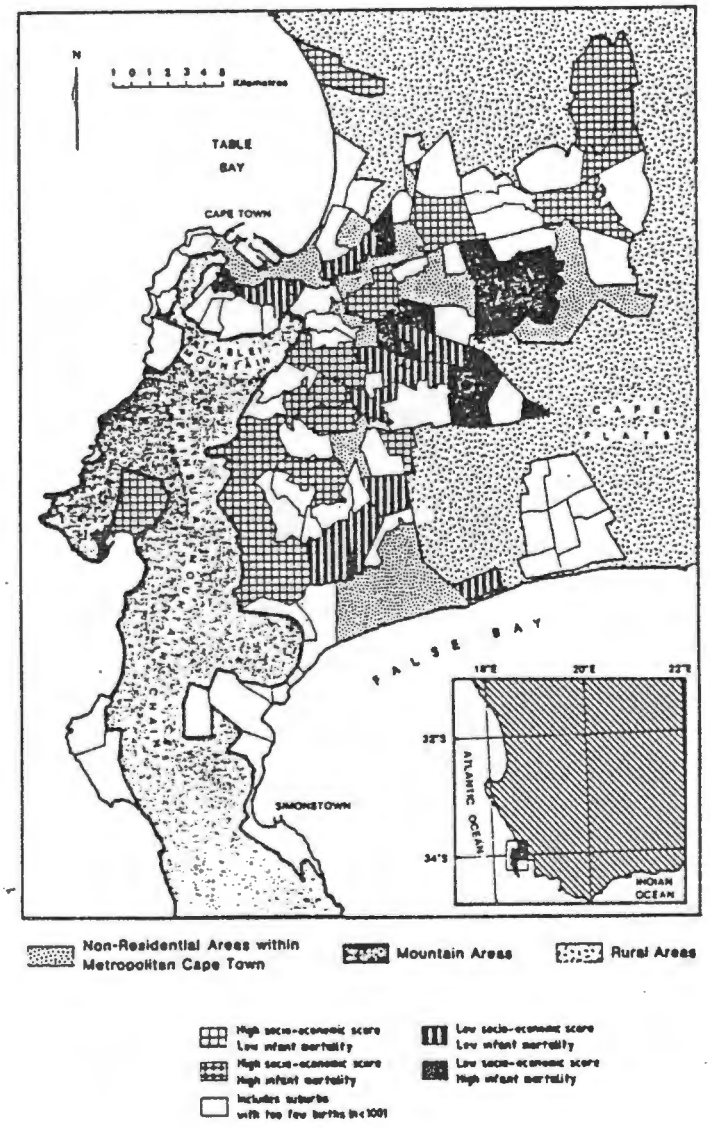


Figure 2B:
Spatial Distribution of IMR and SES



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1.1.1 Study Area

Hout Bay is a periurban area which is situated on the western side of the Cape Peninsula. The Hout Bay Harbour township lies on the slopes of the Hangberg mountain, which forms part of the Karbonkelberg Range[16] above the fishing harbour (Appendix 1).

1.1.2 Demography

The greater Hout Bay area has an estimated population of 9720[13] The coloured group accounts for approximately 4420[13] most of whom live in the Harbour township.

The total population of the township is 3807[17] The expected preschool population would, therefore, be in the region of 750 (approximately 20% of the population). Table 1 gives a breakdown of the population in the township.

TABLE 1: TOTAL POPULATION OF HARBOUR TOWNSHIP

SEX	NUMBER
Male	1843
Female	1964
Total	3807

Source: 1980 National Population Census

1.1.3 Sociocultural Characteristics

The township is rated as having a very low socioeconomic status[9,11] This assessment is based on the nine socioeconomic variables listed in Appendix 2.

Employment for the majority of the township folk is provided by the fishing industry or by the Department of Forestry of the Divisional Council of the Cape (now the Regional Services Council).

Housing consists of economic and sub-economic flats and houses. The housing units are owned mainly by the Divisional Council. Some houses belong to the fishing companies. The number of housing units is inadequate for the size of the population and hence overcrowding is a huge problem for the community.

1.2 Health Services in the Township

The most important health service is rendered at the Community Health Centre which is a multipurpose clinic situated in the township. The Centre is within easy walking distance for all residents.

The Centre provides promotive, preventive and curative health services.

Although the various services are provided by different health authorities the obvious advantage in Hout Bay is having all these facilities under one roof. This situation does not exist in many other parts of Cape Town.

FIGURE 3: COMMUNITY HEALTH CENTRE, HOUT BAY

1.2.1 Divisional Council Clinic

This is the local authority which provides preventive and promotive care.

It is run by two full-time nursing sisters, a health educator and a clerk. Services provided include tuberculosis treatment clinics, the treatment of sexually transmitted diseases, child health clinics, family planning advice and the provision of nutritional supplements at low cost.

1.2.2 Day Hospital

The Day Hospital provides the curative services at the Centre.

It is staffed by two full-time nursing sisters, a medical officer who works in the mornings only, and a clerk. A

physiotherapist is available on two mornings per week. The hospital is open on weekdays between 07h00 and 17h00.

1.2.3 Dental Service

A dentist from the Department of Health and Population Development does two sessions per week at the Centre. Preventive and curative services are provided. The dentist is assisted by an oral hygienist.

1.2.4 Antenatal Clinics

A weekly antenatal clinic is run by the Peninsula Maternity and Neonatal Services. No facilities for deliveries exist at the Centre. Mothers who are booked, deliver at the Retreat Midwife Obstetric Unit which is 26 km away, while complicated cases are referred to Groote Schuur Hospital.

1.2.5 Child Welfare Society

A social worker from the Child Welfare Society visits the Centre weekly in order to assist patients with social problems.

1.2.6 General Practitioners

There are several general practitioners (G.P.'s) in the greater Hout Bay area. None of these G.P.'s practise in the township.

1.2.7 After Hours Service

The Community Health Centre does not provide an after hours service. The residents in the township depend on the local G.P.'s or travel to Victoria Hospital or to the Red Cross War Memorial Children's Hospital for emergency medical care.

Traditionally for many people, the child health clinic has remained the major institution which cares for the health of preschool children, through provision of immunization, growth monitoring, subsidized infant foods and, more recently, screening for abnormalities such as visual and hearing problems. However families bring their children to child health clinics for a variety of reasons. Often it is for specific problems of illness, but often, too, it may be for a social or economic reason[1].

2. STUDY POPULATION

The population studied consisted of coloured preschool children who were permanent residents of the Hout Bay harbour township.

2.1 Size of the Study Population

The size of the study population was estimated using the following methods:

- figures taken from the national population census of 1980[17]
- scrutiny of the records of the Child Health Clinic at the Community Health Centre

2.1.1 National Population Statistics

The 1980 census indicated that there were 733 preschool children (as defined) in the area. Table 2 gives an age breakdown.

2.1.2 Child Health Clinic Records

It was assumed that all children who were permanent residents of the township had a health record card at the Divisional Council Child Health Clinic.

These cards were hand counted and

- age
- address

checked and recorded.

TABLE 2 PRESCHOOL POPULATION IN HOUT BAY HARBOUR TOWNSHIP

AGE GROUP	NUMBER
0 - < 1 year	97
1 - 4 years	411
5 - 6 years	225*
TOTAL	733

* This figure of 225 was derived from the number of children in the 6 - 9 age group (i.e. 532) and using the percentages of the national averages of children of the age of five and six years.

3. AIM OF THE STUDY

The survey was conducted with the aim of obtaining a profile of the health of coloured preschool children in the Hout Bay harbour township.

More specifically, the OBJECTIVES of the study were to:

a. assess the spectrum of health problems presenting at a Child Health Clinic;

b. define the functionally important health problems;

c. determine the utilization of available health services;

d. assess the nutritional status of preschool children by using anthropometric data; and on the basis of the findings, to

e. make suggestions for the improvement of child health services, if indicated.

4. METHODS

A descriptive study of the health of preschool children and the utilization and adequacy of available services was undertaken.

The utilisation of services was to be assessed by analysing the attendance figures at the Child Health Clinic and by determining the immunisation status of the preschool children[1].

The adequacy was to be gauged by the number of new health problems detected on screening and by the number of patients requiring referral to other centres for treatment.

The survey was conducted during a six week period from 15 May 1986 to 25 June 1986.

Two independent aspects of the study were conducted concurrently.

The first was a clinic-based surveillance programme. This type of programme will only reach that proportion of the population which actually visits the clinic and is therefore not likely to identify all the children in need of health care[19].

The second aspect of the study was done in an attempt to overcome this problem of possible bias. By a process of random stratified cluster sampling of households in the area, a community-based sample of preschool children was selected for assessment.

4.1 Clinic-Based Surveillance

At the Community Health Centre, data were obtained from both the Child Health Clinic and the Day Hospital by review of charts. This was recorded on standardised forms (Appendices 3, 4 and 5) daily during the study period.

4.1.1 Child Health Clinic Records

At each clinic the following data were recorded:

a. the total number of attendances at the clinic

b. an age distribution of the children seen at the clinic

c. the reason for each visit, as assessed by the clinic staff

Attendances were recorded as 'routine' when well babies were seen for essential immunisation, growth monitoring, provision of subsidised infant foods or the routine screening for abnormalities such as congenital dislocation of the hips, undescended testis and developmental problems.

Visits for reasons other than those mentioned above were recorded as 'non-routine'. This group of patients was assessed by the author in conjunction with the clinic staff. In this way a diagnosis was established and a decision made as to whether patients required intervention or not. As far as possible these decisions were left for the clinic staff to make.

4.1.2 Day Hospital Records

The charts of preschool children attending the Day Hospital were reviewed daily. Only the first visit per illness episode was entered. The following data were recorded:

a. the number of preschool children attending;

b. the age distribution of the children seen;

c. each clinical diagnosis;

d. the number of children in need of referral to a secondary or tertiary health care centre.

4.2 Community-Based Surveillance

In order to select a representative sample from the community, an aerial photograph (Appendix 6) and a detailed housing map of the area were obtained. Information regarding the type of housing units was provided by the officials at the housing office in the township. The housing units consist of economic and sub-economic houses and flats with one or two bedrooms.

At the time of the study there were 503 housing units in the township, from which the sample was selected.

The different housing types were colour coded on the housing map (stratification) and grouped together (clusters). Approximately 30% of each type of housing unit was then randomly selected. All children under the age of six years by 30 June 1986 in each selected household were included.

The selected sample was assessed by an initial home-based interview. This was followed by a full physical examination performed at the Child Health Clinic.

4.2.1 Home-Based Interview

This was undertaken by a single interviewer after an initial pilot study.

Two questionnaires were used.

The first was aimed at obtaining information regarding the household, ages of individuals and occupational density at the time of the interview (Appendix 7).

A second questionnaire was completed for each child under six years of age who was resident in that household, whether or not present at the time of the interview (Appendix 8). The questions were aimed at obtaining information relating to the child's health, availability of Road to Health Card and the utilization of health services.

All questions were addressed to a responsible adult who was regarded as the head of the household at the time of the interview.

The interview was a highly structured one. The questionnaire was designed to include mainly short, closed-ended questions to facilitate answering and classification of data[20,21]. Sufficient space was left for narrative comments.

Having this information available prior to the medical examination was useful as a guide to identifying children at risk of having significant health problems.

4.2.2 Invitation to Clinic-Based Assessment

At the end of the home interview the parent or respondent was invited to participate in the second part of the study which was that of a full clinical evaluation of the child. This would be undertaken at the Community Health Centre.

The verbal invitation included:

- an explanation of what would be done at the time of the examination
- an assurance that no invasive procedures would be performed
- assurances regarding confidentiality of information

The parents were then provided with a card indicating the date, time and place of the clinical evaluation. They were also asked to bring the child's Road to Health Card along on the day of the examination.

Parents who did not keep their appointments were reminded several times initially by telephone and failing this, a personal visit to their homes by one of the team or a staff member attached to the Community Health Centre was undertaken.

4.2.3 The Clinical Assessment

This was done at the Child Health Clinic. A room was set aside by the clinic staff for the purpose of the study.

Each child attended on one occasion.

At this visit:

a. the child's Road to Health card was reviewed;

b. anthropometric data were recorded; and

c. a full physical examination was performed.

a. Road to Health Card

The following information was obtained from the card

- birth weight
- risk factors
- immunisation status

b. Anthropometric Data

The weight and length or height were recorded

i. Length/height

As recommended by several authors[22,23,24,25], the supine length was measured on all children up to the age of two years, and a standing height on those older than two years. The supine length was measured using a board with a fixed metal measuring tape, one fixed and one sliding end piece.

Heights were measured using a tape fixed to a wall. The children stood in full extension, with their feet bare and eyes positioned so that the gaze was directed at right angles to the body alignment. A reading to the nearest 0.5 cm was recorded.

All measurements were done by the author and an assistant.

ii. Weight

An infant scale was used for children under one year and a foot scale for the older children. The infants were weighed naked and the older children in light undergarments. Weights to the nearest 0.1 kg were recorded. Each morning the scales were zeroed and controlled against a standardized weight[26].

c. Physical Examination

A physical and developmental assessment was performed on all the children in the sample. This was done by the author with the assistance of a Senior House Officer attached to the Child Health Unit.

When problems were detected advice was offered, treatment instituted if possible, or the patient was referred to the appropriate agency.

All the data were recorded on a standardised form (Appendix 9).

4.3 Personnel

The personnel involved in the execution of the project consisted of the following:

a. a paediatrician who
   - recorded data from the clinic-based surveillance
   - assessed the 'non-routine' visits to the clinic
   - selected the study sample for the community-based surveillance

- undertook the clinical assessment of the children

b. a research assistant who

- piloted the questionnaires
- visited the households to interview parents and complete the questionnaires
- followed-up on the 'non-attenders' in the study sample

c. a senior house officer who

- assisted with the clinical assessment of the children

The project was supervised by a senior staff member.

All personnel were attached to the Child Health Unit of the Department of Paediatrics and Child Health of the University of Cape Town at the time of the study.

4.4 Data Analysis

The analysis of data obtained was conducted by staff of the Institute for Biostatistics at the South African Medical Research Council, using an IBM 3370 mainframe computer.

5. LIMITATIONS OF THE STUDY

5.1 STUDY POPULATION

Only coloured preschool children in the harbour township were included in the study. African children of the migrant workers and children of the squatter population in the greater Hout Bay area were excluded. It is possible that these children may have more serious problems.

5.2. SAMPLE SIZE

The size of the community based sample was small and the findings are not generalizable.

5.3. QUESTIONNAIRE

Although the questionnaire provided a clear indication of the utilization and adequacy of the service it did not, in its present format, identify risk factors for health problems. Of the 114 children reported to have had illnesses only 15 were found to have functionally important health problems when dental caries was excluded.

5.4 TIMING OF THE STUDY

The study was performed during the winter months and the diseases commonly seen in this study do not represent the spectrum seen over a whole year.

6. RESULTS

The results of the clinic-based surveillance, which reviewed the charts of the preschool children during the study period, will be presented first.

6.1 STUDY POPULATION

A tally of the record cards of children in the township who met the criteria for inclusion in the study was 711. This figure is similar to that obtained by extrapolation from the 1980 national population census statistics.

Table 3 gives an age and sex breakdown of the study population.

TABLE 3: AGE AND SEX DISTRIBUTION OF STUDY POPULATION

AGE (months)	MALE	FEMALE	TOTAL
0 - 12	51	56	107
13 - 24	62	61	123
25 - 36	67	72	139
37 - 48	67	64	131
49 - 60	58	69	127
61 - 72	42	42	84
TOTAL	347	364	711

6.2 Clinic-Based Surveillance

The findings at the Child Health Clinic and at the Day Hospital will be discussed separately.

6.2.1 Child Health Clinic

a. Attendances

During the study period of 6 weeks there were 883 attendances by 419 children, an average of 2.1 visits per child. There were two clinic sessions per week, which gives an average attendance of 73 children per clinic.

Most of the visits (720) were recorded as 'routine' (previously defined on page 15), and 163 as 'non-routine'.

b. Age distribution of preschool children using the clinic

Table 4 gives an age distribution of the clinic attendances broken down into 'routine' and 'non-routine' categories.

A total of six hundred and ninety six (79%) of the children were below the age of two years. However, in the group recorded as 'non-routine' visits, there were relatively

TABLE 4: AGE DISTRIBUTION OF CHILD HEALTH CLINIC ATTENDANCES

AGE (months)	NUMBER OF ATTENDANCES		
	ROUTINE	NON-ROUTINE	TOTAL
0 - 12	386	73	459
13 - 24	196	41	237
25 - 36	96	28	124
37 - 48	18	8	26
49 - 60	17	8	25
61 - 72	7	5	12
TOTAL	720	163	883

more children above the age of two years. This difference is statistically significant ($p < 0,0001$).

c. Reason for the visit

Classification into routine and non-routine visits.

Most of the attendances recorded as non-routine were managed entirely by the nursing staff at the Child Health Clinic. Forty-six of all attendances (5.2%) were referred elsewhere. Thirty nine were referred to the medical officer at the Day Hospital, five needed a specialist opinion and were referred to special clinics at Red Cross War Memorial Children's Hospital, and two were referred to Victoria Hospital for admission.

Table 5 gives a breakdown of the diagnosis and management of the non-routine attendances. A distinction was made between patients who received intervention and those who did not. For the purpose of this study, if medications were provided at the clinic, this was regarded as intervention. If advice was given but no medication provided, this was regarded as non-intervention.

6.2.2 Day Hospital

a. Attendances

During the study period a daily review of the Day hospital attendances showed that 24% of all patients utilizing this service fell into the preschool age group.

TABLE 5:

DIAGNOSIS AND MANAGEMENT OF PATIENTS WITH NON-ROUTINE VISITS

DIAGNOSIS	INTERVENTION	NON-INTERVENTION	TOTAL	NUMBER REFERRED*
SKIN				
Nappy Rash	26		26	
Impetigo	7		7	4
Fungal scalp	2		2	2
RESPIRATORY AND ENT				
URTI	25	6	31	7
LRTI	7		7	4
Otitis Media	5		5	5
Stomatitis	3		3	3
CENTRAL NERVOUS SYSTEM				
Speech delay		2	2	2
Seizures		2	2	2
Hearing defect		4	4	4

Table 5 continued

DIAGNOSIS	INTERVENTION	NON-INTERVENTION	TOTAL	NUMBER REFERRED*
OTHER				
Worms	38		38	
Diarrhoeal disease	8	2	10	3
Conjunctivitis	2		2	
Failure to thrive	2	2	4	2
Anaemia	3		3	3
Knock knees		1	1	
Head banging		1	1	1
Miscellaneous	8	7	15	4
TOTAL	136	27	163	46

* Some patients who received medication at the Child Health Clinic ('intervention' group) also required referral.

b. Age distribution of preschool children attending the Day Hospital

Table 6 depicts the age distribution of preschool children attending the Day Hospital. Only 44% of preschool children using the Day Hospital were below 2 years of age.

TABLE 6: AGE DISTRIBUTION OF PRESCHOOL CHILDREN ATTENDING THE DAY HOSPITAL

AGE	NUMBER
0 - 12	60
13 - 24	52
25 - 36	44
37 - 48	39
49 - 60	34
61 - 72	25
TOTAL	254

c. Day Hospital Diagnosis

Table 7 lists the diagnosis made on the first visit to the Day Hospital. Most of the problems were respiratory or related problems. Thirteen children (5.1%) were referred

TABLE 7 DAY HOSPITAL DIAGNOSIS AND REFERRALS

DIAGNOSIS	NO. OF PATIENTS	NO. REFERRED
RESPIRATORY DISEASE		
URTI	50	
LRTI	44	4
Asthma	7	1
SKIN DISORDERS		
Impetigo	26	
Fungal scalp lesions	17	
Other	8	
ENT		
Tonsillitis/Pharyngitis	20	
Acute otitis media	13	
Chronic otitis media	3	2
Upper airway obstruction	2	2
CONJUNCTIVITIS	12	
DIARRHOEAL DISEASE	11	1
OTHER INFECTIONS	9	
TRAUMA	5	1
WORMS	5	
FAILURE TO THRIVE	5	1
ANAEMIA	4	
BEHAVIOURAL	2	
MISCELLANEOUS	11	1
TOTAL	254	13 (5.1%)

to hospital - nine to Victoria Hospital, and four to the Red Cross Children's Hospital.

6.3 COMMUNITY-BASED SURVEILLANCE

These are results of the second aspect of the study concerning the selected sample of preschool children.

There were 142 housing units in the sample. All these homes were visited. One unit was excluded as no responsible adult was available on occasion of three visits. Twenty one other homes did not have children under the age of 6 years.

The total number of occupants, of the 141 housing units included in the sample, were recorded. An age breakdown is shown in Table 8.

TABLE 8: AGE DISTRIBUTION FOR ALL OCCUPANTS IN HOUSEHOLDS SAMPLED

AGE	NUMBER
0 - < 6 years	214
6 - 14 years	200
> - 14 years	631
TOTAL	1045

Children in the preschool age group constituted 20,5% of the total occupants in the 141 homes. The average occupancy per housing unit was 7.36. Occupational density based on the number

of rooms in all the units visited was four persons per sleeping room.

6.3.1 Participants in the Study

Participation in the study was high. Patients willingly participated in the interviews and appeared to enjoy having their children examined as it provided an opportunity to discuss problems.

Complete data was obtained on 209 of the 214 children in the study group (97.7%).

Reasons for non-participation in the study are shown in Table 9.

TABLE 9: REASONS GIVEN FOR NON-PARTICIPATION IN STUDY

REASON	NUMBER
Negative to health control	3
Left area	1
No time	1

The study sample included 96 males and 118 females. There was an even age and sex distribution (Table 10)

TABLE 10: AGE AND SEX DISTRIBUTION OF STUDY SAMPLE

AGE (months)	MALE n	MALE %	FEMALE n	FEMALE %	TOTAL n	TOTAL %
0 - 12	15	7.0	17	7.9	32	15.0
13 - 24	15	7.0	19	8.9	34	15.9
25 - 36	23	10.8	16	7.5	39	18.2
37 - 48	13	6.1	20	9.4	33	15.4
49 - 60	14	6.5	27	12.6	41	19.2
61 - 72	16	7.5	19	8.8	35	16.3
TOTAL	96	44.9	118	55.1	214	100.0

6.3.2 Availability of the Road to Health Card

At the time of the home interview 177 of the sample (83%) had cards available. Eighteen cards were lost, 11 were at the creche and another reason was given for the 8 other missing cards. Most of the missing cards were from children in the older age groups, as shown in Figure 4.

6.3.3 Utilization of Services

During the 3 month period prior to the interview, 114 children (53% of sample) were reported to have had an illness.

Table 11 gives the breakdown of the type of illness experienced.

Availability of Road to Health Card

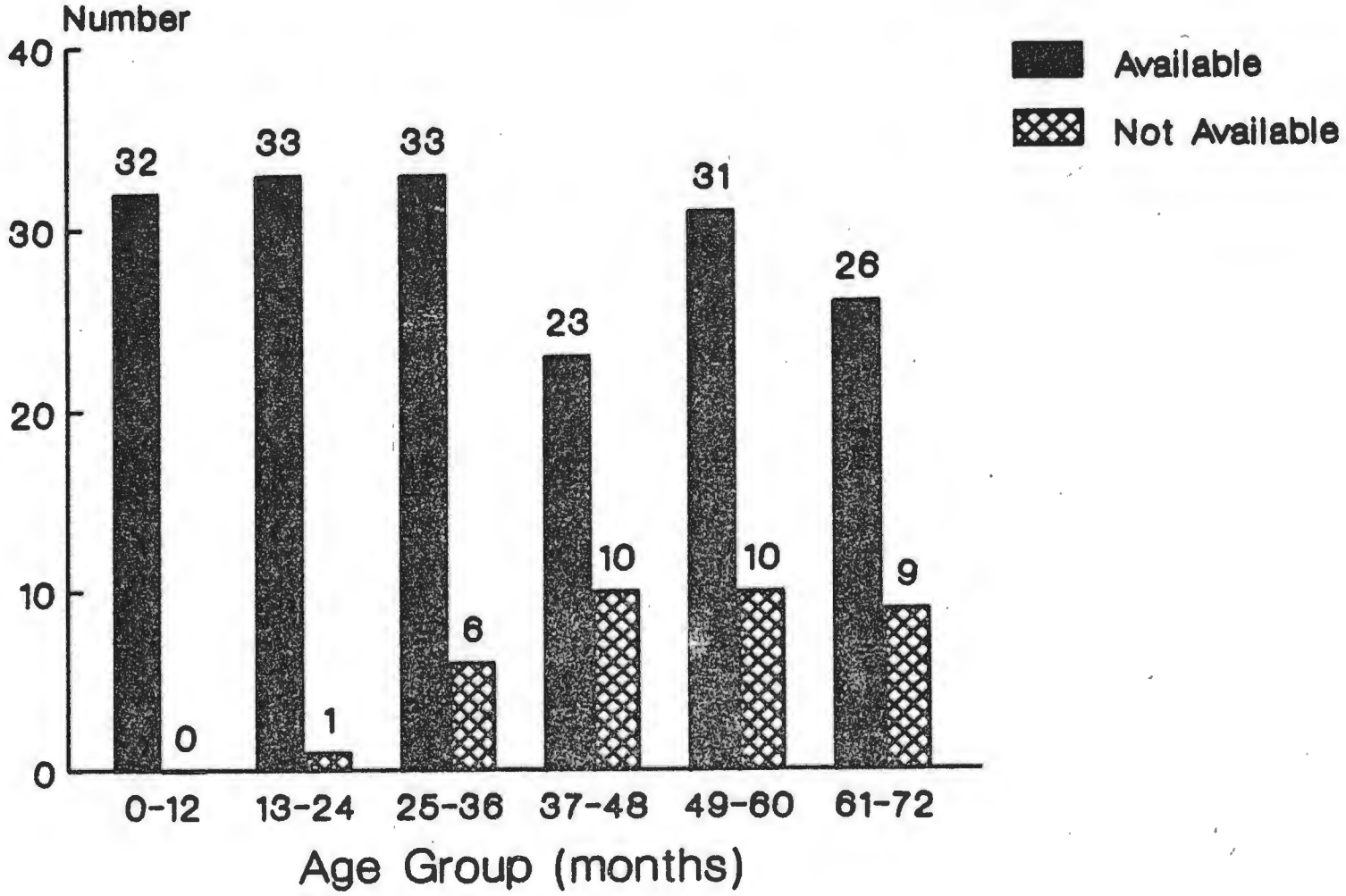

Figure 4

TABLE 11: NATURE OF ILLNESS REPORTED BY STUDY SAMPLE

DIAGNOSIS	NUMBER
Respiratory disease	54
Diarrhoea	14
Skin disorder	17
ENT disorder	14
Other	15
TOTAL	114

Ninety-five (83%) of all the children were seen by a health professional during the illness episode. The vast majority utilized the service provided at the Community Health Centre. This included visits to the Day Hospital or the Child Health Clinic (Table 12).

TABLE 12: SERVICE UTILIZED DURING ILLNESS EPISODES

INSTITUTION UTILIZED	NUMBER	%
Hout Bay C.H.C.	69	73
General Practitioner	21	22
Hospital	5	5
TOTAL	95	100

Twenty six patients did not utilize the service in the township. Their reasons were analysed and are listed in Table 13.

TABLE 13: REASONS FOR NOT USING THE COMMUNITY HEALTH CENTRE

REASON	NUMBER
After hours	13
Medical aid fund	10
Not satisfied with treatment at CHC	3
	26

Of the 114 children reported to have had an illness episode in the past 3 months, only 19 were not seen by a health professional. Twelve parents did not seek advice as the illness was not considered serious enough, and the remainder used home remedies or medicines prescribed for a previous similar illness.

Only 10 children in the study sample (4.6%) had required hospitalization for the illness suffered in the preceding three months. The reasons for admission are indicated in Table 14. Six had been admitted to Victoria Hospital and four to Red Cross War Memorial Children's Hospital.

TABLE 14: REASONS FOR ADMISSION TO HOSPITAL

DIAGNOSIS	NUMBER
Respiratory problem	3
Not told	2
Other	2
Diarrhoeal disease	1
Developmental problem	1
Surgical problem	1

6.3.4 Data from the Road to Health Card

a. Birth weight

According to the data recorded on the Road to Health Cards, the prevalence of low birth weight infants (i.e. infants below 2500 grams in weight at birth), was 16.3%. There were two very low birth weight infants (i.e. those with birth weights below 1500 grams).

Information regarding the gestational age of the low birth weight children was inadequate. As a result it was not possible to compare the number of infants who were preterm deliveries with those who were term but light for dates.

b. Immunisation Status of Preschool Children

Details regarding immunisation were taken from the Road to Health Cards and checked against the records in the Child Health Clinic. Children were regarded as having incomplete coverage if a delay of four weeks or more existed between the due date of vaccination and the date of the clinical assessment.

Figure 5 depicts the age distribution in relation to the immunisation status. Table 15 gives a breakdown of the immunisation coverage.

Immunization Status

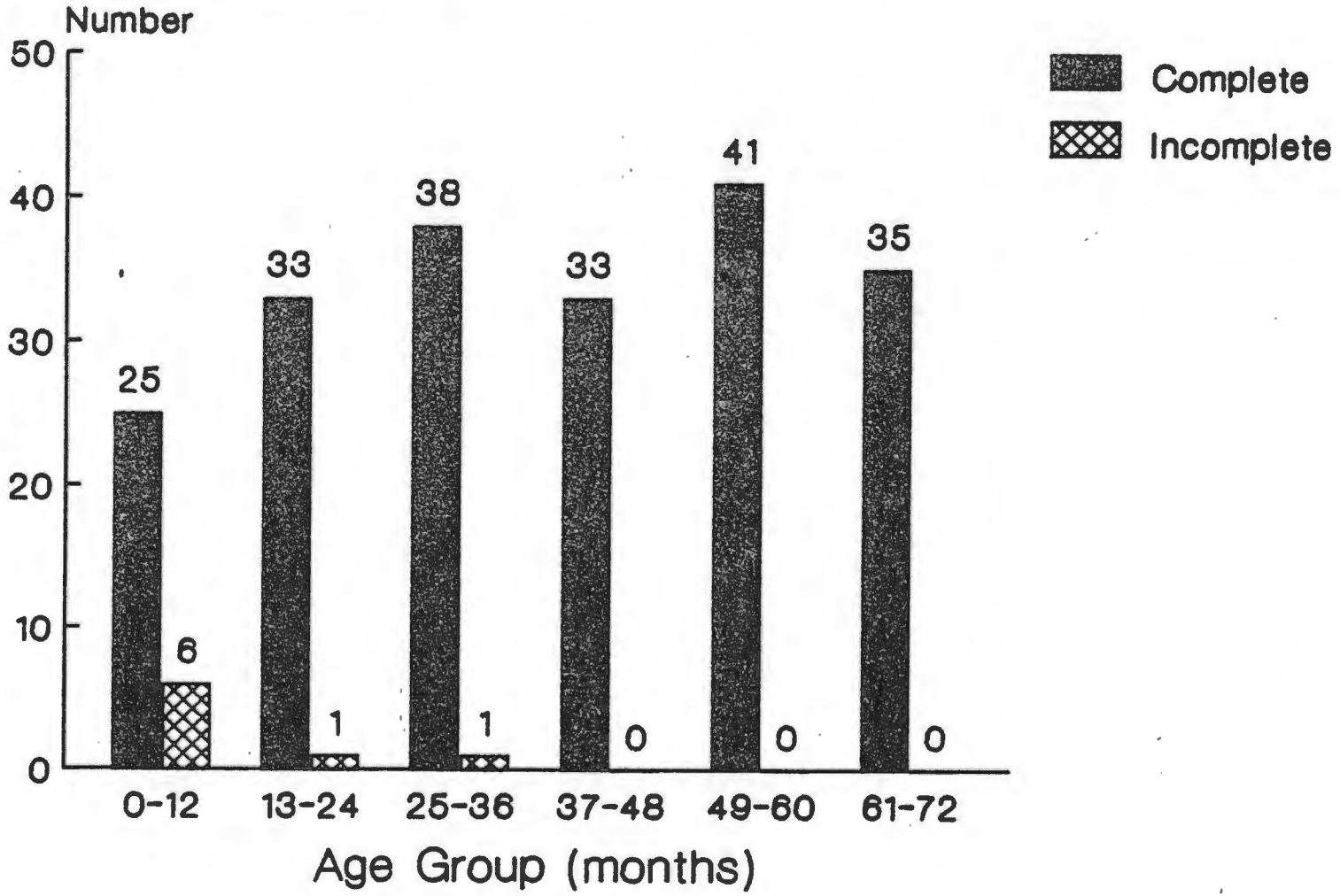

Figure 5

TABLE 15: IMMUNISATION COVERAGE IN STUDY SAMPLE

IMMUNISATION COVERAGE	N	%
Complete	200	95.5
Incomplete	8	4.0
Unknown	1	0.5
	209	100

c. Individual Immunisations

Every child in the study had received BCG. Only one child, aged 11 months, had not received measles vaccine. The excellent measles immunisation coverage is reflected by the fact that not a single case of measles was diagnosed during 1984 and 1985.

The other children with incomplete coverage were those with a delay in the administration of the triple and oral polio vaccines.

6.3.5 Anthropometric Data

The National Centre for Health Statistics (NCHS) standards were used for the data analysis.

a. Weight for age

Table 16 gives a breakdown of weight for age. None of the children were below 60% of expected weight for age. Eighteen (8.6%) were found to be below 80% of expected weight for age. No cases of kwashiorkor or marasmus were detected.

There was no statistically significant difference between males and females regarding weight for age. Details are given in Table 17.

Table 18 compares the birth weight to the weight at the time of the clinical assessment.

TABLE 16: WEIGHT FOR AGE

WEIGHT	AGE IN MONTHS						TOTAL	
Centile	0-12	13-24	25-36	37-48	49-60	61-72	n	%
< 3	1	1	4	5	3	4	18	8.6
3-10	2	2	1	4	4	7	20	9.6
10-50	12	12	19	14	18	13	88	42.1
> 50	16	19	15	8	15	10	83	39.7
TOTAL	31	34	39	31	40	34	209	100

TABLE 17: WEIGHT BY SEX

WEIGHT	MALE	FEMALE	TOTAL	
			n	%
< 3 Centile	7	11	18	8.6
3-10 Centile	8	12	20	9.6
10-50 Centile	38	50	88	42.1
> 50 Centile	42	41	83	39.7
TOTAL	95	114	209	100.0

TABLE 18: BIRTH WEIGHT vs WEIGHT AT ASSESSMENT

BIRTH WEIGHT (gms)	CENTILE : WEIGHT AT ASSESSMENT				
	< 3RD CENTILE	3-10 CENTILE	10-50 CENTILE	> 50 CENTILE	TOTAL
< 1500	0	0	2	0	2
1500-1999	2	1	2	3	8
2000-2499	4	5	6	9	24
> 2500	12	14	78	71	175
TOTAL	18	20	88	83	209

b. Height/length for age

In Table 19 the height/length for age distribution is indicated. Twenty four children (11.5%) were below the third centile for height/length.

There was an even distribution between the sexes. No statistically significant difference was noted between males and females below the third centile as shown in Table 20.

6.3.6 Clinical Assessment

Abnormalities were detected in 131 children. Seventy had a single abnormality while 63 were found to have 2 or more abnormalities. A total of 216 abnormalities were detected. These are listed in Table 21.

TABLE 19: HEIGHT/LENGTH BY AGE

HEIGHT	AGE IN MONTHS						TOTAL	
Centile	0-12	13-24	25-36	37-48	49-60	61-72	n	%
< 3	3	3	4	4	5	5	24	11.5
3-10	4	5	6	5	3	9	32	15.3
10-50	11	14	14	10	20	16	85	40.7
> 50	13	12	15	12	12	4	683	32.5
TOTAL	31	34	39	31	40	34	209	100

TABLE 20: HEIGHT/LENGTH BY SEX

HEIGHT	MALE	FEMALE	TOTAL	
			N	%
< 3 Centile	11	13	24	11.5
3-10 Centile	9	23	32	15.3
10-50 Centile	39	46	85	40.7
> 50 Centile	36	32	68	32.5
TOTAL	95	114	209	100.0

TABLE 21: ABNORMALITIES DETECTED DURING CLINICAL ASSESSMENT

ABNORMALITY DETECTED	NUMBER
Dysmorphic factors and congenital anomalies	5
Skin Disease	
Tinea capitis	22
Impetigo	16
Other	9
Nappy rash	6
Scabies	4
Eczema	3
Molluscum contagiosum	2
ENT Problems	
Coryza	21
Tonsillitis and Pharyngitis	9
Chronic otitis media	6
Acute otitis media	4
Dental Abnormalities	
Decayed teeth	63
Missing teeth	16
Filled teeth	2
Haematological Problems	12
Respiratory Disease	
Asthma	4
Bronchiolitis	2
CNS Disease	6
Eye defects - squints	2
Cardiac Disease	2
TOTAL	216

The fact that 131 children were found to have one or more abnormalities and that some form of intervention was deemed necessary in 120, creates the impression that many new and undiagnosed illnesses requiring intervention exist. However, most of the problems were minor ones.

In an attempt to define the extent of the health problems further, an evaluation in terms of functional importance for the child was undertaken.

a. Functionally important health problems

A functionally important health problem is defined as a disorder which is likely to have a significant and prolonged impact on the child's health and development or to hamper full exploitation of its environment[15].

The number of children with clinical diagnoses of functional importance is shown in Figure 6. The solid bars indicate those diagnosed during the study and the hatched bars are those considered as previously known. A problem was regarded as 'previously known' if parents were aware of the problem and the condition had been diagnosed and treated by a doctor.

A significant number of patients with known chronic problems had defaulted from follow-up for various reasons, mainly the distance from the major hospitals.

Important Health Problems

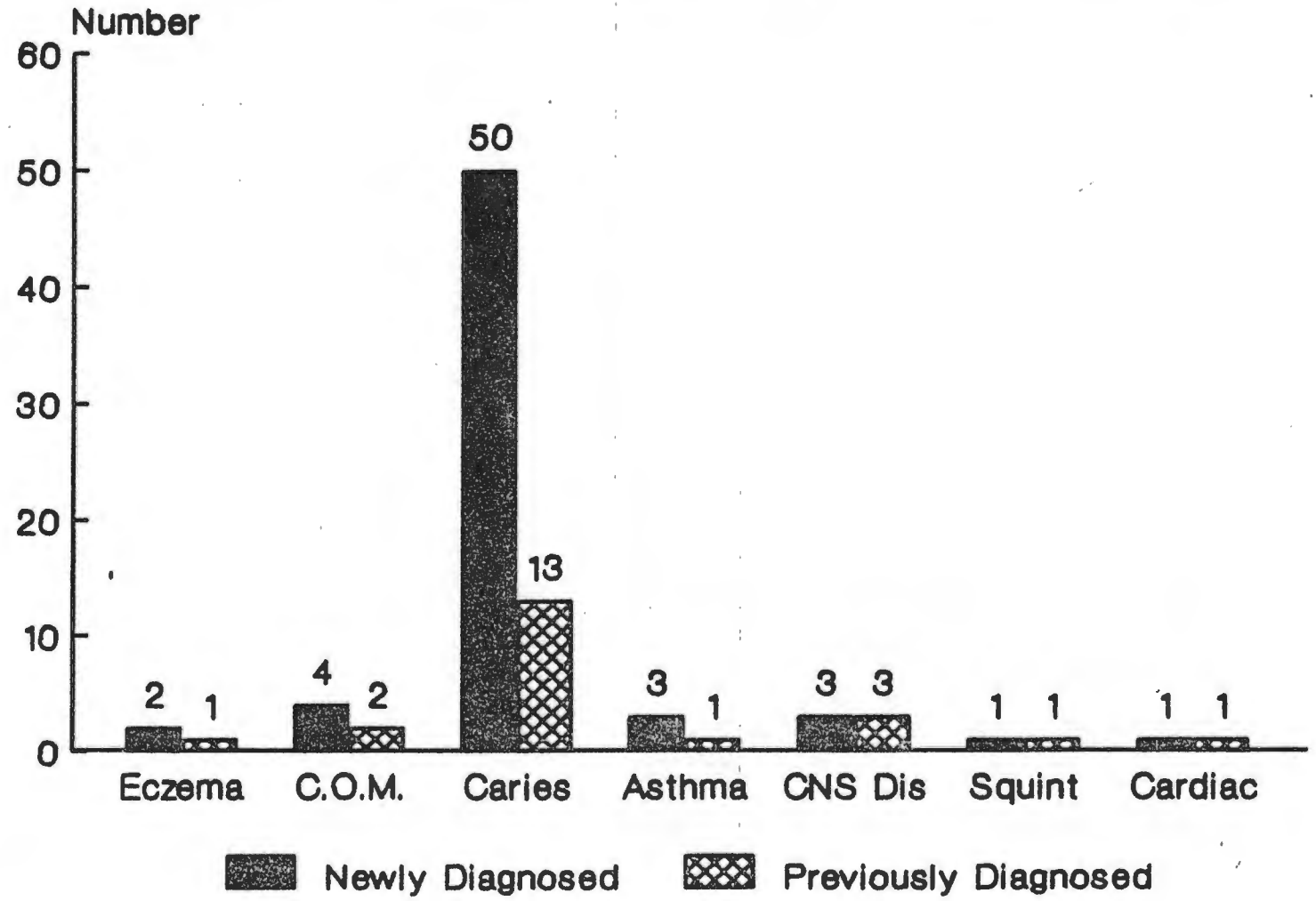

Figure 6

A large number of children had skin abnormalities such as impetigo and tinea capitis. Only those with eczema were regarded as having a functionally important health problem in view of the chronicity of the disorder.

Three new neurological disorders were diagnosed. One child had a speech delay, another a mild hemiparesis and the third had temporal lobe epilepsy. Two of those known to have a neurological disease were not being followed at the time of the study. One had spastic quadriplegia and mental retardation, and the second had a mild hemiparesis following cerebral vein thrombosis.

Only one child had a cardiac defect of importance, a ventricular septal defect, which had not been diagnosed previously. Another child had a complex congenital cyanotic heart lesion and was being followed at the Red Cross War Memorial Children's Hospital.

Six children had chronic otitis media. Two had been receiving treatment. They all required specialist ENT assessment and were referred.

The mild anaemia diagnosed in 12 children was not considered to be functionally important, since none of

them had a haemoglobin concentration below 9 gm/dl. Also the general health of the affected children did not appear to be impaired. Haemoglobin estimations were not done as a routine but only in those patients thought to be clinically anaemic.

Four children in the study were asthmatic. One had previously been diagnosed and was on appropriate medication.

The most prevalent problem was that of dental caries, which was included as a functionally important health problem.

Sixty three children (30%) were found to have carious teeth which required intervention. Only 13 had previously been seen by a dentist. Most mothers (60%) did not consider dental caries to be a significant health problem.

The concept of a health problem and in particular a functionally important health problem is not easily defined or demarcated[15] The demarcations in this study were completely arbitrarily made and may be questioned. It cannot be disputed that a child with cerebral palsy or congenital heart disease has a functionally important health problem. On the other hand a child with eczema, a mild squint or dental

caries may not be considered by some to have a functionally important problem.

Tables 22 and 23 show the number of functionally important problems diagnosed in the 209 children who completed the study. Of all clinical problems detected (216), only 86 (39.8%) were considered functionally important. If dental caries is excluded, this figure drops to 23 (10.6%).

TABLE 22: NUMBER OF HEALTH PROBLEMS DETECTED

HEALTH PROBLEMS	n	%
Previously known functionally important health problems	22	10.2
Newly diagnosed functionally important health problems	64	29.6
Not functionally important	130	60.2
TOTAL	216	100.0

TABLE 23: NUMBER OF CHILDREN WITH HEALTH PROBLEMS

HEALTH PROBLEMS	n	%
Previously known functionally important health problems	19	14.5
Newly diagnosed functionally important health problems	46	35.1
Not functionally important	66	50.4
TOTAL	131	100.0

There was no statistical difference between the sexes with regard to chronic illness as has been shown in previous studies where there was a preponderance of males over females[27].

Most of the children (89%) had only one functionally important health problem.

b. Age Distribution of Children with Abnormalities

Of the 131 children with abnormalities, most fell into the older age groups as shown in Figure 7. The same trend is shown when one looks at the most common problem, that of dental caries (Figure 8).

Prevalence of Abnormalities

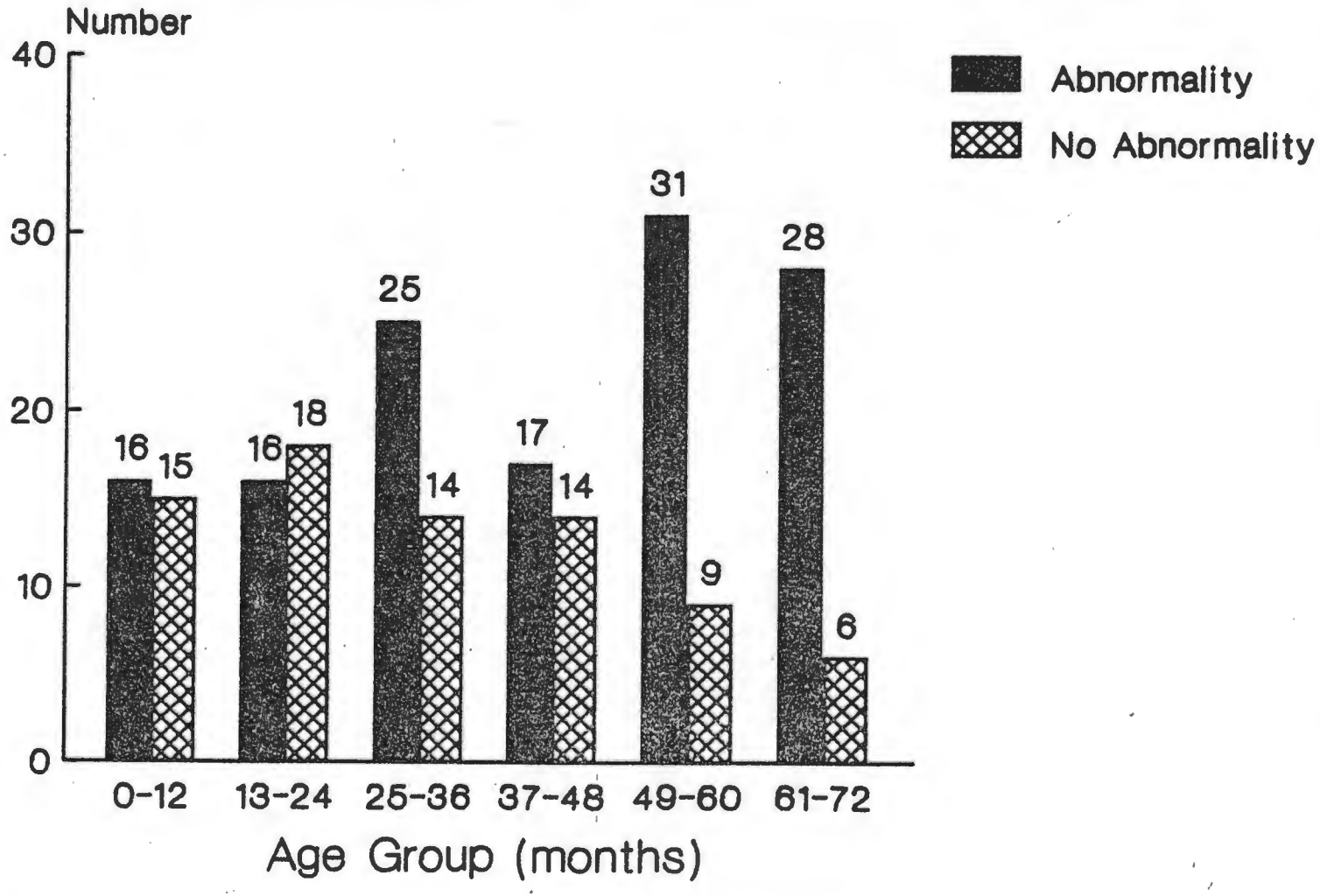

Figure 7

Prevalence of Dental Caries

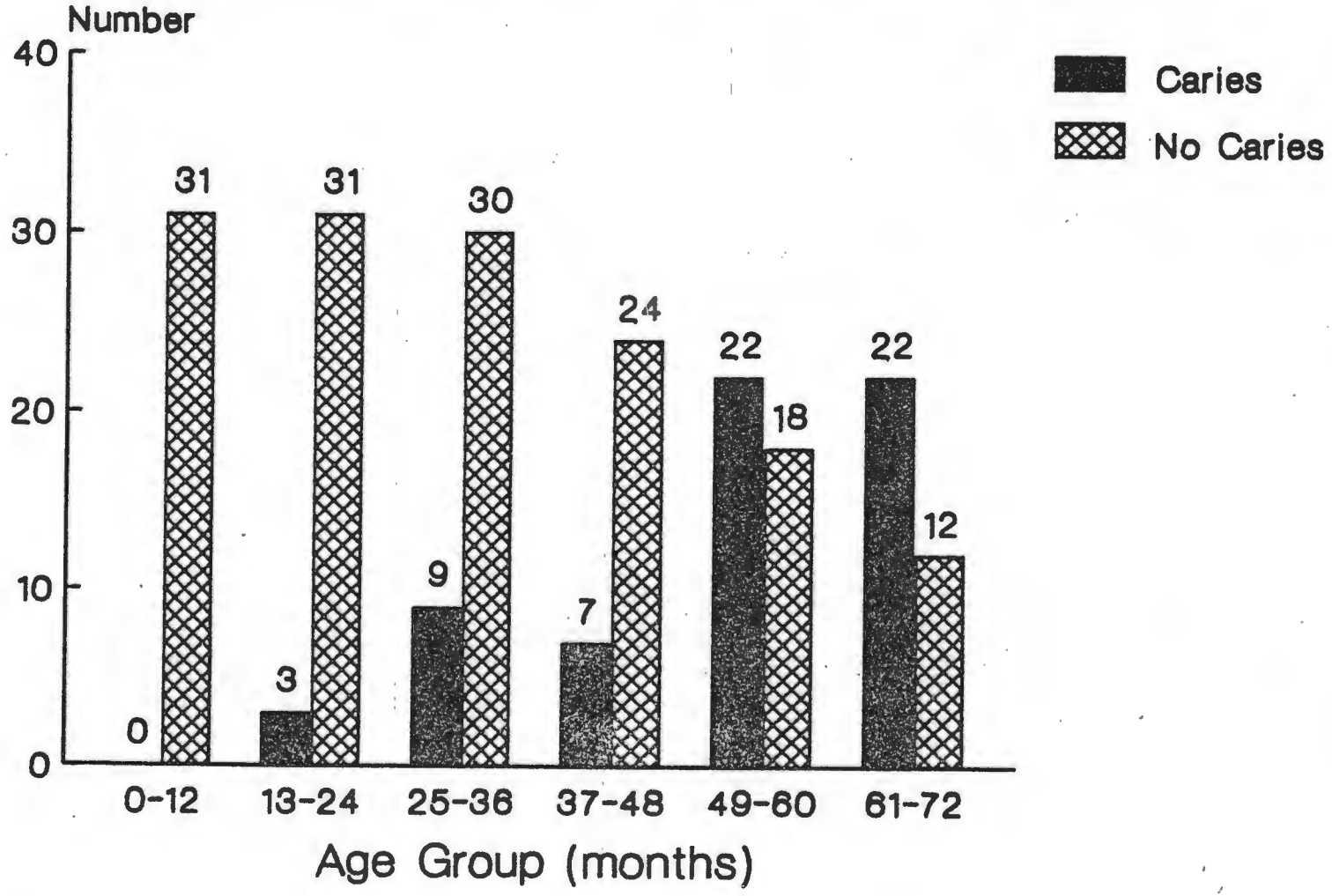

Figure 8

c. Referral of Children with Abnormalities

Referral to one or more agency was deemed necessary in 120 of the children (90%) who were found to have abnormalities

Most problems could be managed at the Community Health Centre. Only 12 children (10% of referred children) required referral to a tertiary care centre.

The children referred for dental treatment were assessed at the Centre. Many required referral for definitive treatment as the facilities at the Centre were inadequate for preschool children.

Table 24 gives a breakdown of the referral agencies utilised and the number of children referred.

TABLE 24

PLACE OF REFERRAL OF PATIENTS WHO REQUIRED INTERVENTION

PLACE OF REFERRAL	n	%
Day Hospital	43	35.8
Dentist	39	32.5
More than one	21	17.5
Hospital	12	10.0
G.P.	3	2.5
Welfare Agency	2	1.7
TOTAL	120	100.0

7. DISCUSSION

7.1 CLINIC-BASED SURVEILLANCE

7.1.1 Child Health Clinic

a. Attendances:

The attendance figures indicate that the Child Health Clinic is well utilized. On average each child visited the clinic on 2,1 occasions during the 6 week period. Over a period of one year one would expect each child to visit the clinic about 18 times. This figure compares favourably with the 13 to 16 visits per annum reported in studies from the United Kingdom[1,4]. At these child health clinics children are examined routinely 7 times during the first 5 years of life. These visits are at 6 weeks, 6 months, 1 year, 18 months, 2 years, 3 years and 4 1/2 years which are in addition to non-routine and immunisation visits[4].

It is difficult to define all the reasons for the high attendance rate at the clinic. From personal observation at this clinic certain aspects appear to be particularly important.

Firstly, the attitude of the clinic staff encouraged the development of superb relationship between themselves and their patients. The sister in charge at the time the survey was conducted, had worked in the area for 18 years.

Secondly, the clinic is conveniently situated and within pram-pushing distance for all mothers in the township.

Thirdly, the availability of subsidized infant food supplements is an important service in underprivileged communities, and is well utilized in Hout Bay.

Fourthly, the Child Health Clinic is perceived by the community as having an important role to play in the health care of the preschool child.

b. Age Distribution of Preschool Children Using the Clinic

As reported in other studies[1,8,19], most routine visits in this study were by children under the age of 2 years, and more particularly in the first year of life. Relatively more children above the age of 2 years attended for 'non-routine' reasons. This is the age group when many of the common, treatable and handicappping disorders of childhood develop or become identifiable[8] and therefore this distribution is appropriate.

c. Non-routine Visits to the Clinic

These were mainly for minor medical problems, particularly respiratory and skin abnormalities. Many of those referred to the Day Hospital required medications for conditions adequately assessed at the clinic. While it is preferable to manage most of these childhood illnesses without drugs, the lack of prescribing facilities at the clinic is a definite short-coming. Had this facility been adequate

many patients would not require referral. This finding highlights the need for an integrated preventive and curative service at child health centres.

Only a small number of children were brought to the clinic with behavioural or developmental problems. Compared to the 6% quoted in a study in the United Kingdom[4] fewer than 1% of children in this study had a behavioural or developmental problem.

7.1.2 Day Hospital

a. Attendances:

Children in the preschool age group accounted for 24% of the total number of visits to the Day Hospital. This reflects the size of the preschool population which is estimated to be about 20% in the township.

This number of attendances at the Day Hospital includes referrals from the Child Health Clinic and patients seen in the second aspect of this study who required referral. The figure of 24% may therefore be falsely elevated.

b. Age Distribution of Preschool Children Attending the Day Hospital

In contrast to the Child Health Clinic, where 79% of children attending were below the age of two years, only 44% of those preschool children using the Day Hospital were below the age of two years. The age distribution for the Day Hospital attendances followed the trend of the 'non-

routine' attendances at the Child Health Clinics in that relatively more children fell into the above two year age group.

c. Clinical Diagnosis

Most of the problems were respiratory and respiratory related problems. This was not unexpected as the survey was done during the winter months.

The facilities at the Day Hospital were adequate to cope with most problems. Only 5.1% of patients required referral to hospital either for admission or for a specialist opinion.

7.2. COMMUNITY BASED SURVEILLANCE

In a recent study[28] it was shown that 'overcrowding' was a major problem among coloured families in Cape Town. It was considered to be one of the main risk factors in the suboptimal health and development among underprivileged children. The Hout Bay harbour township is no exception where the average occupational density was four persons per sleeping room. This far exceeds the 1,5 persons per room which was considered to be an indicator of overcrowding in another report[9].

Despite the adequacy and excellent utilization of the health service in the township, the area has a high perinatal and infant mortality rate. This is probably related to the overcrowding and generally low socio-economic status of the community. It is well recognised that variations in perinatal

and infant mortality rates are significantly associated with prevailing socio-economic conditions. The assumption of an inverse relationship between mortality rates and socio-economic status is supported by the data for metropolitan Cape Town[11].

7.2.1 Participation in the Study

The high participation rate of 97.7% compares favourably with other child health studies reported from Sweden[15] and the United Kingdom[8,18]. Several factors contributed to the success of this study.

Firstly, it is a reflection of the high esteem the staff at the centre enjoy in the community. As the personnel involved in the study were based at the centre, the study became acceptable to the community.

Secondly, the approach of the interviewer during the home interviews made parents feel comfortable with the concept of the study.

Thirdly, parents saw it as an advantage to be included in the study as it became a source of advice and it soon became apparent to them that many problems could be resolved by participating in the study.

Fourthly, the centre is conveniently situated and accessible to all the people in the township.

The small number of parents who did not participate in the entire study were well known to the staff at the centre. They appeared to be the families with significant medical and social problems but who seldom used the services available to them. This phenomenon of the 'inverse care law' is well described[5,29]. Families whose needs are generally least tend to make optimal use of the facilities while those at greatest risk make the least use of the available resources.

7.2.2 Availability of the Road to Health Card

The 'road to health' card was readily available. Eighty three percent of caretakers could produce it on request during the home interview.

In children from birth to 2 years of age, 98,5% of cards were available. This is the age group which more frequently utilizes the Child Health Clinics. These mothers are regularly reminded of the value of the card in child health. In a recent study at the Heideveld Child Health Clinic, 97% of mothers brought their cards when visiting the clinic[30]. However, mothers still fail to take the card along when visiting hospitals. In a study of paediatric outpatient visits to large teaching hospital, only 55% of mothers were found to have brought their child's Road to Health card along[31].

7.2.3 Utilization of Services

The Community Health Centre was well utilized by the children who had experienced an illness episode in the three month period prior to the study. Ninety five (83%) of the 114 children

reported to have had an illness saw a health professional. The majority of patients i.e. 69 (73%), were seen at the Community Health Centre. This indicates most of the parents readily utilize the services in the township. Only three mothers stated that they did not use the service at the centre because they were not satisfied with the treatment previously received there.

The service was able to cope with most problems. Only 10 (4.6%) children required admission to hospital in the 3 months prior to the study. This compares favourably with the 5.1% of children who required referral to hospital after assessment at the Day Hospital as reported in the clinic-based surveillance.

7.2.4 Data from Road to Health Card

a. Birthweight

The number of low birthweight infants in the study (i.e. 16.3%) is higher than the 13.8% reported for the Mitchell's Plain area[32]. When private births are excluded and only those infants born in the Peninsula Maternity and Neonatal Services (PMNS) are considered, then the low birthweight figure increases to 14.9% for Mitchells Plain[32]. This increase is probably related to the socio-economic status of patients using the PMNS, which is presumably lower than those who receive private medical care in Mitchells Plain. The overall low birthweight figure for the Divisional Council area of the Cape is 16.7%[13], which is in keeping with the low socio-economic status of most of the sub-economic townships in greater Cape Town.

b. Immunization Status of Preschool Children

The overall figure of 95.5% of appropriately immunized children in the township compares favourably with figures quoted for the Camden area in London[4]. It is difficult to comment on coverage rates in this study in comparison to the rest of the Western Cape, which has quoted coverage rates in excess of 100%. This arises from the difficulty in estimating the size of the denominator and several other factors as outlined in a report from the Department of National Health[35].

The high immunization rate in the Hout Bay township corresponds with the level of attendance at the Child Health Clinic.

Most of the children with delayed immunization fell into the 0-12 month age group. This delay probably results from the widely held view that immunizations should be postponed in children who have minor ailments such as coughs and colds. All children 3 years and older were fully immunized.

7.2.5 Anthropometric Data

a. Weight for Age

Using weight criteria, only 8.6% of the children in the study were undernourished, according to the Wellcome classification (i.e. less than 80% expected weight for age). This differs markedly from the picture in the school children in Hout Bay where 30% were found to be

undernourished[14]. In another study of school entrants in Cape Town[33], 43% of children were found to be undernourished.

In the preschool children in Hout Bay, only 5.6% more children were underweight for age than one would expect in a normal population. More children in the 5/6 year age group (11,7%) were found to be underweight for age compared to the 0-1 year old group, where 3.2% were underweight. This suggests that undernutrition becomes a problem once children fall into the age groups where they no longer receive the benefit of subsidized infant food supplementation.

b. Height/Length for Age

In contrast to the 38% of school children found to be below the 3rd centile for height[14], only 11,5% of the preschool group fell below the 3rd centile on the NCHS charts. Once again it appears that more children in the older age group fall below the 3rd centile for height. However, the numbers are too small for meaningful statistical analysis (see Table 19).

7.2.6 Clinical Assessment

Although 131 (63.6%) of the study sample were found to have one or more abnormalities only 65 (31.1%) were considered to have functionally important health problems. Forty six children in the sample (22%) had newly diagnosed problems as shown in Table 23. When dental caries are excluded, only 15 (7.1%) of the

children had problems which were considered to be functionally important. Nine (4.3%) of the 15 were newly diagnosed problems.

By comparison, in a Swedish study[15] there were 5.1% of children with functionally important health problems. Newly diagnosed problems accounted for 2.7%. These figures also excluded dental caries. An American study which evaluated infants in the first year of life found that 1.9% of the infants had significant abnormalities[2]. Hendrickse found 17% of his study group to have abnormalities on physical examination of which 2.7% were newly diagnosed problems[19].

7.2.7 Age Distribution of Children with Abnormalities

Most of the children with abnormalities were in the older preschool age groups. Forty nine percent of children in the 0-2 year age group, 60% in the 2-4 year age group and 79% in the 4-6 year age group had one or more abnormalities detected.

If the children with functionally important health problems are considered, 90% of them are found to be above the age of 1 year. This is in keeping with the trend shown in other studies[8,18] where most chronic problems are detected in the older preschool child.

7.2.8 Dental Caries

Tooth decay is the most common problem found in children[36]. In this study it was the most prevalent health problem. Figures quoted by Miller and Rosenstein[36] show that 8.3% of 18 to 23 month old children in the U.S.A. have dental caries. The

prevalence increased to 57.2% by 36 to 39 months. In this study 4,6% in the 0-24 month group, 22.8% in the 25-48 month group and 59.4% in the 49-72 month group were found to have carious teeth requiring urgent intervention.

It was striking that most mothers in this study did not consider dental caries to be an important health problem. A report back from the dentist at the Community Health Centre indicated that very few of the children referred to him during the study actually returned for assessment. It appeared that the dentist was only consulted when toothache became unbearable.

7.2.9 Referral of Children with Abnormalities

Only twelve of the children with abnormalities (10%) required referral to a tertiary care centre. The remainder had their problems assessed at the Community Health Centre.

8. CONCLUSIONS AND RECOMMENDATIONS

8.1 UTILIZATION OF SERVICES

Both aspects of the study indicate that the service in Hout Bay Harbour Township is well utilized by the preschool age group.

The facilities are adequate and conveniently situated. Most problems are easily dealt with by the staff at the health centre. Only a small percentage of patients required referral to a tertiary care centre.

Although a dentist is available to assess problems, it would be an advantage to encourage utilization of the existing facilities which should provide for the preschool age group.

It would be a further advantage if preventive and curative services were integrated to facilitate the treatment of common ailments. In addition it would cut down on the number of referrals to hospital.

As observed in other studies of child health, the service at the Child Health Clinic is mainly utilized by preschool children below the age of two years[4].

8.2. IMMUNISATION STATUS

Immunisation coverage in the area is good. This could, however, be better if the fact that there are few contraindications to immunisation is emphasised to clinic staff and parents. The occasional delay in immunisation could thus be eliminated.

8.3 ROAD TO HEALTH CARDS

Parents appear to be aware of the value of this form of record-keeping. However, the practice of keeping road to health cards at creches should be discouraged. It should be emphasised that the card is a home-based record and should remain in the mother's possession at all times.

8.4 NUTRITIONAL STATUS

The nutritional status of preschool children based on anthropometric data is as good as it can be in an underprivileged community.

8.5 CLINICAL ASSESSMENT

The results of the clinical assessment were rather sparse. Forty six of the children with problems (35%) had newly diagnosed functionally important health problems. With dental caries excluded this figure drops to nine (6.9%).

The question may be raised as to whether a thorough clinical examination by a paediatrician is a necessary or worthwhile procedure in this kind of health screening. The doctor's time is an expensive resource and a system of screening would be more cost-effective if the initial health appraisal was delegated to appropriately trained nursing staff[2]. Such training is being done in the primary care paediatric clinical nurse course offered at the Red Cross War Memorial Children's Hospital. An attempt should be made to train enough staff so that there can be one such clinical nurse at every child health centre.

The study showed that while the younger preschool children seem to be well nourished and relatively free of problems, the number of functionally important problems detected and the number of visits for non-routine purposes increase after the age of two years. An incentive for these children to attend the centre should be developed, and nursing staff should be encouraged to focus more attention on this group of children. As is done in the UK[8], an initial six week health screen should be performed and this should be followed by a second assessment when the child is above two years of age.

Abnormalities detected by the nursing staff may then be referred to a paediatric registrar or consultant who could visit the centre on a monthly basis.

There are other aspects of the medical examination which are just as valuable as identifying health problems, i.e. aspects which are not easily measured or evaluated. The suggested screening programme may help to re-establish contact with parents and children, many of whom may not have visited the child health centre for a long time. Advice, treatment and reassurance may be offered and it may also provide an opportunity for health education particularly regarding aspects of health which many parents do not perceive as problematic, such as dental caries and common skin ailments.

8.6 DENTAL CARIES

The high prevalence of dental caries and the apparent parental disregard for the disease makes an intensive education programme in preventive practices imperative.

Parents should be educated with regard to cleaning, balanced nutrition, the restriction of cariogenic sugar consumption and the use of systemic and topical fluorides.

Systemic fluoride supplements are expensive and it would be unreasonable to expect parents in the poorer communities such as this one to add fluoride tablets to their regular shopping lists. It has been proven that fluoridation of community water is the most effective, safe, convenient and economical method of preventing caries[37]

The water in the Cape Town area contains less than 0.1 ppm fluoride, which is well. below the recommended 0.7 ppm[38].

Fluoridation of drinking water is the most logical way of decreasing dental caries in the poorer areas of Cape Town and is a firm recommendation which can be made on the basis of the findings of this study.

The most important conclusions and recommendations from this study may be summarised as follows:

1. The health service in the area functions well and is adequately utilized.

2. The health centre is conveniently situated and accessible to all.
3. A successful immunisation programme exists.
4. Nutritional status of preschool children is good compared to that of the school children studied by Hussey[14].
5. Relatively few new functionally important health problems were detected. A screening programme would be advantageous, particularly for children above the age of two years. It should be run by appropriately trained nursing staff.
6. Educational programmes covering nutrition and prevention of dental caries should be introduced.
7. A strong case for fluoridisation of drinking water can be made on the basis of these findings

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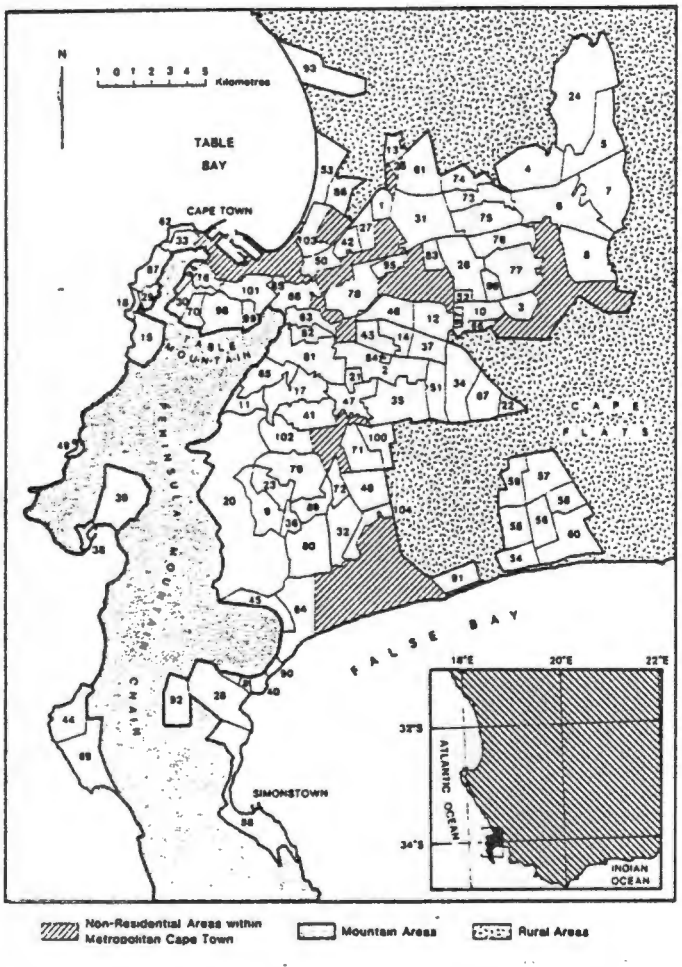
APPENDIX 1

MAP SHOWING THE SUBURBS OF METROPOLITAN CAPE TOWN

STUDY AREA - 38.



Suburb No.	Suburb/area name
1	Acacia Park
2	Athlone
3	Belhar
4	Bellville North 1
5	Bellville North 2
6	Bellville Central
7	Bellville East
8	Bellville South
9	Bergvliet
10	Bishop Lavis
11	Bishopscourt
12	Bonteheuwel
13	Bothasig
14	Bridgetown
15	Camps Bay
16	Cape Town
17	Claremont
18	Clifton
19	Clovelly
20	Constantia & Tokai
21	Crawford
22	Crossroads
23	Diep River
24	Durbanville
25	Edgemead
26	Elsies River
27	Factreton
28	Fish Hoek
29	Fresnaye
30	Gardens
31	Goodwood
32	Grassy Park
33	Green Point
34	Guguletu
35	Hanover Park
36	Heathfield
37	Heideveld
38	Hout Bay Harbour
39	Hout Bay
40	Kalk Bay
41	Kenilworth
42	Kensington
43	Kewtown
44	Kommetjie
45	Lakeside
46	Langa
47	Lansdowne
48	Lotus River
49	Llandudno
50	Maitland
51	Mannenberg
52	Matroosfontein
53	Milnerton
	Mitchell's Plain:
54	Rocklands
55	Westridge
56	Portlands
57	Lentegeur
58	Beacon Valley
59	Woodlands
60	Eastridge & Tafelsig
61	Monte Vista
62	Mouille Point
63	Mowbray
64	Muizenberg
65	Newlands
66	Nooitgedacht
67	Nyanga
68	Observatory
69	Ocean View
70	Oranjezicht
71	Ottery
72	Parkwood
73	Parow North 1
74	Parow North 2
75	Parow Central
76	Parow South 1
77	Parow South 2
78	Pinelands
79	Plumstead
80	Retreat
81	Rondebosch
82	Rosebank
83	Ruyterwacht
84	Rylands
85	Salt River
86	Sanddrift
87	Sea Point
88	Simonstown
89	Southfield
90	St James
91	Strandfontein
92	Sun Valley
93	Table View
94	Tamboerskloof
95	Thornton
96	Uitsig
97	Valhalla Park
98	Vredehoek
99	Walmer
100	Wetton
101	Woodstock
102	Wynberg
103	Ysterplaat
104	Zeekoevlei

APPENDIX 2

ASSESSMENT OF SOCIO ECONOMIC STATUS

1. Median head-of-household income
2. Occupancy (> 1,5 persons per room)
3. Household head earning < R3000 per year
4. Shared accommodation
5. Workers with < Std 6 education
6. Household head without a car
7. Single mother with > 3 children
8. Total population density (per ha)
9. Household head unemployed

APPENDIX 3

AGE DISTRIBUTION OF CHILDREN ATTENDING C.H.C.

Date: _____

ROUTINE VISITS

AGE (months)	NUMBER OF CHILDREN
0 - 12	
13 - 24	
25 - 36	
37 - 48	
49 - 60	
61 - 72	
TOTAL	

NON- ROUTINE VISITS

AGE (months)	NUMBER OF CHILDREN
0 - 12	
13 - 24	
25 - 36	
37 - 48	
49 - 60	
61 - 72	
TOTAL	

(To be completed daily)

APPENDIX 4

ATTENDANCES AT THE CHILD HEALTH CLINIC (CHC)

DATE:

NUMBER OF ROUTINE VISITS:

NUMBER OF NON-ROUTINE VISITS:

TOTAL ATTENDANCES:

A. DETAILS OF NON-ROUTINE VISITS:

DIAGNOSIS	NUMBER OF CHILDREN		
	INTERVENTION	INTERVENTION	TOTAL
1. Medical Problems			
URTI			
LRTI			
Nappy Rash			
Impetigo			
Fungal Infection			
Diarrhoeal Disease			
Worms			
Conjunctivitis			
Other - state			
2. Developmental Problems			
Speech delay			
Motor delay			
Hearing/Visual defects			
Other			

B. DETAILS OF PATIENTS REQUIRING REFERRAL

PLACE REFERRED	NUMBER REFERRED
Day Hospital	
Victoria Hospital	
Red Cross Hospital	
Other	

APPENDIX 5

ATTENDANCES AT THE DAY HOSPITAL

(To be completed daily)

DATE:

Number below 6 years (lst visit per illness episode)

Total number seen by MO _____

DIAGNOSIS	NUMBER
URTI	
LRTI	
ASTHMA	
DIARRHOEAL DISEASE	
IMPETIGO	
ECZEMA	
SCABIES	
NAPPY RASH	
FUNGAL SKIN LESIONS	
ACUTE OTITIS MEDIA	
CHRONIC OTITIS MEDIA	
PHARYNGITIS/TONSILLITIS	
STOMATITIS	
CONJUNCTIVITIS	
ABSCESS	
TRAUMA	
OTHER	

Number of children referred to hospital:

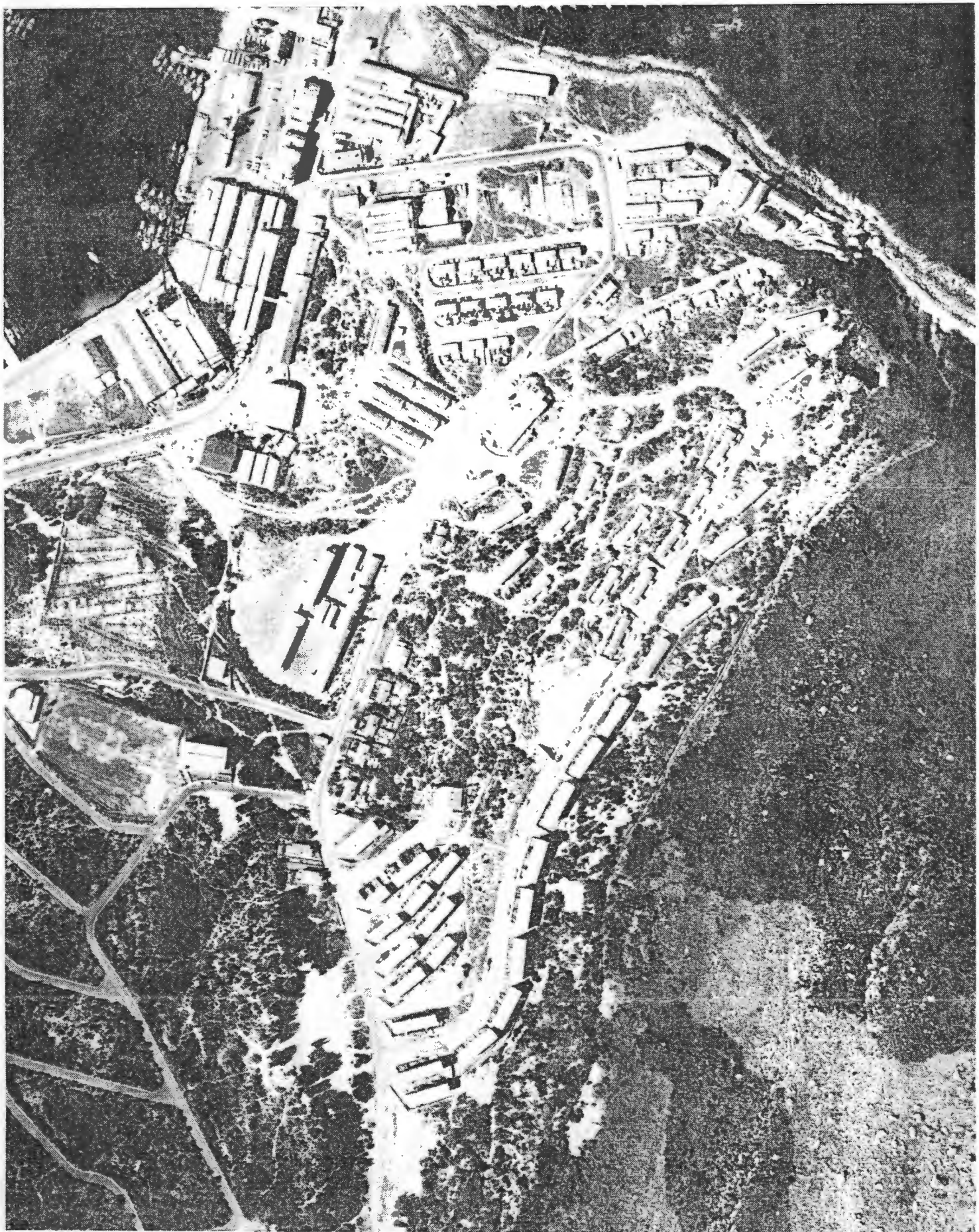
HOSPITAL	REASON FOR REFERRAL

AGE DISTRIBUTION OF PRESCHOOL CHILDREN AT D.H.

AGE (months)	NUMBER
0 - 12	
13 - 24	
25 - 36	
37 - 48	
49 - 60	
61 - 72	
TOTAL	

APPENDIX 6

AERIAL PHOTOGRAPH OF HOUT BAY HARBOUR TOWNSHIP



APPENDIX 7

HOUSEHOLD QUESTIONNAIRE

ADDRESS THESE QUESTIONS TO THE HEAD OF THE HOUSEHOLD AT THE TIME OF THE INTERVIEW. IF NO RESPONSIBLE ADULT IS PRESENT IN THE HOUSEHOLD ON THE DAY AND AT THE TIME OF THE INTERVIEW, MAKE 2 MORE ATTEMPTS AT ANOTHER TIME. IF STILL NO RESPONSE, EXCLUDE FROM STUDY.

1. Household Number: ☐

   Address: _____

   _____

   _____

2. Name of Respondent:

   _____

3. Relationship to head of household:

   (main breadwinner)

   1. Self ☐
   2. Wife/husband
   3. Grandparent
   4. Sister/Brother
   5. Other
   6. Not related

4. Total number of persons permanently resident in household ☐

   (Please list names and ages overleaf)

   Number < 6 years on 30. 6.1986 ☐

   Number 6/14 years ☐

   Number > 14 years ☐

5. Type of dwelling:

   1. Flat

   2. House

6. Number of bedrooms

APPENDIX 8

QUESTIONNAIRE FOR DATA ON CHILDREN IN THE STUDY

TO BE COMPLETED FOR EACH CHILD UNDER THE AGE OF 6 YEARS ON 30. 6.86 WHO IS PERMANENTLY RESIDENT IN THE HOUSEHOLD WHETHER PRESENT, AT CRECHE OR ELSEWHERE ON THE DAY OF THE VISIT.

Child Number: ☐

Household number: ☐

1. Name of Child: _____

2. Name of Respondent: _____

3 Relationship to Child: ☐
   1. Mother
   2. Father
   3. Grand parent
   4. Not related
   5. Aunt/Uncle
   6. Other/State .....

4. Date of Birth ☐☐☐☐☐☐☐☐

5. Date of Interview: ☐☐☐☐☐☐☐☐

6. Sex of child: 1 = Male 2 = Female ☐

7. Pre-school card: 1 = available 2 = Not available ☐

8. If answer to no 7 is 2 give reason ☐
   1. Lost
   2. At creche
   3. Other - state .....

9. Who cares for the child during the day? ☐
   1. Mother
   2. Child minder (paid)
   3. Relative / state relationship .....
   4. Creche
   5. Other - state .....

10. Any illnesses or injuries during past three months?
    1 = Yes 2 = No ☐

If answer to Question 10 Yes - Complete Questions 11 - 20
No - Omit Questions 11 - 20

11. If yes, what was the most serious problem?
    .....
    .....
    .....

12. Was child seen by a health professional?
    1 = Yes 2 = No

13. If yes - where was child first seen and treated?
    1. H.B.H.V.C. (DIVCO OR DHO)
    2. G.P.
    3. V.H.
    4. R.C.H.
    5. F.B.H.
    6. Other - State .....

14. If answer to no 13 other than H.B.H.V.C. - give reason
    1. After hours
    2. Not satisfied with treatment at H.B.H.V.C.
    3. Other - State .....

15. If not seen by Health Professional, why not?
    1. No service available at H.B.V. at time of illness
    2. Illness not considered serious
    3. Advice from relatives/friends
    4. Service too expensive
    5. Other - State .....

16. Was child admitted to a hospital during this 3 month
    1 = Yes 2 = No

17. If yes, which hospital?
    1. Victoria
    2. Red Cross
    3. G.S.H.
    4. F.B.H.
    5. Other - State .....

18. Reason for admission?
    1. Respiratory problem
    2. Diarrhoeal Disease
    3. Developmental/Behavioural
    4. Operation
    5. Cannot remember
    6. Was not told
    7. Other - State .....

19. What services do you think are provided well at H.B.H.C.?
    (DIVCO & DHO)
    Answer: 1. Yes
    2. No
    3. Don't know

    a. Immunisation
    b. Family Planning
    c. Health Education
    d. Food supplementation
    e. Explaining Health Card
    f. Curative Care
    g. General advice on social problems

If any service is not well provided - state your reasons

.....
.....
.....

20. How can health services be improved for preschool children in H.B.H.,V.C.?

.....
.....
.....

APPENDIX 9

EXAMINATION OF CHILDREN IN THE SAMPLE

Aim: To identify acute and chronic medical disorders (including developmental problems)

Name of Child: .....

Study Number: ☐
(Same as the one used on questionnaire for child)

Data from Health Card:

1. Birthweight .....
2. Immunisation status ☐
   1. Up to date
   2. Not up to date
   3. Unknown

3. Risk Factors
   .....
   .....

General

1. Anthropometric data:
   Weight in kg's .....
   Height/length in cm's .....

2. Dysmorphic features ☐
   1. Yes
   2. No

3. Congenital anomalies ☐
   1. Yes
   2. No

4. If answer to 2 and 3 is YES - Give details
   .....
   .....

Systematic::

			Yes	No
5.	Skin	1. Nappy rash	☐	☐
		2. Eczema	☐	☐
		3. Impetigo	☐	☐
		4. Scabies	☐	☐
		5. Molluscum Contagiosum	☐	☐
		6. Fungal	☐	☐
		7. Other	☐	☐
6.	ENT	1 Coryza	☐	☐
		2. Acute O.M.	☐	☐
		3. Chronic O.M.	☐	☐
		4. Tonsillitis/Pharyngitis	☐	☐
		5. Other - State	☐	☐

7. Dental
   1. Decayed
   2. Missing
   3. Filled

8. RS
   1. Normal
   2. Abnormal - State .....

9. CNS & MS

   A. Gross Motor function
      1. Normal
      2. Abnormal - State .....

   B. Eyes
      1. Cataracts
      2. Squint
      3. other - State .....
      4. Normal

10 CVS and Haematological
   1. Normal
   2. Abnormal - State .....

11. Assessment:
   1. No Abnormality Detected
   2. Abnormality detected

12. If answer to 11 is 2 classify into:
   1. Medical
   2. Developmental
   3. Behavioural

13. Does caretaker think that the child has a problem?
   1. Yes
   2. No

14. Intervention requested
   1. Yes
   2. No

15. If Yes / State
   1. Treated at H.B.H.V.C.
   2. Referred

16. If referred, where?
   1. D.H.O.
   2. Hospital
   3. G.P.
   4. Dentist
   5. Welfare Agency
   6. More than one of above