



# Memorial Children's Hospital, Cape Town

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## Summary

The demand for outpatient services continues to grow at Red Cross War Memorial Children's Hospital (RCCH). To determine current utilisation patterns, we conducted a 2-week survey in the outpatient department (OPD). In addition, we reviewed the RCCH Annual Reports for the period 1961 - 1988. Annual outpatient attendances have increased from around 42 000 in

1957 to their highest level ever; nearly 350 000 in 1988. This steady rise in outpatient attendance was stemmed during the 1970s by the expansion of health services in the greater Cape Town area, in particular the introduction of day hospitals. In general, blacks are utilising the OPD as a primary community hospital for the treatment of infectious and environmentally induced diseases. In contrast, the white outpatient profile is more characteristic of a tertiary referral centre, with a higher proportion of specialist clinic attendances. The utilisation patterns for coloured children are intermediate. Analysis of the residential address of patients and their presenting diagnoses indicates an urgent demand for primary health care services in the most recently settled and poorest suburbs of Cape Town, many of which are remote from the hospital.

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Historically, all the hospital resources, all the status, went almost exclusively to inpatient services. Inpatient services is where the technology appeared, where lives were saved, where the action and drama was. The inpatient ward round is still the major event in a hospital day. Outpatients remained the Cinderella of hospital services. While this focus on inpatient care was appropriate when these hospitals were built, it seems important now that more attention be paid to developing outpatient services.

— Dr F. Oberklaid,<sup>1</sup> referring to  
Royal Children's Hospital, Melbourne

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In recent years there has been growing awareness of the need for evaluation of outpatient services in the western Cape.<sup>2,3</sup> Reports of increasing outpatient numbers in the face of static or declining finances for health services have led to a recent investigation of outpatient services in the area.<sup>4</sup> In addition to the factors increasing the demand for ambulatory services experienced internationally,<sup>1</sup> Cape Town is undergoing a phase of rapid growth of its peri-urban population and this may be creating even greater demands on existing health services.<sup>5</sup>

In this setting, the appropriate role of a referral hospital such as Red Cross War Memorial Children's Hospital (RCCH), and particularly its outpatient department (OPD), has been questioned.<sup>6</sup> In order to define the current utilisation of outpatient services, we attempted to determine: (i) who attends the OPD; (ii) for what kind of problems they attend; (iii) their place of birth and current residential address; (iv) the patient distribution by OPD clinics; (v) the trend in OPD attendances over the last 30 years; and (vi) what factors (e.g. sociodemographic or changes in health services) may have influenced attendances during this time. This would provide baseline information for the planning of future outpatient services at RCCH as well as reflect the demand for services in the greater Cape Town area.<sup>7</sup>

## Methods

### Annual Reports

The RCCH Annual Reports were reviewed for the period 1961 - 1988.<sup>8</sup> Specific attention was paid to the total OPD attendance, the racial distribution of outpatients and the relative demand for medical and surgical services. The term 'attendance' used here refers to a doctor-patient consultation, i.e. if a child came to the hospital and consulted a doctor in two different clinics and had a radiograph done, it was counted as three attendances.

### Outpatient survey

The 2-week period 16 - 29 May 1988 was selected as the study period to coincide with an anthropometric survey conducted at the hospital. All children attending the OPD for a consultation (day or night) were included in the study. A questionnaire documenting demographic variables, place of birth of the child, institution of birth and whether or not the child had a 'Road to Health' card was administered to the mother or guardian. Interviews were performed by 16 nursing sisters as part of a course in research methods towards a diploma in post-basic paediatric nursing science. Patient addresses and clinic location code within the hospital were obtained from the Medical Informatics Department at RCCH as part of the routinely collected outpatient information.

For the duration of the study the regular outpatient form was altered to allow for three handwritten diagnoses — the first for an acute or presenting diagnosis; the second and third for chronic or underlying conditions. After completing the consultation the diagnostic information was recorded by the doctor. These diagnoses were later coded by the researchers (M.P., P.L., P.S.) according to the 9th revision of the *International Classification of Diseases* (ICD-9) handbook.<sup>9</sup> The questionnaire data and the OPD statistics for the same period were combined and summarised using SAS on a mainframe computer.<sup>10</sup>

## Results

Fig. 1 illustrates the annual outpatient attendances at RCCH over the period 1957 - 1988. This total includes all medical

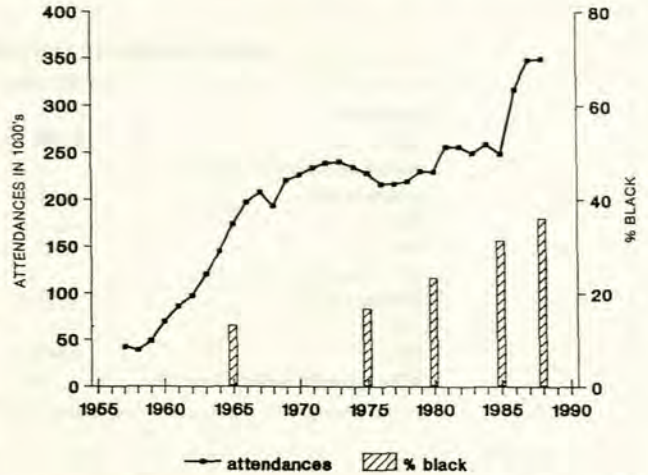


Fig. 1. Annual outpatient attendances at Red Cross War Memorial Children's Hospital, 1957 - 1988. Vertical bars indicate the proportion of black children divided by all children attending for selected years.

and surgical attendances as well as radiodiagnoses for both new and repeat visits in the year. There was a steady rise in OPD attendances during the 1960s, which levelled off and began to decline between 1973 and 1977. During the early 1980s outpatient attendance showed a slight increase, then a 4% decline in 1985 followed by a 27% increase in 1986, which has been sustained up to 1988. Between 1985 and 1987 there was a 58% increase in black outpatient attendances compared with 33% in coloureds and 4% in whites. In addition, Fig. 1 indicates the proportion of black children to all children attending the OPD in selected years. In 1965, 14% of children attending the OPD were black. This proportion had increased to 23% in 1980 and to 30% in 1987/88. The corresponding proportion from the preliminary 1988/89 Annual Report is 36%.

During the 2-week study period a total of 9 630 attendances representing 7 862 children were recorded in the routine hospital outpatient statistics. Overall, 41% of outpatients were under 2 years of age and the racial distribution was 67% coloured, 28% black and 5% white.

Table I indicates the place of birth of the child, i.e. whether the child was born in the greater Cape Town area or elsewhere and whether the birth occurred within the health service or was a non-hospital/non-clinic delivery. Overall, 14% of outpatients had been born outside Cape Town, with whites having the highest proportion (29%). Twenty-three per cent of 1 886 black outpatients with known place of birth were born outside Cape Town, 313 (17%) in Transkei and 45 (2%) in Ciskei. Three per cent of outpatients born in Cape Town were recorded as home deliveries or 'born before arrival' at the health service. The proportion of non-hospital/non-clinic deliveries for black outpatients born in Cape Town was 4%, compared with 25% for black outpatients born outside Cape Town.

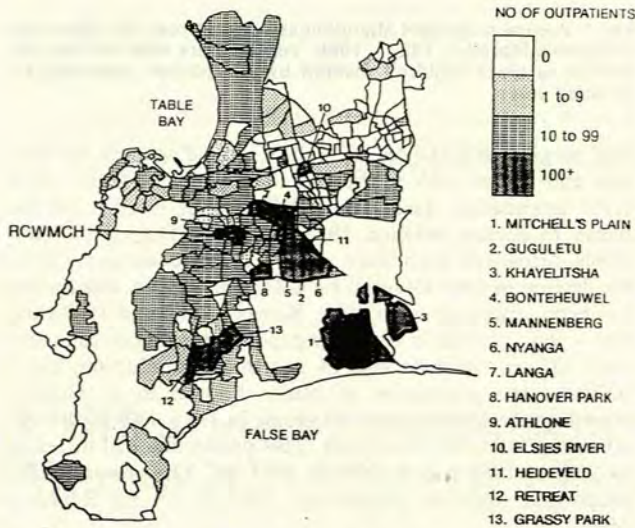
Fig. 2 indicates the residential address of outpatients by suburb in the Cape Town metropolitan area. Seven per cent of all outpatients were resident outside of the Greater Cape Town area. The dark-shaded suburbs had more than 100 patients attending the hospital over the 2-week study period. Mitchell's Plain was the leading suburb, with 991 patients attending the OPD. The average distance travelled by the patients from Mitchell's Plain to the hospital was 24 km.

Table II indicates the patient load at the various outpatient clinics for the 2-week period of the survey together with the equivalent proportions from the 1987/88 Annual Report. In the broad categories shown, the study period was representative

**TABLE I. PLACE OF BIRTH OF RCCH OUTPATIENTS BY RACE**

Place of birth	Coloured	Black	White	Total*
<b>Cape Town</b>				
No.	4 101	1 460	238	5 799
Non-hospital/non-clinic delivery (%)	2,8	3,9	1,3	3,0
<b>Other</b>				
No.	447	426	96	969
Non-hospital/non-clinic delivery (%)	11,6	25,1	1,0	16,5
<b>Total</b>				
No.	4 548	1 886	334	6 768
Born outside Cape Town (%)	9,8	22,6	28,7	14,3

\* Place or institution of birth unknown in 1 092 cases (13,9%).



**Fig. 2. Residential address of outpatients attending RCCH, 16 - 30 May 1988, indicating the 13 suburbs with the highest attendance figures.**

of the annual OPD attendance. Overall, 79% of outpatient attendances were on the medical side, the single busiest area being the general medical OPD (48%). The proportion of specialist to total medical OPD attendances was 77% for whites, 37% for coloureds and 21% for blacks. Despite the increase in total OPD attendance over the last 30 years, the relative demand for surgical services has remained constant

with 25% of OPD attendances being of a surgical nature in 1961 compared with 23% in 1987/88. During the study period, 63% of all surgical attendances were at a specialist clinic.

Table III details the presenting diagnosis of outpatients at their first consultation during the study period according to the ICD-9 major categories. Respiratory diseases accounted for 33% of all attendances followed by infectious and parasitic diseases (12%). The miscellaneous category was responsible for 16% of attendances during the 2-week study period, many of these being follow-up visits (6%). Infectious and parasitic diseases were responsible for 22% of black, 9% of coloured and 2% of white OPD attendances. Mental disorders (e.g. developmental delay, mental retardation and emotional disturbances) were an important cause of white morbidity (20%).

Table IV reflects selected diagnoses from the more frequent ICD-9 major categories, as a percentage of the total OPD attendance. Diarrhoeal diseases constituted 6% of all attendances, or more than half of all infectious and parasitic diseases, and were a major cause of black and coloured morbidity. Sub-classification of respiratory diseases indicated that 15% involved the upper respiratory tract (predominantly infections of the nose, throat and ears) and 13% the lower respiratory tract (predominantly pneumonia, bronchiolitis and bronchitis), and that 5% were due to asthma.

### Discussion

RCCH together with its OPD was opened in 1956. During the 1960s attendance at the RCCH OPD increased nearly fivefold. The first day hospital in Cape Town area was opened in

**TABLE II. ATTENDANCES BY OUTPATIENT CLINIC AT RCCH, CONTRASTING THE PERIOD 16 - 29 MAY 1988 WITH THE ANNUAL TOTAL FOR 1987/1988**

Clinic	No. of attendances	% of sample (9 630 patients)	% of 1987/1988 annual total (285 376 patients)
<b>Medical</b>	<b>7 586</b>	<b>78,8</b>	<b>76,9</b>
Medical registrar*	430	4,5	3,9
Specialist clinics	2 527	26,2	26,8
MOPD	4 629	48,1	46,2
<b>Surgical</b>	<b>2 044</b>	<b>21,2</b>	<b>23,2</b>
Trauma	353	3,7	4,4
Specialist clinics	1 282	13,3	14,4
SOPD	409	4,2	4,4
<b>Total</b>	<b>9 630</b>	<b>100</b>	<b>100</b>

\* Seen by the medical registrar for acute admission. MOPD = general medical OPD; SOPD = surgical OPD.

**TABLE III. PRESENTING DIAGNOSIS OF OUTPATIENTS AT FIRST CONSULTATION AT RCCH, 16 - 29 MAY 1988, GROUPED ACCORDING TO THE ICD 9**

ICD 9 classification	Coloured (% of 5 255)	Black (% of 2 103)	White (% of 504)	Total (% of 7 862)
<b>I. Infective and parasitic diseases (001 - 139)</b>	<b>8,5</b>	<b>21,6</b>	<b>2,4</b>	<b>11,6</b>
<b>II. Neoplasms (140 - 239)</b>	<b>0,9</b>	<b>0,6</b>	<b>4,0</b>	<b>1,0</b>
<b>III. Endocrine, nutritional, metabolic and immunity disorders (240 - 279)</b>	<b>0,7</b>	<b>1,6</b>	<b>3,2</b>	<b>1,1</b>
<b>IV. Blood disorders (280 - 289)</b>	<b>0,7</b>	<b>0,3</b>	<b>1,0</b>	<b>0,6</b>
<b>V. Mental disorders (290 - 319)</b>	<b>2,1</b>	<b>1,2</b>	<b>19,6</b>	<b>3,0</b>
<b>VI. Nervous system and sense organ disorders (320 - 389)</b>	<b>10,1</b>	<b>10,3</b>	<b>6,0</b>	<b>10,5</b>
<b>VII. Circulatory system disorders (390 - 459)</b>	<b>0,5</b>	<b>0,6</b>	<b>0,2</b>	<b>0,5</b>
<b>VIII. Respiratory system diseases (460 - 519)</b>	<b>34,2</b>	<b>33,2</b>	<b>16,2</b>	<b>32,8</b>
<b>IX. Digestive system (520 - 609)</b>	<b>2,3</b>	<b>1,4</b>	<b>1,6</b>	<b>2,0</b>
<b>X. Genito-urinary system (580 - 629)</b>	<b>2,1</b>	<b>1,3</b>	<b>1,6</b>	<b>1,9</b>
<b>XI. Disease of the skin (680 - 709)</b>	<b>4,8</b>	<b>5,2</b>	<b>2,4</b>	<b>4,7</b>
<b>XII. Musculoskeletal system (710 - 739)</b>	<b>0,7</b>	<b>0,8</b>	<b>0</b>	<b>0,7</b>
<b>XIII. Congenital anomalies (740 - 759)</b>	<b>3,0</b>	<b>1,6</b>	<b>4,4</b>	<b>2,8</b>
<b>XIV. Perinatal problems (760 - 779)</b>	<b>0,3</b>	<b>0,5</b>	<b>0,2</b>	<b>0,4</b>
<b>XV. Symptoms and ill defined (780 - 799)</b>	<b>4,0</b>	<b>2,8</b>	<b>4,2</b>	<b>3,7</b>
<b>XVI + XVII Injury and poisoning (E codes)</b>	<b>7,2</b>	<b>6,0</b>	<b>9,3</b>	<b>7,0</b>
<b>XVIII. Miscellaneous (V codes)*</b>	<b>16,8</b>	<b>11,1</b>	<b>23,2</b>	<b>15,7</b>

\* V codes include follow-up visits, repeat visits (e.g. for medications only) and healthy infants.

**TABLE IV. PRESENTING DIAGNOSIS OF OUTPATIENTS AT FIRST CONSULTATION AT RCCH, 16 - 29 MAY 1988 — SELECTED ICD 9**

ICD 9 classification	Coloured (% of 5 255)	Black (% of 2 103)	White (% of 504)	Total (% of 7 862)
<b>Diarrhoeal diseases (001 - 009)</b>	<b>4,5</b>	<b>12,2</b>	<b>1,6</b>	<b>6,4</b>
<b>Tuberculosis (010 - 018)</b>	<b>0,2</b>	<b>0,9</b>	<b>0</b>	<b>0,4</b>
<b>Measles (055)</b>	<b>0,3</b>	<b>1,4</b>	<b>0</b>	<b>0,4</b>
<b>Nutritional diseases (260 - 269)</b>	<b>0,1</b>	<b>1,0</b>	<b>0</b>	<b>0,3</b>
<b>Upper respiratory tract (460 - 465, 470 - 478)</b>	<b>15,7</b>	<b>15,3</b>	<b>5,4</b>	<b>14,9</b>
<b>Lower respiratory tract (466, 480 - 492, 494 - 519)</b>	<b>11,9</b>	<b>16,5</b>	<b>4,0</b>	<b>12,8</b>
<b>Asthma (493)</b>	<b>6,5</b>	<b>1,4</b>	<b>7,5</b>	<b>5,1</b>
<b>Follow-up visit (V67)</b>	<b>5,7</b>	<b>3,3</b>	<b>8,1</b>	<b>5,8</b>
<b>Repeat medicine (V70)</b>	<b>5,4</b>	<b>5,1</b>	<b>6,5</b>	<b>5,6</b>

Athlone in 1969. During the 1970s a further 23 day hospitals were established to address the urgent need for accessible primary health care services.<sup>11</sup> Tygerberg Hospital, with both in- and outpatient paediatric services, came into operation in 1972 as the University of Stellenbosch's major teaching hospital. These additions to the health services in Cape Town appeared to have an impact on total RCCH OPD attendances, which showed a 16% decline during the years 1973-1977. In addition there was an increase in the proportion of specialist to total medical OPD attendances at RCCH indicating the ability of the day hospitals to serve as paediatric primary care facilities.

Utilisation of hospital services may be related to a variety of factors including: (i) the size of the population served by the hospital; (ii) the disease profile of the community; (iii) the capacity of the hospital; and (iv) factors that affect access to the hospital (e.g. sociocultural, financial or geographical barriers to obtaining health care).<sup>12,13</sup> In this descriptive study it is only possible to hypothesise about the factors that affect RCCH OPD attendance. The decline in total OPD attendance in 1985 may have been the result of the civil unrest in much of the local area served by the hospital during 1985.<sup>14</sup> In 1985, while total attendance was down, patients presenting to the hospital

were noted to be more severely ill.<sup>14</sup> Decreased utilisation of other health services has been reported to be associated with the political violence that occurred in Cape Town during 1985 and 1986.<sup>15</sup>

A key factor contributing to the increase in OPD attendance at RCCH may be an imbalance between the growth of the urban and peri-urban population of Cape Town and the provision of health services. For example, the increase in attendance reported in the RCCH Annual Reports since 1986 has involved predominantly black children. In October 1984, the black township of Khayelitsha was opened for settlement and by mid-1988 had an estimated population of 250 000.<sup>16</sup> Although the majority of Khayelitsha residents may represent relocations from other Cape Town townships, a recent survey indicated that 13% of 755 household heads in Khayelitsha had moved there from either Ciskei or Transkei (Dr J. Graaff — personal communication). This proportion is similar to the 19% of black outpatients at RCCH who report Transkei or Ciskei as their place of birth and represents a working estimate of the impact of black urban migration on outpatient attendance. In addition, the relaxation of influx control laws in July 1986 may have resulted in rural women and children moving to Cape Town to join their husbands and fathers and hence an expansion in the peri-urban paediatric population.

The suburbs placing the largest demand on RCCH outpatient services correspond closely to areas in the city with the highest perinatal and infant mortality rates.<sup>17,18</sup> They include Mitchell's Plain and Khayelitsha, which are newly settled suburbs remote from the city centre. This implies long distances and high travel costs for these families. Thus, as the margins of the city expand, large childhood populations become increasingly distanced from the more established health services such as RCCH. Four day hospitals were established during the 1980s in an attempt to meet this need; one in Crossroads, one in Mitchell's Plain (1986) and two in Khayelitsha (1988). The ability of these new facilities to meet the primary health care needs of an expanding population will require ongoing evaluation.

Consideration of the patient loads by outpatient clinic indicates that nearly half (48%) of all outpatient attendances were for general medical problems, largely respiratory infections and general infectious diseases; much of the outpatient workload is therefore of a primary health care nature and does not require the facilities of a referral hospital. This argues strongly for the provision of more primary health care services in identified under-served communities. A recent World Health Organisation publication<sup>19</sup> emphasises that for such services to succeed they should be functionally integrated with the secondary and tertiary hospitals as well as receive logistic support from them.

A limitation of our analysis has been its restriction to a single hospital. The full picture of the utilisation of outpatient services in the greater Cape Town area would require a similar analysis at all health care delivery points in the metropolitan area. Such a survey would enable the calculation of population-based utilisation rates and diagnostic profiles by suburb, and is the essential basis for planning health services on a regional basis.

Analysis of the presenting diagnoses of outpatients reveals the importance of respiratory diseases, particularly acute respiratory infections. These are roughly equally distributed between upper and lower respiratory tract diseases. A recent community-based survey in Mitchell's Plain revealed that over 50% of acute illnesses were diseases of the respiratory system.<sup>20</sup> These studies underscore the public health impact and the potential for prevention of acute respiratory infections and the need for further research into the development of appropriate primary and home-based care for these diseases.

The RCCH Annual Reports have often referred to the hospital's multiplicity of roles. Focusing on the OPD alone, it

can be seen that it functions as a community day hospital for indigent families on the Cape Flats. This is evidenced by the high burden of infectious and environmentally induced disease and low proportion of specialist consultations. This pattern is seen predominantly in black children and to a lesser extent in coloured children. In more affluent families with health insurance, the OPD serves as a specialist referral centre for a wide range of medical and surgical problems. This pattern is typically seen in white children, with a high proportion of specialist consultations and a predominance of mental disorders, asthma, nervous system/sense organ disorders, and neoplasms.

In conclusion, this study of the utilisation of outpatient services at RCCH highlights the ongoing challenge to provide appropriate and accessible paediatric health care in Cape Town. Ford,<sup>21</sup> writing in the Annual Report of 1961, proposed the following solution: 'Peripheral clinics are urgently needed to keep children away from the hospitals, to treat them in the early stages of illness at their homes and to educate their guardians in the prevention and early treatment of sickness.' This embodies the principles and practice of primary health care and, in our opinion, is the appropriate response to the problem. There remains an ongoing need to evaluate the utilisation of health services in Cape Town in an attempt to provide more appropriate and cost-effective health services, particularly during times of rapid sociodemographic change.

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