FUNCTIONS OF A HEALTH CENTRE*

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SUMMARY

The first health centre was opened in Johannesburg in 1969 to serve a predominantly White section of the community. Due to an inadequate concept of the functions of such a centre a survey was undertaken by the health personnel of the local authority to determine how far the needs of the community were being met by existing services and how improvements could be made within the limits of enabling legislation and finances. The ideal functions of such a health centre are defined. In the meantime only interim measures can be introduced preliminary to lifting of legislative and financial barriers wherever possible.

The population of Johannesburg is cosmopolitan and consists of Whites, Asiatics, Coloureds and Bantu. This study is concerned with the provision of public health services in a predominantly White area.

Services of the Johannesburg City Health Department have been provided from central administrative headquarters, with routine clinic, environmental and personal services conducted by field workers deployed throughout the municipal area. Owing to a rapid increase in the size and population of the city, decentralization became imperative and a health centre to provide decentralized facilities was erected as a pilot unit which, if found satisfactory, would be the prototype for similar units in other parts of the city.

A primary problem was surprisingly found to be an inadequate concept of the precise functions to be carried out by a modern decentralized health centre in meeting the needs of the community concerned.

Objectives

The objectives of the study were fourfold:

1. Determination of the promotive and preventive health needs of the community served by the health centre.
2. Definition of the structure of a modern decentralized promotive and preventive health service to be provided from the health centre to meet the community needs of the specified area of Johannesburg served by the centre.
3. Minimum modification of the service so defined in relation to permissive legislative authority and financial resources and the introduction of the thus modified service as an interim measure.
4. Raising of legislative and financial barriers wherever possible to permit provision of the necessary services envisaged in the second objective.

INVESTIGATION

The investigation involved medical, nursing and health inspectorate staff.

Criteria

For the purpose of this study the following definitions were applied:

Area: The geographical area of the section of Johannesburg served by the health centre.

Community: All persons in the area defined.

Health: Physical, mental and social well-being.

Centre: A focal point from which necessary health services operate.

Decentralization: The provision of facilities and staff for a comprehensive promotive and preventive health service from a selected focal point, in any given area to be served, thus transferring many functions previously provided from a central unit.

Promotive health service: A service to advance the health standards of the community by the application of public health, health education and epidemiological principles.

Preventive health service: A service to provide for the prevention of ill-health by the application of public health, health education and epidemiological principles.

Epidemiology: The science of investigation of all factors and their interrelationships which affect the health of populations with the purpose of control of disease and disability.

Public health: The science and art of preventing disease, prolonging life, and promoting mental and physical health and efficiency through organized community efforts.

Health education: A process to persuade people to adopt and sustain healthful life practices, to use judiciously and wisely the health services available to them and to take their own decisions, both individually and collectively, to improve their health status and environment.

Needs: Those requirements necessary to permit attainment of the second objective.

Data

Data were collected on the following: (*i*) Community structure; (*ii*) legislative and financial barriers; (*iii*) existing statistics for the area; (*iv*) staff and services as provided at present by the health centre, including environmental health data; (*v*) existing health facilities and resources of the community; and (*vi*) assessment of the community needs (*a*) by the Johannesburg City Health Department and (*b*) by the community.

Method

The medical, nursing and inspectorate staff involved formed a study group which met at regular intervals. They therefore contributed to the planning of the structure of the research project and thus attained maximum motivation and were thoroughly conversant with defined objectives, criteria and methods before being deployed to carry out field assignments.

As regards the advisability of utilizing the modern computer facilities available to departments of the Johannesburg City Council, our views were similar to those of Spencer and Coster[1] who maintain that much valuable information in field research may be missed by modern mechanical data-processing, for instance a reflection of a heart-warming community, opinions of a questioner, or some significant environmental factor which might only

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be picked up by an astute field observer. A simple punch-card system with pre-coded questionnaires was considered, but as numbers involved were relatively small this method did not appear justified.

The selection of sample and control groups was not strictly practicable, but if statistical data of existing health circumstances in the area were considered as a control, then any change of the statistical situation resulting from the introduction of recommendations arising from this study could provide a sample for comparison. Time barriers for completion of work were set.

The assessment of community opinion of health needs was a major part of the field work. A group considered to be leaders or community motivators, as well as a random sample of other community members, were interviewed. To determine the random sample, lines were drawn across a map of the area (scale 1:7 500) to give squares of 50 × 50 mm. Premises of any type at the points of intersection of these lines were visited and interviews conducted with an adult occupier, but not with domestic servants. Set routines were laid down for the field workers to follow if premises were found unoccupied; in such circumstances those to the right were visited until a successful contact was obtained. Separate questionnaires were drawn for each group and covered many aspects of health problems of the area.

COMMUNITY STRUCTURE

At the time of this study in 1968 the municipal area of the City of Johannesburg covered an area of 94 square miles with, in addition, 31 square miles for the Bantu townships;* and had an estimated population of 1 013 175, consisting of 414 594 Whites, 56 816 Coloureds, 11 724 Asiatics and 530 041 Bantu. The area served by the health centre under review extends over 22 square miles with its outer boundary 5 miles from the centre of the city, and contained roughly 65 123 Whites, 1 326 Coloureds, 1 696 Asiatics and 13 895 Bantu.

As some of the older suburbs in the area were proclaimed in the latter part of the 19th century, the majority of stands are only one-eighth acre in extent, but better planning of newer suburbs has improved the lay-out. It is primarily a residential area, most of the 16 690 housing units being single-storeyed, in fair to good structural condition, and mainly owner-occupied. The City Council's economic and sub-economic housing schemes in this area accommodate 1 855 and 120 families respectively; a few units reserved for the elderly, with several homes for the aged, provide accommodation for 320 persons not necessarily drawn from the area under review. Shopping areas are scattered throughout the suburbs, and the health centre is strategically well-placed near one of these.

There is a high incidence of immigrants, mainly Portuguese and Italian, many of whom have only recently arrived in the country. Some Bantu are housed on the properties of their employers, but most of them, as well as the Asiatics and Coloureds, commute daily from their residential townships. The Whites comprise an average cross-section of a lower- to middle-income group with unskilled alternating with skilled artisans, white-collar workers and a small section of business and professional people. Whereas the Bantu are primarily employed as domestic servants, unskilled workers and a proportion in clerical levels, the Coloureds and Asiatics are economically placed between the Whites and the Bantu, with occupations varying from unskilled to skilled planes with a stratum of shopkeepers and others involved in commercial enterprise.

Recreational facilities and diverse sources of entertainment play an important role because of a preponderance of the young and middle-aged. Swimming-pools, an ice rink, numerous sportsfields, bowling greens, community centres, a race course, cinemas and a large natural dam with adjoining park are well patronized.

Educational facilities are provided by numerous schools, including one for subnormal and 2 for handicapped children, with a relatively inadequate number of nursery schools and creches. Students commute to universities and technical colleges outside the area.

There is good municipal transport between the centre of the city and the area under review, contrasting with poor intersuburban linkage, but proposed major routes would improve residential development and facilitate siting and accessibility of clinics subsidiary to the health centre.

LEGISLATIVE AND FINANCIAL BARRIERS

In the Republic of South Africa, with no unified national health service comparable for instance to that of the United Kingdom, a three-tier system of health control exists, consisting of State, Provincial Administration and Local Authority levels.

In the area under review, apart from the activities of private medical practitioners, the Provincial Administration is generally responsible for curative, midwifery and school medical services, and the State Department of Health largely delegates promotive and preventive health services to the Local Authority in terms of the Public Health Act, No. 36 of 1919 as amended. A welter of legislation has arisen as a result of three-tier control, but is in urgent need of amendment to cope adequately with modern public health needs.

Refunds to Local Authorities from the State Health Department vary from one-third to seven-eighths of expenditure approved by that department on a large number of promotive and preventive services, but the rest of the financial burden has to be borne by the ratepayer.

Inevitably significant barriers arise. Various commissions of inquiry have been appointed by the Government to investigate and make recommendations in terms of reorganization of services and adjustment of financial resources, but long-awaited finality and implementation has yet to materialize.

STATISTICS

Statistical data, though available for Johannesburg as a whole for 1968, were limited for the area under review. Nevertheless breakdown of statistics was attempted where possible as it was realized that valuable information so obtained could assist in determining the decentralized health services needed for this area.

Birth Rates (Table I)

In the area under review the Bantu birth rate, based on 478 births in 1968, was higher than that for Bantu in the whole of Johannesburg which includes the Bantu residential areas (Table I). The interpretation of these findings

*Subsequent to this study the size of the city was virtually doubled by the incorporation of new areas to the south, and this health centre, with additional subsidiary clinics, will in due course have to serve a vastly increased region and population.

TABLE I. BIRTH AND MORTALITY RATES 1968

	Area served by health centre					*Whole of Johannesburg*				
Rates per 1 000	*W*	*C*	*A*	*B*	*All races*	*W*	*C*	*A*	*B*	*All races*
Birth rate	25·18	15·08	14·74	34·40	26·37	21·63	39·64	44·69	31·42	27·98
Mortality rate	8·34	7·54	5·31	8·85	8·35	8·12	9·47	11·17	11·95	10·23
Infant mortality rate	*	*	*	*	*	19·41	43·52	43·89	101·11	69·23
Maternal mortality rate	Nil	Nil	Nil	2·09	0·46	0·22	1·74	Nil	2·66	1·76

W = White; C = Coloured; A = Asiatic; B = Bantu.
*No statistics available.
Nil = no deaths.

TABLE II. MORTALITY RATES 1968

	Area served by health centre				*Whole of Johannesburg*			
Cause of death rates per 1 000	*W*	*C*	*A*	*B*	*W*	*C*	*A*	*B*
Diseases of circulatory system including coronary thrombosis	3·70	1·51	1·77	0·65	3·22	1·85	3·33	1·14
Coronary thrombosis	*	*	*	*	2·19	0·67	2·64	0·08
Neoplasms	1·47	Nil	Nil	0·29	1·52	0·95	1·28	0·69
Diseases of nervous system and sense organs	0·69	0·75	0·59	0·58	0·85	1·02	1·11	0·81
Diseases of respiratory system	0·69	Nil	0·59	0·94	0·63	1·16	1·11	1·19
Accidents, poisoning and violence	0·38	3·02	0·59	1·66	0·52	1·36	1·19	2·04
Allergic, endocrine system, metabolic, nutritional	0·35	Nil	Nil	0·43	0·23	0·32	0·34	0·40
Diseases of digestive system	0·31	Nil	0·59	1·01	0·34	0·55	0·68	1·08
Certain diseases of early infancy	0·26	0·75	0·59	2·16	0·25	0·90	1·02	1·11

W = White; C = Coloured; A = Asiatic; B = Bantu.
*No statistics available.
Nil = no deaths.

should be cautious and would require an independent field study for elucidation. It is probably related to a relatively high number of female Bantu domestic servants resident on the properties of their employers. A comparison of the Bantu birth rate as applied to women in the child-bearing years of life would be more valuable as domestic servants usually belong to this age-group. Only then could such factors as large numbers of unattached females and illegitimacy have proper relevancy. The higher White birth rate as compared with the city as a whole supports the previous concept of the community structure being that of a residentially stable, predominantly young to middle-aged group, whereas the low birth rate of Coloureds and Asiatics in the defined area substantiates the fact that they are not residents but commuters from their residential areas.

The over-all mortality rates of the Whites were comparable to that of the whole of Johannesburg but those for the other racial groups were significantly lower in the area under review and also decreased the combined rate for all races when compared with that of the city as a whole.

Breakdown of the infant mortality rate for the area under review was not available. As the White residents form a predominantly middle-class group, their infant mortality rate would likely parallel the over-all White rate for the whole of Johannesburg. The high infant mortality rate in the Bantu as compared with the other three racial groups for the whole city was significant. It was critically reviewed in a recent study by Spencer and Coster.[1] If the rate was available for this defined area it would pose problems in interpretation.

The maternal death rates of Coloureds, Asiatics and Whites in the area under review proved to be no worse than anywhere else in Johannesburg. The Bantu rate similarly paralleled that for Bantu in the whole city. Their higher rate indicated that, in spite of excellent and constantly improving antenatal clinic, domiciliary, ambulance and hospital midwifery facilities for this group, further improvement is required, as these services are mainly confined to the Bantu residential areas and are not easily available in the White suburbs. However, the intensely complicated aspects of this problem fall outside the terms of reference of this study.

Mortality Rates (Table II)

As a primary basis of comparison, causes of death were listed in order of significance in relation to the Whites. The pattern for Whites in the area under review closely paralleled the figures for this group in the city as a whole (Table II). There were only a few deaths in the area among Coloureds and Asiatics, namely 10 and 9 respectively. The mortality rates were nevertheless considered relatively valid as the population groups at risk were 1 326 Coloureds and 1 696 Asiatics. The higher figure of 123 Bantu deaths with 13 895 Bantu at risk had greater validity.

Coronary thrombosis with diseases of the circulatory system in Johannesburg as a whole headed the causes of death for Whites, Asiatics and Coloureds and is particularly significant when viewed against the markedly lower rate for Bantu. This would tend to suggest that important epidemiological factors of causation lie in this group difference and a separate research study may do much to confirm or disprove some prevailing concepts in regard to the multi-factoral aetiology of ischaemic heart disease. There is a high mortality rate from circulatory disease in Whites in the defined area.

Accidents, poisoning and violence were the highest as a

group cause of death among Bantu in the city as a whole including Bantu residential areas, but were lower in the area under review undoubtedly due to a better-disciplined and less lawless environment. The inordinately high rate for accidents, poisoning and violence for the Coloureds in the area under review is surprising and requires further investigation, but again the relatively small statistical sample provided by this group can do no more than indicate a point of interest.

Certain diseases of early infancy applicable to the first month of life and including such conditions as neonatal infections, birth injury, conditions relating to maternal toxaemia, blood diseases and various other neonatal conditions, headed the Bantu mortality rates for the defined area though not for the whole city. Taken in conjunction with the Bantu maternal death rate in the area under review, the natal and perinatal need of the Bantu domiciled in a White area is again highlighted.

The mortality from neoplasms ranked second for the Whites and Asiatics in the city as a whole and for Whites in the area studied. The low rates in the other 3 racial groups in the defined area is of very limited significance as it is likely that, as they are mainly non-residents in the area, the advent of chronic illness will mean inability to continue in employment, and a return to their areas of domicile. The Bantu mortality rates for diseases of the digestive system were higher than for the other racial groups, both in the area served by the health centre and in the city as a whole.

Female Deaths from Cancer (Table III)

The percentages of deaths in females from cancer in 1968 were drawn to highlight cancer of the breast and of the reproductive system in the city as a whole. This could not be done for the area under review but the information available had relevancy.

Cancer of the breast emerged as the highest cause of all cancer deaths in White females, while cancer of the reproductive system was the highest cause of all cancer deaths in the Bantu female (Table III). Realization that cancer of the breast was an important cause of all cancer deaths in Whites, Coloureds and Asiatics and that the site is easily accessible without the need for elaborate and costly laboratory techniques, makes prevention and detection of cancer in this site an ideal and priority target for health education and screening.

The high percentage of Bantu deaths from cancer of the cervix justified the priority given in this racial group to early detection and the referring of cases of deviations from the normal at family planning and cervical screening clinics in the Bantu residential areas. It was anticipated that the occurrence of cervical cancer in the possibly less hygienic circumstances of a Bantu environment might be high.

Screening for both cancer of the breast and cervix is essential, but these findings bring out clearly that priorities must be modified according to socio-economic, traditional, racial and other factors.

Deaths from Lung Cancer (Table IV)

Percentages for lung cancer in different racial groups were also drawn in relation to sex, so that deaths from lung cancer in males were compared with all deaths from cancer in males only, and female deaths from lung cancer as a percentage of all cancer deaths in females only (Table IV). A marked male preponderance was noted in all racial groups, but in both sexes the highest rates were found in the Whites. Lung cancer headed the list in White males in 1968 with 91 cases, followed only much lower numerically by 37 deaths from cancer of the prostate. In White females deaths from lung cancer featured only fifth on the female death list from all cancers.

At first glance there seemed a correlation between the socio-economic scale and percentage rates obtained in the different racial groups, being highest in the Whites and lowest in the Bantu. This observation is, however, of

TABLE III. PERCENTAGES OF FEMALE DEATHS FROM CANCER 1968

	White		*Coloured*		*Asiatic*		*Bantu*		*All races*	
Whole of Johannesburg	%	*Total No. of deaths*	%	*Total No. of deaths*	%	*Total No. of deaths*	%	*Total No. of deaths*	%	*Total No. of deaths*
Cancer of breast	21·18	61	23·81	5	33·33	2	9·15	14	17·52	82
Cancer of reproductive system (including cervix)*	13·54	39	9·52	2	Nil	Nil	35·29	54	20·30	95
Other forms of cancer	65·27	188	66·67	14	66·67	4	55·56	85	62·18	291
Total deaths from all cancers		288		21		6		153		468
*Cancer of cervix	5·55	16	4·76	1	Nil	Nil	27·45	42	12·61	59

TABLE IV. PERCENTAGES OF DEATHS FROM LUNG CANCER 1968

	White		*Coloured*		*Asiatic*		*Bantu*		*All races*	
Whole of Johannesburg	%	*Total No. of deaths*	%	*Total No. of deaths*	%	*Total No. of deaths*	%	*Total No. of deaths*	%	*Total No. of deaths*
Males*	26·61	91	21·21	7	22·22	2	12·26	26	21·14	126
Females†	7·29	21	4·76	1	Nil	Nil	3·92	6	5·98	28

*Percentage of all male deaths from cancer.
†Percentage of all female deaths from cancer.

doubtful validity as one surmises that many Bantu return to their homelands when no longer employable in White areas, resulting in deceptively low figures being obtained. Only an epidemiological survey would clarify this point.

EXISTING SERVICES

Central Services

Matters of policy, personnel and administration of the City Health Department are presently controlled from the central headquarters. Some decentralization of services has taken place as regards the Bantu townships and to a lesser extent and more recently, the Coloured complex of the city. Decentralization of the area under review is the first affecting a predominantly White area. In the central area all races are directly served by personnel deployed from these headquarters. A clinic for the immunization of travellers against communicable diseases, a child health clinic and immunization clinic, as well as a tuberculosis clinic for non-Whites are situated in the central building. A network of child health clinics and immunization services for all races are spread throughout the city suburbs.

Inspection for registration and licensing of private nursing homes on behalf of the Transvaal Provincial Administration, control of midwives other than those employed in the Provincial hospital services, supervision in respect of homes for the aged, investigation of maternal deaths, recording of all notified births, inspection of pre-school institutions, control of tuberculosis and venereal diseases, and compiling of statistical data are other centrally organized services.

The central environmental services comprise a farm dairies section controlling milk produced outside the municipal area; a general food factory section including inspection of milk depots, pasteurization of milk, investigation of cases of food poisoning, food sampling, and the implementation of the Food, Drugs and Disinfectants Act; pest control; a slums and plans section; a general sanitation division including supervision and inspection of all retail food premises and the licensing thereof, general housing and sanitation with reference to keeping of animals, discharge of industrial effluents, and indiscriminate refuse disposal; a promotive hygiene section including health education and research; infectious disease control as regards isolation, hospitalization of cases and control of contacts.

The control of air pollution is carried out by a separate section under supervision of the chief chemist at the chemical laboratories, but the personnel are housed in the same building as the health inspectorate staff and are thus able to intercommunicate freely with other sections of the environmental health services.

Services from the Health Centre

The area studied, divided into 5 sections, is at present served by the health centre and 3 subsidiary clinics, with a fourth under consideration, all controlled from the health centre. A child health medical officer, 6 health visitors of which one acts as co-ordinator with supervisory and administrative as well as health visiting duties, a part-time nursing sister with immunization duties, and some ancillary staff make up the personnel. No general practitioners are employed by the Local Authority nor are the health visitors attached to any family doctor's practice. Health services provided include home visiting by health visitors, child health clinics for children under the age of 2 years, immunization, health education, routine medical examinations of children at subsidized nursery schools, and a limited amount of deaf-screening and eye-testing.*

Home visiting by health visitors. In 1968 all 1 640 White infants born in this area were visited at least once, and deaths under the age of 1 year investigated. A total of 8 537 home visits included only a few specifically intended for persons outside the 0 - 2-year age-group, as legislation, variously interpreted even in the City Health Department, has virtually confined child health services in White areas to this age-group. A few protected infants were visited at the request of the Commissioner of Child Welfare, who, together with relevant welfare organizations, were furnished with monthly reports. Totals of 20 Coloured, 25 Asiatic and 478 Bantu births were recorded in the area under review, but further breakdown of statistical data was not possible for these racial groups, as their health services are provided either in their residential areas or from the central administrative unit.

Occasionally urgent problems of members of households visited, other than infants, were handled or referred, but only a token number of specific geriatric home visits were recorded, though in 1966 an estimated 10·3% of the White population of Johannesburg (i.e. roughly 6 700 in this area) were over the age of 60 years according to a Market Research report.[2]

Data obtained in a survey of health visitors' work in Johannesburg (excluding the Bantu residential areas) showed that the average case load varied from 247 to 536 new births per year.[3] On the average the health visitor's time was distributed in the following way: visiting 34·5%, clinic 29·8%, clerical duties 16·4%, travelling 17·6%, telephone calls 1·3%, liaison visits 0·4% (e.g. to the family doctor or social worker). Of the total planned visits 18·8% were wasted as no contact was made, and 24·4% of interviews fell outside the 0 - 2-year age-group.

Child health clinics. The concept of a 'well-baby clinic' has been fairly widely accepted in Johannesburg. Good liaison established with the Provincial maternity hospital of the city as regards pertinent obstetrical and perinatal information on the newborn has not been equally successful in dealings with other institutions and medical practitioners.

Of 1 640 new births in the area 75·1% of infants attended a child health clinic at least once in 1968, with total infant attendances under the age of 2 years of 16 901. As older siblings often accompany the adults and are discussed at about 20% of the interviews initially intended for the infants[3] some elasticity has developed as regards age restriction. Health education at a person-to-person level takes place but 35·2% of interviewing time is spent in handling foodstuffs and vitamin preparations[3] destined for the lower-income group.

A medical officer examined 58·5% of newborn infants at least once. Routine examinations were planned at 6-monthly intervals, minor ailments were occasionally treated and sick babies were examined and referred. Some deaf-screening was done, but the ideal of screening all infants

*Subsequently a family planning clinic providing general medical examinations for adult females and screening for breast and cervical cancer has been started.

from the age of 6 months was nowhere near attained. Hearing tests are crude (there is no soundproof room at the health centre), but sufficiently effective to sort out suspected cases which are then referred to the central unit for more accurate testing.

Preschool children. The infants are usually discharged from the clinic at the age of 2 years whereafter record cards containing valuable data collect dust and pass into oblivion in the departmental archives. Clinics for toddlers have never been introduced. Only 270 preschool children were accommodated in recognized subsidized nursery schools in 1968 and of these 161 had routine first medical examinations and 71 were re-examined. Only a token number had sight and hearing tests, because of higher priority of other services at the time.

Immunization. Statistical data are available for the city as a whole, but further breakdown has not been done. Immunization carried out at the health centre, subsidiary clinics, schools and institutions, always by or under supervision of the medical officer, consists of vaccination against smallpox, immunization against diphtheria, pertussis and tetanus, combined with a course of oral poliomyelitis vaccine. Measles vaccine is available for susceptible children. BCG for the newborn has received priority attention in Bantu areas due to greater need and has not yet been introduced in the White areas. Immunization against rubella has not yet been initiated.

Health education. Apart from health education at a person-to-person level, group discussions at the health centre, arranged by the clinic staff and health education students, as well as sporadic sessions at subsidiary clinics have been attended by the mothers. The health centre has been used for the training of health visitors and visited by student nursery-school teachers and medical students.

Advisory function of the centre. Many inquiries are received which need to be referred to community resources. Due to an inadequate concept by the public of the functions of the health centre, medical and nursing care of acute emergencies are occasionally requested. As it is not always possible to comply, this lack of understanding may cause unnecessary friction and irritation.

EXISTING FACILITIES AND RESOURCES

Medical and allied professions, medical aid and benefit schemes, a nursing home and a Provincial hospital handling also district midwifery and decentralized geriatric clinics provide curative services. District nurses and a psychiatric nursing sister deal with cases which need follow-up. Employers are required to provide health services for certain classes of employees and to comply with industrial hygiene regulations appertaining to employees and premises. Medical examinations by personnel of the Provincial Administration, and dental inspections, with clinics for limited treatment, are available for schoolchildren.

The paucity of organized facilities for the preschool child has already been mentioned. There is no official control of child-minders if less than 6 children are cared for in a home, apart from the immediate family, but a voluntary list has been compiled and these homes are visited by the health visitors. Many preschool children of working mothers are probably left with Bantu domestics but actual figures are not known.

Welfare services are provided by the State through the Department of Social Welfare and Pensions, numerous voluntary organizations at national or local branch level, as well as religious and charitable societies. Many of these represent relatively untapped resources with significant potential.

Cognizance has been taken of transport facilities in siting the health centre as it was realized that health services should be related to road networks, but by having to serve such a large area the health centre cannot be reached by public transport from all peripheral regions.

AN ASSESSMENT OF COMMUNITY NEEDS

Members of the City Health Department, in assessing the extent and permanence of emerging community needs, favoured expansion of child health services to become family health services, improvement of content of available services, and the establishment of additional facilities where a pertinent need had been proved.

In all sections of the community efforts were required to improve health facilities. The health visitor especially was well placed to help, refer and advise. Widening the field of her activities would also mean more job satisfaction. A drastic reduction in her case load would however be imperative. It might no longer be based on new births, if her responsibilities and variety of problems were increased to any extent.

SURVEY OF COMMUNITY OPINION

One of us (S.J.) and 3 health visitors collected and submitted data for collation and analysis to a team of 3 members of the health department headed by another of the authors (M.E.E.C.) who had not had any part in the actual field work done.

Firstly 91 persons falling into the category considered to be community motivators, were interviewed. This group was divided into 2 subsections:

1. *Medical motivators*: A total of 34 included 25 medical practitioners (18 general practitioners, 1 hospital superintendent, 5 specialists from the Provincial hospital in the defined area and one school medical officer), 4 matrons or hospital nursing sisters, and 3 pharmacists. Some general practitioners were in group practices, so one often acted as spokesman for the group.
2. *Social motivators*: A total of 46 social motivators included 16 social workers from a variety of organizations, 10 school principals, 6 nursery-school supervisors, 2 principals of special schools, 11 ministers of religion of different denominations, one member of the police force and an administrative officer of a babies' home.

The second group, a random sample of the community, consisted of 97 Whites and 3 non-Whites. The latter were picked up by the random sampling and although not felt to be a statistically significant group, their points of view were considered to be of interest. The Whites were classified according to age; status of interviewee, e.g. mother, father, grandmother, relative or paid minder; occupation of head of household; and home language.

Two questionnaires were used, covering many aspects of health problems of the area including health education, utilization of and difficulties encountered with existing

services, knowledge of the health resources of the area and requests for suggestions as to what services were required. It was never intended to compare the 2 groups but an effort was made to get an assessment by a representative cross-section of the community as it was felt that motivators would intimate what services were needed whereas the community would say what services were wanted. It was not intended to elicit replies from the motivators by direct questioning, but to encourage discussion. On the other hand, the community sample was asked to list priorities or reply to simple questions by negative or affirmative answers. Pertinent comment by the field worker conducting the interviews, as well as by the interviewees, was noted.

Findings

The first 5 health problems which emerged in terms of the percentage priority ratings of the motivators will be discussed.

1. *Alcoholism.* Alcoholism was thought to be an important health problem by 60% of all the motivators. Among these were 13 out of 18 general practitioners, 12 out of 16 social workers, 7 out of 11 ministers of religion and the one member of the police force interviewed. Apart from being a problem in its own right, involving both sexes, alcoholism was stated to lead to child neglect and child behaviour problems, unhappy marriages, poor diet and nutrition as well as stress and emotional tension. A social worker from the Department of Social Welfare and Pensions stated that 40% of cases seen were alcoholics. A minister thought that the church should tackle the problem. Others suggested that health visitors should be trained for counselling of alcoholics.

2. *Neglected and unattended children.* Six out of 18 general practitioners, 9 out of 16 social workers, 5 out of 10 school principals and 10 out of 11 ministers of religion —in all a total of 40% motivators—thought this was a problem. This group included young children as well as teenagers, and did not only refer to children of working mothers or those suffering from physical neglect.

When the random sample of the community was interviewed 64% of interviewees were listed as mothers, 20% as grandmothers, 11% as fathers and 5% as relatives. Of the 97 White households visited 80% of the mothers were not working. In the 20 - 39-year age-group the percentage rose to 91%. Nevertheless, it appears that even if mothers did not go out to work, children were often neglected and unattended. They were unstimulated, both by parents, according to a psychiatrist, and by non-White nannies according to a minister. This probably accounted for the 'neglected' child. More preschool institutions were needed to counteract this lack. Problems also arose when children became ill in a household where the mother had to go out to work.

Parents were not upset by absenteeism of their children from school even when notified by the school principal. After-school care was needed especially for children of low intelligence, as well as after-school clubs and recreational facilities for normal children to counteract promiscuity and pre-marital sex experimentation. One school principal drew attention to the emotional needs of the teenager.

Drug addiction did not appear to be an overt problem to most motivators, as it was only mentioned by 1 out of 10 school principals, one general practitioner, and not by the member of the police. Nevertheless, 24% of social motivators thought it was a problem and with the picture of unstable family life emerging from this study, their concern was understandable.

Illegitimacy was low down on the list of health problems although one school principal could recall 10 teenager pregnancies in his school. The value of this statement was however minimized as no period of time was mentioned. One general practitioner remarked that some girls elected pregnancy as a way out of their home environment.

3. *Marriage problems.* The social motivators associated marriage problems with neglected and unattended children, working mothers and child behaviour problems. Though mentioned by 9 out of 18 general practitioners and 11 out of 16 social workers, only 3 out of 11 ministers mentioned it as a problem in the defined area.

Causes were variously listed as financial stringency, incompatible personalities, alcoholism, delinquent children, disintegrating family units and sometimes the presence of retarded children in the home. One psychiatrist thought that economic factors led to mothers working, neglect of children and waywardness of teenagers. Lack of parental concern and stimulation led to truancy, alcoholism and possibly drug-taking. Frustrated and non-stimulated teenagers in uninteresting occupations, sometimes in crowded homes, with the cinema as a main interest, tended to marry early. Immature parents resulted.

Mentally ill and unstable parents had a high rating as a health problem by at least one social worker and 9% of medical motivators. The social motivators allocated top priority to family counselling dealing with problems in the family unit, as a subject for health education, especially for young married couples.

4. *The aged.* The aged were considered a problem by 12 out of 18 medical practitioners, 38% of medical motivators, 5 out of 16 social workers and 6 out of 11 ministers. The social motivators pointed out that these people were lonely, poorly nourished, often senile and in need of home help. Transport was a serious problem. They could not reach the hospital, clinics or health education sessions. Loss of faculties, e.g. sight and hearing, or other disabilities also proved serious deterrents to attendance.

Screening clinics were advocated by 90% of the random community sample but it was thought that the aged would probably not take advantage of these facilities and that their anxiety about their physical ailments might be augmented. In this group it was found that 60% thought the elderly posed a problem, though 82% did not have to deal with this problem at the time of the survey. Consent for admission to old-age homes was difficult to obtain both from the elderly person and from the relatives, although 52% said the aged should be cared for in an institution, and only 42% thought the family should carry the responsibility. The two Asiatics interviewed as a part of the random sample presented no problem with the aged, as in this racial group the eldest son had to look after the parents.

5. *Poor diet and undernutrition.* Poor diet and undernutrition, applicable to all age-groups, had to be considered in association with poor hygiene and clothing, poor budgeting, large families, health ignorance, poor infant care and feeding, all of which were enumerated by

the motivators. Only 4 out of 18 general practitioners, 7 out of 16 social workers, the school medical officer and 2 school principals felt this was a problem. Hygiene was bad generally, as well as in some food shops, according to 26% of the social motivators. A pharmacist mentioned ignorance about infant feeding and the occurrence of gastro-enteritis among the non-Whites. Strong comment on dental caries was elicited from a dental officer who screened most of the schoolchildren in this area.

6. *Other problems.* Help was needed by general practitioners in caring for the chronic sick. Illness was a constant source of anxiety, especially for the aged who did not like to be a burden on their families. Social motivators mentioned the needs of the handicapped, especially those suffering from epilepsy. There was a shortage of institutions for the chronic sick and for the disabled and of suitable accommodation for the ordinary citizen.

Immigrants, especially Portuguese, stimulated some discussion, partly because of differences in customs and language. For various reasons they were not averse to overcrowding. It was surprisingly found that the home language of only 5% of the random sample was other than English or Afrikaans, and of these only 2% were Portuguese and 1% Italian.

Comment was made on the prevalence of respiratory disease, which seemed to be aggravated by mine dust in some areas especially in the case of malnourished children. Some ministers thought that venereal disease was more prevalent in certain groups and 9% of general practitioners considered it a health problem in this area. Diabetes seemed to occur often in Portuguese women. Ischaemic heart disease caused concern to one-third of the general practitioners.

Health Education

Half of the medical motivators, especially the specialists at the hospital, felt that health education could prove to be of much value and 10 out of 34 thought it would only have limited value. One general practitioner stated categorically that it would be of no value in this area. A few of the general practitioners would support health education sessions organized by the health department.

All social motivators, except one, were in favour of health education but expressed doubts about its success, mentioning that those who needed it most would not attend. Rather paradoxically only 3 of this group were themselves willing to attend sessions. Lower intelligence in many cases and lack of motivation especially of the fathers, as well as a bored older section in the area, would limit the value of health education.

The members of the community sample found that the approach to health education had to be stimulating and emotional especially for Portuguese males who ruled the family and controlled the attendance of their wives. Talks and discussions in themselves would not be sufficient and should be supported by adjuncts like exhibitions, posters, slides and films. It was postulated, however, that if no interest was shown by this racial group, it was probably due to lack of communication rather than lack of interest. There seemed to be a need of health visitors with a knowledge of the language. Transport was again mentioned as a problem. It was suggested that there should be further decentralization, taking health education to the community by using easily accessible school or community halls. Sessions would be preferred in the evenings according to 53% of the random sample of the community when 41% of the husbands were willing to attend; 13% preferred the afternoon and 34% morning sessions.

The motivators gave top priority rating to nutrition and budgeting, sex education and venereal disease in choosing subjects for health education. The social motivators also included family counselling. Screening for cancer and presymptomatic disease was placed first by the community sample, followed by accident prevention, alcoholism and teenager problems. It was suggested that sex education should be dealt with at school but some principals thought this should be left to the parents. Views of teenagers themselves were needed in deciding on priority subjects for them.

Use of Services at Present Provided by the Department

Use made of available health services was far from the optimum. The services mainly used were those of immunization, child health clinics and control of infectious diseases. The most important environmental health problems, given priority listing, were dissatisfaction with rubbish removal, air pollution, noise and pest control. The majority of the community sample had no comment to make on environmental hygiene. Fifty-five per cent thought that the decentralized health centre would prove to be more convenient for immunization than the centrally placed services, but some preferred the latter.

Knowledge of Health Resources

The majority of social motivators and 47% of the sample of the community were aware of the available health resources but this knowledge was lacked by 52% of the medical motivators. Most motivators requested more information. About 24% of the community sample were being assisted by agencies at the time of investigation.

How could the City Health Department be of more Use to the Community?

The social motivators gave health education top priority as a means of helping the community. Sessions could be organized for selected groups, publicized at churches, with venues at antenatal clinics and housing estates. Forty-four per cent of all motivators agreed that health services should be more efficiently publicized and better liaison established between the health department of the local authority, curative and social services. Regular bulletins, pamphlets and posters were suggested for schools, and possibly for immigrants.

The aged needed improved facilities and social amenities and the general practitioners required the physical help maybe of 'home helps', to handle the aged and the chronic sick at home.

Clinics for family planning, cancer prevention and screening for presymptomatic disease were needed. The referring for legalized sterilization of retarded and mentally defective females after obtaining consent from husband or parent were favoured by social motivators. More regular health checks for preschool children were required with early referring of cases with behaviour problems. More institutions were needed for children especially of working mothers. Annual immunization

checks were valuable preferably in the grade-one classes at school.

On the whole the random sample of the community accepted being interviewed but they did not appear to be aware of preventive medicine or able to differentiate between this and curative medicine, nor did they appear to be particularly interested in health or what the health department of the Local Authority had to offer. Most of them did not know what a health visitor was or what role she played in the community.

Discussion of the Survey

The analysts found that there was an inevitable lack of precise uniformity in dealing with questionnaires. It sometimes seemed as if interviewers had not all been briefed together so that whole sections were not filled in or were crossed out for unexplained reasons. There were variables of interview interpretation but every effort was made to minimize error.

Most motivators were willing to grant interviews. Few general practitioners had more than a superficial knowledge of the problems of the community, and were orientated to curative medicine, discussing health problems only on direct questioning. They confused the functions of health visitors, 'home helps' and district nurses. If the medical motivators, particularly the general practitioners, could be made more aware of the functions of the health department, especially of clinic and health visitor services, and could be more actively involved with the health department there might be less antagonism towards the preventive and promotive health services.

The hospital specialists were knowledgeable about the community and interested in preventive medicine, forming a strong bastion of co-operation. Pharmacists seemed to have a comprehensive view and interest in the health problems of the community. The dentists did not give much thought to other than dental problems, and the nursing sisters and matrons seemed to lack interest and knowledge of health problems outside their institutions. Social motivators were often orientated to their own specialties not necessarily applicable to the problems of the area studied, but showed great interest in the survey.

DISCUSSION OF THE PROJECT

The literature was reviewed following the planning of the project and was carried out by one of us (A. du T.) who was not involved in the field work. As no evidence of a comparable study was found to have been undertaken in a similar racial, socio-economic setting only broad comparisons could be made and conclusions drawn.

The three-tier system of health control in the Republic of South Africa, consisting of State, Provincial Administration and Local Authority, produces an artificial division between curative and promotive and preventive health services. The role of the general practitioner remains predominantly curative. However, the health officer[4] could make a unique contribution to plan, develop and evaluate programmes for the maintenance of health and control of disease through his utilization of epidemiological knowledge. In addition, it has been[5] maintained that the local authority must assume wider responsibility for the prevention, treatment and relief of social problems, especially with regard to the very old, and the under-5-year-olds, the physically and mentally handicapped, disturbed adolescents, and for the neglected flotsam and jetsam of society.

Major Health Problems in the Defined Area

1. *Alcoholism.* Listed as the most important health problem in this area by 60% of all the motivators, alcoholism was also considered in an editorial[6] to warrant high health educational rating. The new focus was not so much on treatment as on early recognition. Frequent absenteeism, inferior work and deteriorating relationships with colleagues, could act as alerting signals to employers. A warning that employment was jeopardized and that a medical report would be needed had been found to be a successful line of approach to employees. The referring of cases to appropriate organizations, publicizing of the inherent dangers of this addiction, information weeks, early recognition of cases and follow-up of more advanced cases released from detoxifying clinics, are all within the scope of the health department of the local authority.

2. *Problems of the family unit.* The second, third and fifth health problems in order of priority—i.e. neglected and unattended children, marriage problems, and poor diet and undernutrition—are so interrelated that they can be discussed as problems of the family unit. The problem of poor diet and undernutrition is however also applicable to those living alone.

The instability, insecurity, and permissiveness of modern society is closely paralleled in a large section of the White population studied.

The community, markedly family-centred, withdraws into the family fortress in time of stress and emotional tension, and fails to make use of available social amenities. With a seeming fear of change, families show reluctance to move out of the defined area once they are firmly established. Problems stem from a disruption of family life, a breakdown of social structure, loss of standards of behaviour and maybe loss of faith. It has been noted that parents in the defined area are often young and immature. They may be overwhelmed by difficulties in the home, tend to neglect their children and fail to give them the attention and stimulation they need.

Our knowledge of the teenagers in this particular area is limited, and a clear picture has not emerged from the survey. Nevertheless illegitimacy, emotional problems, venereal disease and drug addiction have been mentioned by the motivators. Drug addiction has not, however, been found to be a serious problem in this area. Bored teenagers, looking for distraction, may behave antisocially. Catterall[7] in the United Kingdom stated that in boys antisocial behaviour took the form of aggressiveness, destructive acts, violence and group fighting, whereas in girls such behaviour was usually sexually orientated, taking the form of promiscuity, leaving home, wandering about large cities, and often becoming prostitutes. He mentioned that ignorance especially of the facts of sex and venereal disease was rife, and resulted in frequent infection and failure to seek medical advice. In the area studied illegitimacy was found to be a problem by 15% of social motivators and in 1968 the percentage of illegitimate White births was 1·95%. This figure compared favourably however with a 2·8% rate for the whole of Johannesburg. Russell[8] claimed that in England and Wales the number

of pregnancies in girls aged 13 - 15 had risen from 0·8 to 3·28/1 000 between 1956 and 1966. He felt that there should be a wider recognition of the alarming rise in the number of these pregnancies and favoured a reappraisal of parental responsibility.

Family counselling, mainly dealing with problems in the family unit, especially in the case of young married couples, was listed as a top priority for health education by the social motivators.

Cunningham[9] holds that such counselling is especially needed by parents of retarded children to help them accept the limitations of the child and situation, provide orientation towards a constructive programme of rehabilitation and advice about possible pathology in further children. In Denmark[10] child and youth welfare committees provide a family guidance service which functions mainly in the home. Use is made of qualified paid personnel and the local authority is expected to assist in handling special difficulties by providing the services of a physician, psychologist, lawyer or other expert. Some local authorities in the UK have instituted 'family advice centres'.[11] Gunn[12] has advocated 'teenager advice centres' as he felt that the young, single girl needed education, protection, help and surveillance because of her especial medico-social vulnerability.

In Johannesburg limited family counselling is provided in homes visited by health visitors. However, the support of a psychiatrist and the appointment of a health visitor with additional psychiatric training is essential to advise the personnel in dealing with or referring problems such as abnormal child behaviour, marriage difficulties and psychiatric cases. Close liaison is essential with the social workers of the State Social Welfare and Pensions Department as well as voluntary organizations.

Disruption of family life by mothers working has not been established by this survey as 80% of the mothers in 97 households visited were not working, yet the social motivators linked marriage problems and neglected children with mothers in employment. Gregory[13] found in Paddington that the outstanding impression of a survey of child-minders was that of widespread disorganization rather than terrible child neglect. She noted that in spite of the difficulty of finding reliable and adequate substitute care, most mothers in her survey did not seek advice about minding facilities from health personnel. Frequently they seemed unaware that the health visitor might be able to help them. More preschool institutions, as advocated especially by the social motivators, would provide neglected and unattended children with stimulation, play facilities, supervision and companionship.

The problem of poor diet and undernutrition is mainly applicable to the very young, the old and those living alone. Existing child health services attach much importance to advice on infant feeding, but Richards[14] pointed out that 40% of Scottish mothers interviewed in a nutritional survey did not seek professional advice about infant feeding but accepted advice from untrained persons. Less than one-third of mothers interviewed in Glasgow said they would ask advice from the health visitors. According to Gunn[12] 'subnutrition', though not actual malnutrition, was found in teenagers living independently in 'bed-sitterland'.

3. *The care of the aged.* The fourth major health problem, according to the motivators, was the care of the aged. Relatives and neighbours, themselves sometimes of retiring age, share the burden of much illness and chronic disability in the elderly. Glajchen[15] maintained that of 4 003 White patients over the age of 65 years admitted to Johannesburg Hospital in 1963 and 2 936 discharged home, 1 160 lived virtually alone or were dependent on neighbours or paid servants for assistance. Of these 352 were still housebound, bedbound or blind and thus not able to fend for themselves. Boucher[16] recommended clinics for relatives of the elderly in hospital, to furnish information on their progress and to advise on their rehabilitation after discharge.

Based on the findings of the present survey we are convinced that a preventive geriatric clinic is needed at the health centre, not to replace curative services but to complement them, and to provide an opportunity to the elderly and their relatives to air their problems in a relaxed atmosphere. By this means and by clinical assessment problems may be discovered, handled or referred before deterioration has become so great that preventive action is only marginally possible. At a Toronto geriatric health centre[17] it was found, for instance, that though only a few elderly persons thought they were in poor health at the first visit, yet significant afflictions were found in more than one-third, and 50% of cases needed recall within 6 months. Wilson and Jungner[18] maintain that there is considerable scope for clinics for the elderly as defects of special senses and of locomotion constitute great handicaps but are not usually considered clinically urgent by the patient. Vickery[19] stated that the biggest single cause leading to premature admission of the elderly to hospital was improper feeding habits.

The expertise of social workers, chiropodists, physiotherapists, nutritionists and others should be available to the geriatric clinic personnel. A register listing a particular age-group seems neither desirable nor economical except perhaps for the over-75-years group for the purpose of surveillance. Arrangements for transport of the elderly to and from the clinic, maybe as a voluntary service, is essential. In dealing with the elderly at home an organized home-help service run by the local authority has been strongly recommended. All unfit elderly persons, especially those living alone or being looked after by one person only, should be known to the authorities[20] as the illness of an only companion might lead to a social crisis for the aged person.

Much professional and skilled-craft talent among the recently retired could be referred to employment agencies as there is a slowly increasing reserve of men past 65 years who are ready to take on part-time work and at present their skills are 'tragically wasted'. A voluntary agency could organize lists of sitters-in, night attendants and volunteers to help the handicapped and housebound with small personal services. Whenever possible the elderly should be encouraged to join community groups such as over-60 clubs, work centres or day clubs. Short periods of admission to old-age homes, to relieve pressure on the family, might be valuable.

Improvement of Existing Services

1. *Decentralization.* Warin[21] in Oxford maintained that health visitors should work in close co-operation with

the general practitioners, ideally from the same practice premises such as a health centre. In Oxford only 2 of the senior nursing personnel were housed centrally. Cooper[22] stated that in Cape Town the maternal and child welfare centres were never more than ¾ mile from the furthest dwelling served.

The health centre under discussion was planned to decentralize both family health and health inspectorate services so that these services would be readily available at the point of need. It was anticipated that the quality of community care would be improved, that civic pride in the centre would be stimulated, that excellent team spirit and liaison would be obtained, and that travelling time of the personnel between the centre and the community would be diminished. As far as family health services are concerned, results have been gratifying. In the case of environmental health services it has been stated that the interrelationship and constant intercommunication of different sections made decentralization impracticable and that community needs were adequately met. By contrast it is noted that in Cape Town[22] environmental services have always been decentralized. Divisional health inspectors, stationed at child welfare clinics for 1½ hours per day, are responsible for all except a few sections requiring specialization, e.g. milk control and pest control. According to Semple[23] there are no environmental services based on the health centre in Liverpool, though he thought this might have some merit. Didsbury[24] in the UK stated that the emphasis at the health centres was on the personal rather than on the environmental services. Health inspectors were usually based at municipal offices rather than at the centres.

With the present central control we can only visualize partial decentralization, but it is strongly urged that the area health inspectors attend the health centre at specified times to discuss problems encountered by the personnel and to interview members of the public by appointment.

2. *Home visiting.* It has been amply proved that the health visitor's function is primarily in the home. Visiting must not be confined to the infant, but include all those in need with emphasis on the under-5-year-olds, the elderly, the mentally and physically handicapped and the chronic sick.

Care and aftercare of tuberculotics, contact tracing and follow-up of venereal disease defaulters, and prevention of spread of infection, as well as field work in research projects, must also fall within the scope of her activities.

It has been said that the role of the health visitor should be that of a medico-social worker.[25] Her training, orientated towards nursing and preventive medicine, should form a background to her new role as 'health educator and social advisor'. An expanded health service as envisaged must make use of her full potential and would have to be based on a completely different assessment of case load. The number of new births in the area, the actual population figures and the size of the geographical area allotted to her would have to be carefully considered. The optimum ratio which has been suggested between clinic and office: domiciliary work is 4:6. In the UK, where health visitors have been attached to medical group practices, Warin[21] in Oxford has one health visitor responsible for a population of 5 700 persons as well as for her other duties like health education, child health clinics, responsibility for nursery and infant schools and liaison with hospital personnel. Many variables have to be considered, e.g. a practice of 9 000 in a student area may only need one health visitor, whereas a practice with a high percentage of elderly people or immigrants requires extra help. Parish[26] suggested 1:6 000. Byrne[25] stated that 1:4 300 was recommended by the Health Visitor Working Party as long ago as 1956. Akester and MacPhail[27] in Leeds found in a survey that the average health visitor dealt with a parish one square mile in extent with a population of about 8 000. In the present survey the area covers 22 square miles (roughly 5 700 ha) and had a White population of roughly 65 000 in 1968. There are 6 health visitors at the health centre. Not allowing for the smaller case load of the organizing supervisor, each health visitor would thus be responsible for a district of about 4 square miles (1 036 ha) and a White population of 11 000. Taking 150 new births and 6 000 persons per health visitor as an acceptable case load, almost double the present complement of staff would be needed.

A very important administrative change in the National Health Service has been brought about in the UK by the attachment of health visitors to group practices. The scheme may take the form of 'attachment' or 'liaison'. In the first case the health visitor is responsible for all patients on the list of a general practitioner or group practice within the local authority boundaries. In the second case she is responsible for a district and also visits the cases of the general practitioner in her area, but when the patients are outside her area, she liaises between the general practitioner and the appropriate health visitor. As the health visitor and the general practitioner often work from the same health centre, close contact can be maintained. For her it means more medico-social problems, but an increased range of work and eventually more job satisfaction. The general practitioner benefits as the health visitor can provide case background, liaison and follow-up. Vaughan[28] warned, however, that the criteria of the success of attachment schemes in terms of benefit to patients had never been defined.

A spate of articles and surveys on different aspects of these attachments has been published in recent years.[21,26-28] Most authors are enthusiastically in favour. Player[34] found in a pilot scheme of attachment between local authority personnel and general practitioners that the pattern of the work of the health visitor changed remarkably although the actual number of home visits decreased. Most visits were still made to the under-5-year-olds but increased visits were made to the elderly, problem families and the mentally ill. The handicapped had better supervision. A better relationship was established between the health visitor and the general practitioner.

In 1964 Akester and MacPhail[26] stated categorically that attachment schemes in Leeds were neither feasible nor desirable but in 1966[27] on reassessment they found that the two-way traffic of cases between the general practitioner and health visitor had increased substantially following attachment. They seemed to accept the new trend but were still wary of the possible misuse of health visitor skills by expecting her to spend an excessive amount of time with the aged, resulting in consequent neglect of

other duties.

Warin[21] started attachment schemes in Oxford in 1956 and by 1965 all the local authority nursing staff had become attached to practices. He is convinced that the future of the health visitor lies in this direction. The development has been widely accepted as practicable in the United Kingdom. A Group Practice Health Visitor's Course has even been started to prepare students for such work in the community.

In the Republic of South Africa it has so far not been considered as a possibility as group practices are essentially profit-making in contradistinction to what obtains in the UK with a National Health Service. The attachment of local authority personnel here could cause dissatisfaction. An experiment in attachment in Assen[37] in the Netherlands also merits study. The concept is similar to that which obtains in the United Kingdom but different in application because of differing health services. A pilot study in the Republic of South Africa might be considered with the attachment of a health visitor to doctors working in the outpatient departments of the provincial hospital, especially if an extension of an outpatient department could function at the health centre.

3. *Child health clinics and the preschool child.* Existing local authority child health services have loosely been confined to the infant under 2 years. A unified child health service is, however, needed from birth to school-leaving age. Either the local authority should extend the age limit to school-going age, or the school medical service of the Province should include the 2 - 5-year age-group. Continuity of care is essential. Ideally the health visitor is also the school nurse and clinic record cards are available when the child goes to school. Erasmus[38] advised that the health services at creches, nursery schools and schools should be uniformly controlled.

The health of the preschool child could alternatively be supervised at the child health clinics. No disruption of services is expected because of a preponderance of the older age-group as attendances at child health clinics always drop after the age of 2 years. Miller[39] pointed out that in Scandinavian countries nearly 95% of all children under the age of one attended child health clinics and an almost equally high percentage in their second year but attendance dropped to as low as 41% between 2 and 7 years in Sweden. In Britain only just over 20% received some preventive services between the ages of 2 and 5 years.

With advances in medicine and surgery more lives are being saved, including those with congenital abnormalities and birth injuries with a resultant increase in mentally and physically handicapped children. There is a growing need for doctors specialized in developmental paediatrics who will be able to provide screening tests for detection of handicap at optimal ages. Sheridan[40] maintains that developmental screening is much more complicated than it appears to be at first sight. Comprehensive courses have been initiated in the UK. Child health clinics should become assessment clinics[41] and have close liaison with the hospital paediatrics department. Ideally the local authority doctors should hold part-time posts in hospital or hospital assessment clinics. Genetic counselling by specialists should be available. Consideration must also be given to the employment of general practitioners on a sessional basis at health centres.

An 'at risk register' for potentially handicapped children was evolved in the UK some years ago. It was thought that most handicaps occur in a group of infants who could be identified by their histories and that such a group would be small. Some local authorities found, however, that they had to include as much as 60% of births in the 'at risk' group. Hamilton *et al.*[42] in Glasgow found that only 30·6% of all handicapped children surviving the neonatal period had a history of risk factors. Rogers[43] evaluated the 'at risk register' in 1967 in Reading. With an average of 49% of newborn infants on the register he found that only about half the handicapped cases were detected. He felt that, though the register had been a valuable concept to increase 'risk awareness', developmental screening had to be applied to all children. In both these surveys handicaps would have been missed if the search had been confined to those 'at risk'.

A special record card showing developmental progress is needed at the child health clinics. Such a card is being assessed in the UK and a further card has been suggested for the preschool child which would satisfy two conflicting demands, i.e. to furnish tabulated medical data which can be computer-processed and descriptive recording which is essential in developmental paediatrics.[43]

4. *Immunization.* Immunization in the defined area as well as in the rest of Johannesburg is receiving constant attention. With a full complement of staff no problems are anticipated. Known pockets of subnormal immunization and immigrants merit special attention. Richards[34] reported that the use of a computer to automatize immunization appointments had given very satisfactory results.

5. *Health education.* Health education should be an integral part of all health services and all health personnel should take an active part. Programmes to meet priorities must be adequately planned so as to get the public to co-operate and to maintain maximum drive towards the defined objectives in terms of the varying community need. There should be constant evaluation to assess whether the public is co-operating and the conditions are being brought under control. General practitioners could make use of the health education facilities for their patients.

6. *Control of communicable diseases.* Follow-up, treatment and contact tracing of cases of tuberculosis, venereal disease and infectious fevers should be dealt with from the health centre with directional control from the central administrative unit.

7. *Screening for presymptomatic disease.* In the area under review no screening programmes have been carried out for adults, but at child health clinics and nursery schools all routine examinations aim at discovering defects and disease at the earliest possible moment. We agree with Wilson and Jungner[15] that case-finding should be a continuing process, not a once-and-for-all project. Multiple screening of 'at risk' groups combining a battery of tests to identify five or more diseases have been tried for short periods, notably at Rotherham[44] and in Devon.[45] Cochrane and Elwood[46] maintain that before embarking on extensive screening programmes there should be valid evidence that the screening process will lead to significant change for the better in the natural course of the disease at a reasonable cost to the community. Tests should be simple, inexpensive, reproducible and acceptable to the subject. The sharpest criticism of multiple screening is that the patient

may mistakenly believe he has a clean bill of health.

Keeping in mind that the highest mortality rates in the area served by the health centre as well as in the whole of Johannesburg were found to be firstly due to diseases of the circulatory system including coronary thrombosis and secondly to neoplastic disease, these two conditions deserve consideration:

(*a*) Ischaemic heart disease. The high-risk factors in ischaemic heart disease as outlined by the WHO Working Party according to Wilson and Jungner[38] were high serum lipids, high blood pressure, diabetes mellitus, cigarette smoking, overweight and stress. It might be possible to identify a particularly high-risk group for whom there would be a special incentive to stop smoking, reduce weight and increase physical activity. We are in agreement with Walker and Bersohn[47] that screening for those at greatest risk is essential, but a practical difficulty in implementation would be that such clinics would have to function in the late afternoon or evening when personnel are not normally available.

(*b*) Neoplastic disease. The need to establish a clinic for cancer prevention* is indicated by a study of Tables II - IV. The aim would be to alert the public to an awareness of precancerous conditions and the early signs of cancer with the referring of cases of detected deviations from the normal for further diagnosis and treatment. The primary focus is initially on easily accessible sites such as skin, oral cavity, breast and cervix.

FUNCTIONS OF AN IDEAL HEALTH CENTRE

After assessing the community needs in terms of what can be provided and the needs from overseas and local opinion, it seems to us that the functions of an ideal health centre for this area would be the following:

1. The establishment of a family health service with health visiting as the primary function of the health visitor, available to every community member, providing family counselling, health education, medico-social and psychiatric help.

2. Provision of the following: medical examinations and health supervision, deaf-screening and eye-testing of all infants and preschool-children at optimal ages; developmental paediatric assessment from infancy to school-going age; immunization and control of communicable disease; a child guidance clinic; a geriatric clinic to complement curative services; a family planning clinic; screening for presymptomatic disease with high priority rating such as ischaemic heart disease and neoplastic disease; services to combat alcoholism; and a home-help service especially for the aged and chronic sick.

3. Establishment of a close link with all community resources.

4. Inducing the provincial authority to establish decentralized outpatient services at the health centre.

5. Inviting general practitioners to make use of the health services of the centre and to take part on a sessional basis.

6. Partial decentralization of environmental health services by stationing health inspectors at the centre for specified times to discuss problems with personnel and members of the public.

7. Publicizing the services of the health department of the local authority.

8. Appointment of the following: part-time consultants in paediatrics and psychiatry; some health visitors with specialized training in psychiatry or orthopaedics; paramedical personnel, especially for the geriatrics clinic, such as a chiropodist, a physiotherapist and a nutritionist; a full-time social worker liaising with the Department of Social Welfare and Pensions.

Regrettably, until such time as the pattern of health services and their financing in the country is changed to make such a service possible, interim measures only can be introduced. All efforts should be made to raise barriers and lift restrictions to allow implementation of the services suggested.

*A clinic combining cancer prevention and family planning has been started at the health centre since the beginning of this survey.

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