Report of the Commissioner of Public Health / Western Australia.

Report for the year 1979

Commissioner of Public Health

Western Australia

REPORT of the Commissioner of Public Health for the year 1979

Presented to both Houses of Parliament

THE HONOURABLE R.L. YOUNG
MINISTER FOR HEALTH

Sir,

I have the honour to submit the Report of the Department of Public Health for the year 1979.

I commend the reports of branches to you and can assure you that, without exception, all officers from the branches have worked exceedingly hard and effectively to promote and further the public health of the people of Western Australia. May I express my gratitude to them for their loyalty and co-operation.

JAMES COLUMBA McNULTY
J.P.,M.B.,B.C.H.,B.A.O.,D.I.H.,D.P.H.,
F.R.A.C.M.A.,M.(F.O.M.)R.C.P.(LOND.).
COMMISSIONER OF PUBLIC HEALTH

CONTENTS

Legislative amendments undertaken for 1979 are set out hereunder:-

ACTS

Health Act Amendment Act 1978 - No.47 of 1978

Proclaimed and Gazetted on 16 March 1980 except for paragraph "a" of Section 3 and Section 30. (Details were as previous submission.)

Paragraph "a" of Section 3 and Section 30 proclaimed on 21 December 1979, deals with the Health Laboratories Services. The State Health Laboratories to be part of Health Laboratories Services. Minister may appoint a Committee or Committees as he determines to advise on any proposal to expand or create new areas of the service. Provisions for regulations and fees.

Medical Act 1939 - 1979

The amendments to this Act relate to the Conditions of Registration as a medical practitioner. The amendment includes the new periods of time for a medical officer to be employed in a hospital etc., this is dependent upon the length of the course completed. The United Kingdom and Republic of Ireland are now places recognised by the Board as examining bodies.

Also reference to "licencing bodies" has been replaced by the Australian Medical Examining Council and proposed medical practitioner must pass the examination set by the Council.

The amendments include new restrictions on administration and anaesthetics in certain cases.

Dental Act 1939 - 1979

The amendments to this Act relate to the powers of the Dental Board and a general increase in fees payable for penalties. Amendments have been made to the Conditions of Registration of Dentists, and also to the qualification requirements of Dental Therapists. The amendments also included that instruction in dentistry may now be given to students at a place approved by the University.

Radiation Safety Act 1979

The amendments to this Act provide additional grounds for the Council to refuse a licence or renewal of a licence.

Health Education Act 1958 - 1979

The amendments to this Act provide additional grounds for the Council to refuse a licence or renewal of a licence.

Health Act 1911 - 1979

The amendments to this Act relate to the requirements of Meat Inspection and Branding. Also rates for fees payable for meat inspections carried out and requirements on sale, movement and storage of meat.

REGULATIONS

Piggeries Regulations

These Regulations have been amended on 18 May 1979, 15 June 1979, 13 July 1979, 19 October 1979 and 2 November 1979.

All amendments are concerned with scheduling new areas or districts where piggeries may be carried on. (Section 191 Health Act refers.)

Food and Drug Regulations

Amended 9 March 1979, Regulation H.12 Dairy Blend (Emulsion) requirements of manufacture and labelling.

Amended 9 March 1979, Regulation Q.O.4 Beer, Ale, Stout, Reduced Calorie Beer. Definition of. Setting alcohol levels of low calorie beer and labelling requirements.

Amended 9 November 1979 Regulation D.O.4 Packaging, Storage, Inspection and labelling of Oysters and other Shell fish.

Poisons Act Regulations

Amended 1 June 1979 - New application fees for Poisons Licence holders - increased.

Amended 5 October 1979 - New Permit - Stockfeed Manufacturers Permit.

Amended 7 December 1979 - Amended appendix C and D of Regulations. (Not schedule to Poisons Act.)

Chemicals in appendix C require First Aid Measures
Chemicals in appendix D require Warning Statements

Chemicals have been added and deleted.

Midwives Regulations

Amended 18 May 1979 - Deletion of Trichlorethylene from the table in Regulation 8. Regulation 8 - The table states the anaesthetic, concentration and apparatus to be used.

Amended 21 December 1979 - New "Notifications of Case Attended" Form.

Meat Inspection and Branding Regulations

Amended 23 November 1979. Schedule C amended.

Shire of Dardanup and Town of Narrogin from Scale A to Scale B.

Shire of Merredin from Scale B to Scale C.

Amended 21 December 1979. Schedule C amended.

Shire of Capel from Scale A to Scale B.

Note - Schedule C states fees payable.

Scale "A" - Fees payable to the Commissioner.
Scale "B" - Fees payable to the Local Authority for the district.

Pesticides Regulations

Amended 1 June 1979.

Increase fees payable for applications for Registrations and licences.

New Regulation 9.AA added - this requires a fee of $10 to be paid with an application to alter the text of a label of a registered pesticide label.

Maternity Homes Regulations

Amended 9 March 1979.

Alteration of pounds to $ dollars in Regulations 2a and 2c.

Chiropodists Regulations

Amended 30 March 1979.

Requirements for attainment of age 21 years in two Regulations deleted.

Physiotherapists Regulations

Amended 30 March 1979.

Requirements for attainment of age 21 years in two Regulations deleted.

Public Buildings Regulations

Amended 30 March 1979.

The word "Male" was deleted from Regulation 47(a).

This Regulation concerned requirements for Certificate of Competency as a Fire Guard.

Health Laboratories Fees Regulations

Amended 21 December 1979.

Includes procedure for calculation of fees for Pathological services. Minister may determine that fees do not apply or should be a lesser amount.

STATE HEALTH LABORATORY SERVICE

The State Health Laboratory Service provides a unique network of laboratories serving all of Western Australia. Small laboratories in the smaller country hospitals with regional laboratories at the regional hospitals are linked to a central laboratory at the Queen Elizabeth II Medical Centre site serving the metropolitan area and the Sir Charles Gairdner Hospital.

The three users of laboratory services on that site, the Department of Health and Medical Services, the University of Western Australia and the Sir Charles Gairdner Hospital, have progressively agreed to operate integrated and combined laboratories in many areas. This has been very successful and great credit is due to the Laboratory Users' Liaison Committee (and its Chairman, Dr. W.D. Roberts), which is responsible for the operation of the combined laboratories.

The Director, Dr. V. Blackman, provides a comprehensive report of the operations of the State Health Laboratory Services. Work load continues to increase and this growth has been sustained without increasing staff numbers. The laboratories also provide essential State needs in public health microbiology and forensic medicine.

CHEST AND TUBERCULOSIS BRANCH

The incidence rate for new cases was 13.7 per 100,000 which was an increase on the previous year's figure of 11.7. This increase relates largely to non-pulmonary disease; the incidence of pulmonary tuberculosis remaining at 9.7 compared to 9.6.

Of the 169 new cases, 50% (89) were born outside Australia - 40 of the latter being Vietnamese nearly all of whom had been in Australia for only one year.

Dr. J.T. Cassidy, the Director of the Branch, reports some concern over the present lack of an active case finding programme. There has been a significant increase in the number of reactors found during epidemiological tuberculin testing. He also draws attention to a suggestion of an increased incidence of pulmonary tuberculosis in the elderly and suggests that doctors should be encouraged to x-ray patients aged 45 years and over, particularly if they are on steroids or immunosuppressive drugs.

99806—2

EPIDEMIOLOGY AND SPECIAL SERVICES

A new immunisation schedule, uniform throughout Australia, was introduced following a recommendation by the National Health and Medical Research Council. The new schedule has been widely accepted by medical practitioners and by the general public. There was a satisfactory increase in the number of immunisations given.

The acceptance for rubella vaccine among year eight girls was 82%, the highest recorded since the commencement of the campaign in 1971. The rubella vaccination campaign was introduced to provide protection during child-bearing years. The population up to age of 25 is now largely protected. Unfortunately, we cannot be as confident of the immune status of migrant women of child-bearing age; this and the trend towards a later age for child-bearing exposes a non-vaccinated, possible non-immune population, to rubella infection and the risk of foetal abnormality.

VENEREAL DISEASES CONTROL BRANCH

The retirement of Dr. Arthur Newnham was much regretted. The very considerable control achieved over venereal disease and the significant reduction in incidence were largely due to his skill, dedication and enthusiasm. He was succeeded by Dr. M. Gollow who has provided the report for 1979.

There has been a gradual slowing down in the decrease of notifications for venereal disease, but there is still a total decrease of nearly 46% since the peak year of 1975.

Previous reports have referred to the need for continued effort and the avoidance of complacency. Whilst there is no evidence whatever of any threat of an increasing incidence, the slow down in the fall is noted and continued effort is obviously required.

The report also gives an indication of the liaison and co-operation which is being achieved through a wide range of health and community services.

COMMUNITY AND CHILD HEALTH SERVICES

Dr. Dick Roberts resigned to enter general practice. His resignation was regretted. He had presided over the very successful amalgamation and integration of the three sections of the community based health services. Dr. C.F. Quadros was appointed Director but the report was prepared by Dr. Judy Henzell, who has been Acting Director during 1980.

The report should be read in full, particularly for the information on the very considerable improvement in Aboriginal health.

Infant mortality generally in Western Australia is low and the figure of 8.7 per thousand live births in the metropolitan area is the lowest as yet recorded and must be one of the lowest in the world. Aboriginal infant mortality also continues to fall and the figure of 27.5 per thousand live births is the lowest yet achieved and almost certainly the lowest in Australia.

The Branch is not complacent and appreciates that there must be further improvement having this as one of its principal objectives. The effectiveness of measures to improve the health of Aboriginal people is enhanced by the progressively greater involvement of Aboriginals themselves in the delivery of health care.

COMMUNITY HEALTH PROGRAMME

Dr. Lawson Holman has continued to personally supervise the operation of the Community Health Program. Unfortunately limitation of funds prevented significant expansion or the development of new projects, in fact, there has been difficulty even in obtaining sufficient funds to maintain approved projects at existing levels of activity. However, attention to detail, pruning and achievement of small savings has resulted in some expansion which is outlined in the report.

The Mandurah Day Care Centre, the Claremont Community Health Centre and the Cervantes Community Health Centre were opened during the year.

PHARMACEUTICAL SERVICE BRANCH

Mr. W.M. Griffiths, Principal Pharmacist, has outlined the activities of his Branch during the year.

The appointment of Mr. L. Rappeport as Pharmacist at the Alcohol and Drug Authority has stimulated closer liaison between that Authority and the Department.

Recommendations of the Poisons Advisory Committee which were implemented during the year included special legislation to control over-the-counter sales of analgesics, re-drafting of the Prohibited Substances list to include hallucinogens and the gazettal of a new consolidated Appendix for the Poisons Schedule, and the compiling of a new list of poisons and hazardous substances required to be labelled with first aid measures. These new labels for dangerous substances help to warn users of the nature of hazards in their use and advise of simple corrective measures to avoid the hazards.

DENTAL HEALTH

By the end of the year, 415 primary schools throughout Western Australia were serviced by 105 Dental Therapy clinics and training schools.

A service is now provided for 123,000 primary school children representing 72% of the total enrolled primary school population.

Dental Health education and the public promotion of oral health remains an important objective. Subsidised dental care is provided for children, pensioners and other adults and some 3,456 people were assisted at a cost of over $400,000.

Mr. Prichard, the Director, continues to provide a high quality and very successful public health programme despite uncertainty regarding the amount and ratio of Commonwealth funds.

NURSING SECTION

Miss E.L. Bohan in her report draws attention to the differences in staff turnover and recruitment in the various parts of Western Australia. The emergency nursing service provides an essential backup to fill gaps at short notice in under-staffed country hospitals and nursing posts.

There has been a further increase in the number of home births.

Miss M. Reid has provided a separate report on Community Nursing Services. This reflects the changing and increasing roles developed by public health nurses, particularly in the examination of children for developmental, hearing and visual problems. The policy of employing Aboriginal nursing aids, field assistants and camp nurses to work under the guidance of field nurses has proved very successful.

OCCUPATIONAL HEALTH

The Occupational Health Section notes an increasing work load associated with an intensification of public interest and anxiety on occupational health and environmental health matters.

Dr. A.G. Cumpston, Director from 1975 to 1979, retired during the year and Dr/ Heyworth was appointed to succeed him.

Asbestosis, silicosis and mesothelioma registers have now been established. These will provide useful indicators of the incidence and prevalence of these diseases.

There has been an increase in enquiries and complaints concerning community noise and the report outlines the action which has been taken to abate this nuisance or action which is proposed.

Hearing conservation measures continue but are relatively ineffective in the absence of regulations.

The Clean Air Section provides details of monitoring of air pollutants mainly in the metropolitan area and at other selected outer areas.

The report reflects the very great deal of valuable work which is proceeding behind the scenes under Mr. R. Powell, the Senior Engineer, to reduce air pollution and to provide background information to permit the continued development of Western Australian industry without any necessary addition to environmental air pollution.

STATE X-RAY LABORATORY

Mr. B.E. King outlines the objectives of the State X-Ray Laboratory Division. These are designed to protect the general public from unacceptable levels of radiation, to guarantee patients minimum exposure during diagnostic procedures and to ensure as low levels of exposure as possible for persons working with radiation.

The inclusion of non-ionising radiation in the provisions of the Radiation Safety Act has caused a considerable increase in work load and complexity.

Proposals to mine and mill radioactive ores pose fresh problems and officers of the Division are working closely with other agencies in Western Australia and the Commonwealth Government in the development of safe Codes of Practice.

LIBRARY AND TECHNICAL SERVICES

Mrs. B. Proud outlines the type of service and the volume or work done by this Branch. The volume of work and the demand by all branches and by other agencies puts great pressure on the staff, but is a reflection of the need and of the interest and commitment shown by individual officers which must be encouraged.

HEALTH SURVEYING BRANCH

The Health Surveying Branch is administered by Mr. Jack Slattery and he has provided his usual comprehensive report.

Of interest is his officers' involvement in the Encephalitis Research Programme in the Kimberley. A number of officers have now received special training in mosquito identification and control at the National Mosquito Control Course at Mildura.

The outstanding incident during the year, of course, was the Salmonellae muenchen epidemic. The work done by the officers of the Health Surveying Branch, by Health Surveyors of the Local Authorities and by the State Health Laboratory Services, and the co-operation of the chicken processing industry was outstanding. It has drawn attention to the need for increased education and training in food handling. The salmonella tracing work at the State Health Laboratory Services which notes and tracks the entry of new strains of salmonella into the food chain proved its value.

It is worth noting Mr. Slattery's comments on Rottnest Island. The health standards on Rottnest have improved steadily over the years particularly since the installation of a sewage treatment plant to service the old settlement area and the secondment by the Department of an officer to provide a health service during the Summer season.

FOOD AND NUTRITION SECTION

The completion of the Australian Uniform Food Bill has preoccupied Mr. John Edinger during the year. It is hoped to present a preliminary draft for adoption to the Health Ministers' Conference in 1980.

Work was also commenced on Uniform Food Regulations.

An amendment to the regulation for Beer established a Standard for "Reduced Calorie" Beer, which is in effect a beer with a lower alcoholic strength than "Normal" beer.

STATISTICS BRANCH

As Dr. Marlene Lugg indicates, this report is shorter and in future detailed tables and the analysis data will be published separately in a health statistics series.

The take over of hospital morbidity statistics from the Australian Bureau of Statistics is proceeding satisfactorily.

The data base progressively developed by this Branch is becoming increasingly important in the management of a wide variety of activities in health and medical services.

Appendix I

STATE HEALTH LABORATORY SERVICES

V. Blackman,
M.B.B.S., M.R.C.S., L.R.C.P., F.R.C.Path., F.R.C.P.A., D.P.H., D.C.P.
Director

1. INTRODUCTION

The year has been one of slow and steady growth in work load, amounting to some 3.5% in the Central Laboratories and 12% in the branch laboratories, an overall growth of 6%, which compared with a growth of 2% in 1978. This growth has been sustained without increasing staff numbers, in line with stated policy.

The fluctuations in work load of branch laboratories are difficult to explain except by temporary influence of the Federal Government's propaganda against overuse of pathology testing in 1978. Following an increase in branch laboratory work load of 17% in 1977, there was a drop of 4% in 1978 and another increase of 12% in 1979, not confined particularly to any one geographical area of the State, and not due to opening of further branch laboratories (see Table I B).

Revenue collection has shown a steady rise, somewhat above our forecast and the early teething problems have been largely overcome. This rise, allied with careful budgeting, has resulted once again in the average cost per specimen not rising significantly from 1978 to 1979 if revenue is disregarded, and if taken into account, an actual fall of 60 cents per specimen as from 1978 to 1979. Revenue increase followed the last Commonwealth Schedule of Fees revision, and the greater use of the category "disadvantaged" by medical practitioners for thos unable to contribute to their medical costs. By policy only rebateable fees are charged, so that no patient is financially a loser by our charges.

Farther progress was made in combination of laboratories and rationalisation of services at The Queen Elizabeth II Medical Centre site. During the year a combined unit of Toxicology and Clinical Pharmacology was formed under the guidance of the Professor of Clinical Pharmacology, Professor J.W. Paterson, and a Combined Anatomical Pathology Service embracing Histopathology and Cytology under the direction of Professor M.N.I. Walters was formed at the end of 1979. The only major units susceptible to such amalgamation - Clinical Microbiology and Immunology/ Serology already share work to a large extent, and no doubt rationalisation will extend further in due course.

With the policy of combination and other changes, our ability to attract experienced pathologists and other staff has resulted in a greater flow of original articles, and even text books, than has occurred before. Undoubtedly there are signs of a freer supply of pathologists in some disciplines, though not as yet in all. During the year, a post of Deputy Director was created by amendment of a specialist pathologist vacancy difficult to fill.

Undoubtedly, and in common with other developed countries, the spread of the "take-away" food industry has contributed to public health problems. During the year the largest outbreak of food poisoning so far experienced was traced to fairly widespread contamination of chickens - a popular "take-away" food - by Salmonella. At the same time, public attention is more keenly focussed on environmental factors which may harm the public health - water supplies, mosquito breeding etc. and this leads very naturally to legitimate demands for increased microbiological and other surveillance of aspects of the environment. The laboratories have coped well with outbreaks of bacterial contamination in various articles of food which could have proved dangerous, and in tracing the origins and extent of arbovirus infections following flooding in the North - the last with considerable aid from Professor N. Stanley's Department of Microbiology (and naturally in all cases, the dedication of Public Health staff). We anticipate playing an increasing role in public health investigatory work.

Laboratories were already established in most heavy industrial areas. Undoubtedly the growth of industry for instance in the Pilbara, at Collie and Kalgoorlie, will lead to further demands on local laboratories.

There were indications during the year that the North or "J" Block of the State Health Laboratory Services would be completed in the near future and some detailed planning was recommended.

The Director was appointed State Representative of the newly formed National Pathology Accreditation Advisory Council, and several States, including Western Australia, began legal drafting of Accreditation legislation.

During the year and following a re-organisation of the Public Health Department, Audio Visual Aids was divorced from the laboratories and placed under the control of the Assistant Commissioner of Public Health.

2. ADMINISTRATIVE SERVICES

FINANCE

The experience to June 30th last in the allocation of funds on a "cost centre" basis to the various sections of the laboratories proved that the system was effective in monitoring expenditure.

Although the level of service provided by these laboratories has not diminished, it has been possible to contain expenditure within the budget allowance despite rising prices for goods. This has only been possible by stringent bi-weekly scrutiny by senior staff of all requisitions prepared by all departments of the laboratory, and by preparing monthly statements of spending for all areas.

STAFF

Staff changes are shown below: the freer supply of technologists enabled some long standing vacancies to be filled.

Position	Recruited	Resigned	Retired	Services Terminated	Transferred
Pathologist	2	2			
Clinical Toxicologist	1				
Registrar	1	1			
Senior Technologist		1			
Technologist	20	12			
Cytotechnician	1	3			
Medical Records Officer	1				
Animal House Technician-in-Charge			1		
Laboratory Assistant	22	26			
Autopsy Assistant	4	2			
Laboratory Attendant	7	5			
Programmer		1			
Data Processing Operator	3				
Clerk	3	1			
Clerk-Typist		1			
Typist	8	7			1
Clerical Assistant	8	4	1	1	
General Assistant	3	3			
Security Officer	1		1		
Animal House Attendant	1				
Storeman/Driver	3	1	1		
Storeman	3	2			
Vacational Employment (Laboratory Assistant)	8	8			

Important changes of senior staff are as follows:

Dr. V.P. Winterbottom	- Registrar, resigned on 30/11/79.
Dr. Grant Pattison	- Clinical Toxicologist, commenced on 2/7/79, Deputy Director from 1/8/79.
Dr. R.J. Glancy	- Pathologist, commenced on 1/11/79.
Dr. J.A. Pollard	- Pathologist, commenced on 1/11/79.
Dr. F.A. Frost	- Registrar, commenced on 1/11/79.
Dr. D.J. McCully	- Sessional Pathologist, resigned on 30/10/79.
Dr. J.R. Carroll	- Sessional Pathologist, resigned on 30/10/79.

SUPPLY

The proposed computerisation of the stores and inventory system has unfortunately not progressed far in the last twelve months, and on present indications it will be another year before testing of the system will commence. However, in the meantime the close scrutiny of all stores requisitions has allowed for close budgetary control to continue.

SPECIMEN RECEPTION AND BILLING

No major changes occurred in the Specimen Reception area this year. As the area carries risk of infection, several steps were taken to improve the safety of those working - this included disinfecting of all racks and containers used in the are at least twice daily and restricting the are to those who work in the area only.

Several staff members from the registration area were taught the procedures used in the reception area to facilitate the exchange of staff between the different sections.

Form Registration

In February of this year the data entry function of the billing system was shifted from Curtin House to the State Health Laboratories. Three data processing operators, three 7 track-key-tape machines and one 9 track-key-tape machine were transferred. The tapes produced are sent direct to Health Computing Services from State Health Laboratory Services for processing and all functions concerning editing of the data are now done at the laboratories.

Work Volume

In the year 1979 there were 380,560 requests received by the laboratories for testing, which were given accession numbers. Requests from medical audits, public health etc., are not numbered in this system. The following break down of figures is only approximate as they are annual averages which do not show seasonal shifts.

Note

The number of referred tests requiring work in the Central Laboratories increased as compared with 1978. There was an increase in the number of tests requested per request form.

	Annual	Monthly
Requests with specimens through Specimen Reception	190,200 = 50% of total	15,850
Requests from branch laboratories where work is completed	190,360 = 50% of total	15,863
	380,560	31,713

i.e. about 1,440 per working day.

SURVEYS

Medical Audits Hedl in Conjunction with Community Health

The medical audit programme was small this year with only two audits being carried out.

The routine survey screen was:-

1. Blood group
2. Hb and blood picture
3. Serology V.D.R.L.
   F.T.A.
4. Faeces M.C. & S. as collected.

Medical audits in 1979:-

1. Dalwallinu - 27 patients.
2. Port Hedland - 57 patients.

Health Screen on Indo-Chinese Refugees

Indo-Chinese refugees have continued to arrive throughout the year. Blood and faeces specimens were collected from each by the laboratories and the following tests were performed:-

1. Full blood count, including a screen for malarial parasites
2. Trepenomal serology
3. Examination of faeces for pathogens and parasites

Indo-Chinese refugees tested through the State Health Laboratory Services in 1979 nunbered 975 in groups of up to 70 scattered throughout the year.

COMPUTERISATION

A proposal for the computerisation of the reception and registration of request forms was submitted in June of 1978. Programmes were written and five visual display units, two printers and a PDP II were installed in the area. The PDP II is used as a concentrator link to the Cyber at Health Computing Services. Throughout 1979 the programme was developed and in the latter part of the year system testing commenced. At the end of the year fifty requests were processed daily through the on-line system and all aspects of the system were being checked.

The State Health Laboratories commenced using the Patient Master Index system developed at Royal Perth Hospital and adopted by all teaching hospitals when system testing of the registration started. Registration of patients on the Patient Master Index by State Health Laboratory Services is only done so far on a limited basis. Full registration should start early in 1980. The State Health Laboratory Services have been allotted the six million number sequence for use on the index.

Computerisation in the State Health Laboratories is in its early stages. Programmes under way in 1979 are as follows:-

1. Reception and Registration

This is the most advanced system in the Laboratories at this stage. The programmes have been written and testing is being carried out. The implementation of this system is dependent on alteration of staff and equipment.

The system will initially have three main functions:-

(a) Supply information for billing.
(b) Register patients on the Master Index.
(c) Supply statistics on work performed in these laboratories.

2. Haematology

A system proposal has been written on the computerisation of result recording and reporting for the Haematology Laboratory.

3. Microbiology

The proposal for Microbiology is in an advanced stage of preparation.

4. Others

An existing system report has been prepared on the Combined Anatomical Pathology Services.

Staff Training

Six staff have completed a five weeks COBOL programming course. Three of these have also done a Health Computing Services in-service training course.

TRANSPORT AND COMMUNICATION

Motor vehicle replacements have been made as money beceomes available.

It is proposed to replace the facsimile copying machines located in the metropolitan branches and several country areas with telex machines; the ultimate aim being to transmit test resultes direct from the computers direct through the telex network.

3. TECHNICAL SERVICES

INSTRUMENTATION

The requirements within the laboratories for equipment maintenance and service is still too great to be handled by the section. It is necessary to have a large proportion of the work done outside the laboratories.

Although the section is well served in the electro-mechanical field, a lack of expertise in the electronics area still exists. With the introduction of more electronic equipment, the need for an electronics engineer increases.

REAGENT PREPARATION

The unit has settled down well after a complete change of staff in 1978. The range of the reagents requested has expanded with increases in requests from the Mycology and Cytogenetics Sections. Toxicology are now having reagents produced on a regular basis.

Stain Paks for automated staining machines are no longer purchased commercially, with saving in cost. A simplified M-G stain has been developed in co-operation with the Central Haematology Laboratory and Osborne Park Laboratory. This new stain is now in use with all branches where it has been well received.

MEDIA PREPARATION UNIT

The system of issuing plate media on a demand basis only has proved successful. Although plate usage by the various laboratories has increased, plate production has been reduced because less plates are wasted in the laboratories.

The problem of media (and reagent) wastage due to sudden unannounced changes in methods is no longer a problem since adequate education to seniors was introduced.

A shortage of distilled and de-ionised water has been overcome with the installation of a Millipore RO 60 water purifier. Many teething problems occurred but have been largely corrected.

Media Production 1979

Type	1978	1979
Poured Petri dishes	1,256,896	1,166,322
Tubes and bottles of media	2,366,735	2,886,344

ANIMAL HOUSE

The volume of horse blood collected increased from 476 litres to 902 litres. There has been a reduction in numbers of new animals used, chiefly guinea pigs.

ELECTRON MICROSCOPY

With the formation of the Combined Anatomical Pathology Service, the work of this unit is now generally performed in conjunction with the Hospital and University Pathology Services.

ACCOMMODATION

(a) CENTRAL LABORATORIES

The new premises for the Media and Sterile Outfits section in Victoria Park became fully operational, and have proved to be most effective. In spite of the extra space made available by the movement of the Media section, the laboratories generally are still lacking adequate laboratory and office space, with several units still being accommodated in temporary quarters.

The hut complex has been further developed as the Computer and Accounting sections were expanded. This will reach its full development early in 1980 when the Specimen Reception area is added to the area.

Contingency plans were made for the alternative location of a number of units should the North Block extensions be commenced in 1980. This would result in very cramped conditions for a number of units over the following two years.

(b) BRANCH LABORATORIES

New premises were occupied by the Tom Price branch laboratory. Planning was completed for new laboratories at Broome, Kununurra and Wanneroo.

Storage problems at Merredin and Pinjarra were resolved by the allocation of space from the respective hospitals.

4. MISCELLANEOUS

QUALITY CONTROL

All departments and branches are under quality control both external and internal. The Central Laboratories participate in various external quality control programmes run by Wellcome, the Royal College of Pathologists of Australasia and others. External quality control for branch laboratories are run by Wellcome for Clinical Chemistry and the Central Laboratories for Microbiology and Haematology. Some private laboratories participate in the latter.

Results for the year have been acceptable. Problems were encountered with postal delays and contaminated samples from England on Toxicology quality control. These have now been rectified by the use of freeze dried samples.

Biochemistry

Wellcomtrol samples were distributed to Central and branch laboratories for two-weekly testing. A good standard was maintained throughout, with branch laboratories generally showing some improvement on previous years. All results were computerised with an up-dated graphic report being issued each fortnight.

Haematology

The Haematology quality control service continued as in previous years. Results were generally acceptable with only a small number sub-standard. These are now under review.

Microbiology

The control series throughout the year covered most aspects of bacteriological diagnosis, with the emphasis on basic procedures. A number of minor deficiencies were found and corrected.

FIRE AND SAFETY

Regular meetings of the Fire and Safety Advisory Committee were held over

the year. Access to a regular instructional programme run by the Site Safety Co-ordinator was established. Newly appointed staff now participate in an organised course on commencement. Several evacuation exercises were carried out after installation of alarms to the three laboratory floors.

A comprehensive safety manual was produced. The content of this booklet has been accepted for application to all laboratories on the Queen Elizabeth II Medical Centre site.

IN-SERVICE TRAINING

Fifteen Medical Technologists commenced duty with the laboratories in January and February 1979. The large number of graduates required two separate instructional courses to be conducted. A training procedure which has been established in previous years was used with slight variation to some of the practical aspects.

Where necessary, staff have undergone refresher programmes to maintain an updated knowledge of work procedures.

An In-Services Education Committee has been established to expand on the opportunity for staff at all levels to have learning facilities provided for them.

LIBRARY

The library experienced another busy year in 1979 as the demand for information from the staff continued to increase. 2,511 references were supplied in response to requests.

The Library Committee approved 235 new books. Additional shelving has been ordered to accommodate the growth in book and journal stocks.

Updated text books for the branch laboratories have now been processed and are being despatched to the branches.

PATHNOTE COMMITTEE

During 1979 a total of 18 Pathnotes were issued:-

Immunology	4
Microbiology	10
Haematology	1
Biochemistry	2
Toxicology	1

The major divisions of the laboratories have almost completed their production of Pathnotes on methodologies, accounting for the downturn in numbers printed this year. Most of the Pathnotes produced were of a technical nature; generally explanations and interpretations of methods in use.

During the year the 1978 annual report for the Mycobacteria Laboratory was produced.

Early in 1980 it is hoped to produce the long awaited laboratory manual containing details of tests performed, specimen collection and normal values.

There is still considerable demand for Pathnotes among medical practitioners and allied health services. Technologists are encouraged to make as wide a distribution as possible in areas serviced by their laboratory.

5. BRANCH LABORATORY SERVICES

Statistics

Specimens processed in branch laboratories during 1979 totalled 259,404 compared with 231,988, an increase of 12%. This follows a situation last year which saw a 3.82% decrease from 1977 to 1978 and a significant increase of 17% from 1976 to 1977. No apparent reason is evident for this fluctuation. On a State-wide basis, 18 laboratories had increases and 7 had decreases.

Regionalisation

During the year the regionalisation programme contined with the declaration of the Gascoyne region centred on Geraldton with Carnarvon as a laboratory within the region and with Meekatharra, Mullewa, Morawa, Three Springs and Dongara submitting samples to Geraldton. This brings the total number of regions operational to four, with only the Kimberley region to be finalised.

Buildings

The Collie laboratory was re-sited within the hospital during 1979 but recent developmental projects in the area have made it apparent that the present accommodation will be most inadequate for the anticipated increase in work associated with the expected population increase. Urgent consideration should be given to providing alternative laboratory space at this branch.

A new laboratory was completed at Tom Price and has proved to be a vast improvement on previous accommodation. Minor problems still exist with maintenance in company towns such as Tom Price and Newman.

Equipment

In the absence of automated biochemical equipment the programme of upgrading Flame-photometers and Spectrophotometers continued with the purchase of more Gilford and Corning apparatus.

Inovations

Experimentally, mobile laboratory servicing centres around Northam were initiated and proved successful until an untimely road accident. Successful efforts continued to expedite the passage of specimens from outlying settlements to country branch laboratories.

Laboratory Inspections

These become less frequent and less necessary in so far as central administrative staff are concerned when regional centres are developed.

6. MICROBIOLOGY

The work of the unit increased by roughly 1% during the year. The occurrence of major public health problems - food poisoning and arbovirus infection, produced minor local problems in regard to working etc., but by and large the unit performed smoothly and predicably. Further remarks may be found under the various sections.

CLINICAL BATERIOLOGY

A total of 11,671 specimens were examined in 1979 as compared with 11,134 in 1978 - an increase of 4.82%.

Diphtheria

Six isolates of C. diphtheriae were made from Aboriginals at Broome.

Listeria monocytogenes

L. monocytogenes was isolated from a post-operative sterilisation wound from a woman at Port Hedland. This is the first recorded instance of an operation wound infected by this organism: a further unusual feature was the failure of the organism to produce catalase.

Corynebacterium haemolyticum

A culture was referred from Sir Charles Gairdner Hospital associated with septicaemia and meningitis in a 28 year old man, the first instance in Australia.

SEXUALLY TRANSMITTED DISEASES

The total number of specimens examined was 30,564, or 4.6% less than the 32,021 specimens examined in 1978. This drop is largely due to the cessation of the routine examination of rectal swabs for gonorrhoea. Of the 28,759 examinations for gonorrhoea, 5.8% were positive, and 15 of these were found to be resistant to penicillin as a result of the production of Beta-lactamase; this is the highest number of lactamase producers so far found in Western Australia.

Of 354 dark ground microscopic examinations for syphilis, 5.4% were positive.

The laboratory now participates in an Australia-wide quality control programme to ensure that our results are consistent with the rest of the nation.

Other specimens examined included skin swabs for bacteria other than N. gonorrhoea, examinations for Trichomonas in males; specimens and cultures from other laboratories and pregnancy tests. Examinations for chlamydia, herpes, hepatitis etc. were referred to other sections of the laboratory.

WATERS

There were two developments during the year - firstly, the Waters Laboratory which examines potable water was separated physically from the recently formed Environment Laboratory where work on bathing beaches,

rivers, catchment areas and recreational lakes is performed, the reason being that bacterial counts are likely to be much higher in uncontrolled water sources and cross contamination could occur. Secondly, the Waters Laboratory completed its first full year using labour saving techniques such as membrane filtration. In addition to the Central Laboratory, four branch laboratories are now using membrane filtration - those at Albany, Bunbury, Geraldton and Port Hedland. This service will be expanded.

The demand was high and 15,238 water samples were examined. New techniques were developed which allowed us to uncover previously undetected contamination of the water by Salmonella.

The majority of isolations of Salmonella were recorded from country areas prior to distribution and the serotype range included strains commonly isolated from native fauna species, in particular reptiles, amphibia and birds.

The value of this new technique in water testing for Salmonella was highlighted during 1979 by the recovery of 164 Salmonella isolations from water supplies. Samples found to be contaminated included both a small number of chlorinated supplies and unchlorinated consumer samples, bore and well waters, as well as samples from primary collection and storage. Approximately 5,000 samples were examined for Salmonella and the 164 Salmonella isolations comprised 45 different serotypes.

At least 20 Salmonella isolations were recorded from samples in the absence of coliform indicator bacteria; however, with few exceptions increased background counts were recorded. For information, reptilians and some birds do not excrete large numbers of E.coli, as do mammals.

ENVIRONMENT

Set up in 1978, this was its first full year as a laboratory when special attention was given to the routine bacteriological testing of sewage, effluents, waters used for recreation, water catchment areas, dams and associated epidemiological investigations involving abattoirs, waste disposal sites, livestock and wildlife.

Over 22,000 samples were examined by the section and 2,300 Salmonella cultures serotyped.

The activities comprised the following:-

1. In collaboration with the Department of Conservation and Environment, surveys of:

   (a) Owen Anchorage Cockburn Sound area
   (b) Princess Royal Harbour, Albany

2. In collaboration with the Metropolitan Water, Sewerage and Drainage Board, a bacteriological study of the water catchment areas.

3. On behalf of the Department of Agriculture, the Association of Poultry Processors and various private laboratories, extensive Salmonella serotyping.

4. Extensive monitoring of bathing beaches, metropolitan river, estuarine, bathing beaches and ponds and lakes.

5. Intensive monitoring of poultry farms. This was undertaken as a result of the S.muenchen food poisoning outbreak and alone accounted for 1,758 samples.

6. There were various other studies to assess the role of flies, buffalo meat, feral pigs and wild birds as vehicles of Salmonella infection.

PUBLIC HEALTH ENTERIC DISEASES

Salmonellosis

A total of 1,701 Salmonella infections in humans were diagnosed by or reported to the Enteric Bacteriology Laboratory in 1979, compared with 993 cases in 1978. The previous highest annual total was 1,227 in 1973. This fact underlines the growing importance of food handling and the growth of mass-produced foods ready for consumption.

While 66 Salmonella serotypes were identified, those producing more than ten infections included S.muenchen (820), S.typhimurium (329), S.saint paul (53), S.give (58) and S.chester (36). Sixteen serotypes accounted for 1,517 or 89% of the total.

The chief interest was in an outbreak of S.muenchen infection commencing in January 1979 and continuing into March. Only 11 cases of infection with this particular organism had been found in Perth during 1978. But in January - March 1979, 562 cases occurred in the metropolitan area. The organism during the last 20 years had emerged as the major Salmonella serotype associated with human cases of gastro-enteritis in northern areas of the State, particularly the Kimberley and Pilbara. It is also prevalent in native fauna - marsupials and reptiles especially, also being found in wild birds, abattoirs, effluents, natural waters, and pet foods made from kangaroo meat.

S.muenchen compared with all serotypes

	1979				
S.muenchen found	JAN.	FEB.	MARCH	APRIL	TOTAL
(a) In Perth	50	226	286	68	630
(b) In country areas	16	40	54	19	129
All serotypes found	155	344	459	179	1,137

The outbreak in the metropolitan area, which as stated commenced in January, was traced to a group of poultry farms supplying a major chicken processing factory. Investigation of the latter location showed that 70% of live birds awaiting slaughter were infected with Salmonella, and 46% had S.muenchen infection. The processing plant temporarily ceased operations. On broiler farms S.muenchen, S.saint paul and S.infantis were repeatedly identified, and, less often, other serotypes.

It was likely that a combination of high summer temperatures (above 40°C on several days) and high infection rates in birds presenting for processing overwhelmed the hygienic procedures in the poultry factory and produced a high contamination rate in poultry carcases and the occurrence of faecal S.muenchen in 6% of the workers employed at the plant. Cross infection involved other meat products and staff employed in the retail food trade. A total of 132 food handlers and their families were found to excrete Salmonella during the first six months of the year; 120 of these excreted S.muenchen. During the three month period, 185 individuals infected with S.muenchen required hospital treatment and of these 163 were five years of age or less. Most infected poultry employees and food handlers were, however, symptomless excretors. By the end of the year 821 S.muenchen infections had been diagnosed - 48% of the total Salmonella cases.

Salmonella typhi

A total of five isolations of S.typhi were made during 1979. All infections presented with a history of pre-clinical exposure outside Australia. All five cases were adults and comprised one traveller, two sailors, and two Asian immigrants.

Salmonella agona

S.agona, a serotype first detected in immigrants arriving during 1977, was responsible for a small Salmonella outbreak in a maternity hospital in the metropolitan area. Infections were diagnosed in four babies, two nurses and one mother. One baby was still a carrier of the infection eight months later.

Other species of Salmonella

Some serotypes were introduced by immigrants and travellers in 1979. The serotypes associated with exotic infections comprised S.virchow, S.weltevreden, S.braendenup, S.heidelburg, S.newport, S.montevideo, S.enteritidis, S.infantis, S.stanley, S.worthington and S.alachua. The vast majority of infections originated in Asian countries including the popular Bali island tourist resort.

Shigella Infections

A total of 655 Shigella cases were diagnosed during 1979 compared with only 350 the previous year. The increase was due to a widespread general upsurge of infections caused by Shigella sonnei. The serotype accounted for 452 (69%) of the total cases throughout Western Australia.

The distribution of Shigella sonnei cases in 1979 is outlined in the following table. Case totals of Shigella sonnei for 1978 are shown also for comparison.

Distribution of Shigella sonnei cases in 1979 compared with 1978

	Perth	S.E.	S.W.	Pilbara	Central	Kimberley	Total
Sh. sonnei cases 1979	107	15	116	57	53	104	452
Sh. sonnei cases 1978	60	4	4	4	2	8	82

The majority of Shigella sonnei cases occurred in infants and young children. Infections were also diagnosed occasionally during routine screening of food handlers for Salmonella. Cases were also diagnosed in hospital nursing staff, overseas travellers returning from Asian countries, and occasionally in immigrants on arrival in Western Australia.

Cases associated with other Shigella serotypes were also diagnosed in travellers, immigrants and an airline crew member.

Campylobacter

Samples selected from patients presenting with acute diarrhoea were also routinely tested for Campylobacter fetus and a total of 2,894 specimens were examined. Of these, 139 (4.8%) were positive. Total notifications including referrals from other diagnostic laboratories were 154. The largest number of infections (representing 52 cases) were diagnosed in Perth - however, overall the infections were widespread with 36 cases originating from the Kimberley region and also 36 in south west regions of the State.

Most cases were diagnosed in infants and 101 (66%) were under five years of age. C.fetus was detected occasionally in travellers and immigrants. Co-infection with Shigella, Salmonella and enteric parasites including G.lamblia, H.nana and hookworm were also detected.

Vibrio

Vibrios were isolated twice from patients who had not travelled outside Australia. Vibrio parahaemolyticus was isolated from an adult patient.

FOOD HYGIENE

There was a major increase in the overall work load at the Foods Section and the number of specimens examined increased from 3,527 to 4,784, a rise of 36%. The expansion in work load was due largely to additional work associated with the S.muenchen outbreak in Perth and involved increased monitoring of both poultry and other meat products, together with food handlers and work environment.

Work was undertaken on behalf of the following:-

(a) For the Department of Primary Industries - the examination of pasteurised egg pulp.

(b) For the Federal Government - the examination of cooked, peeled, frozen prawns.

(c) For the National Health and Medical Research Council - a survey of "take-away" foods.

(d) For the Department of Public Health - a survey of minced meat and examination of material handed in as a result of consumers' complaints.

(e) Additional surveys included the examination of mussels taken from the Cockburn Sound and an extensive survey of poultry and poultry processing factories.

A survey of minced beef supplied for human consumption collected from 83 butchers' shops in the metropolitan area showed high bacterial counts (greater than one million per gram at 37°C) in 19% of samples and greater than one million/gm at room temperature in 66%. Potentially pathogenic bacteria were occasionally found - seven Salmonella serotypes in 15 samples. E. coli greater in number than 10 per gram were present in 47% of samples.

The analysis of chicken meat - live poultry, uncooked and cooked meats - has been mentioned above. S.muenchen was isolated 31 times from brawns, ham, bacon, tongue, cold beef and turkey, but only in retail outlets. Meat smallgoods monitoring were positive for Salmonella on 55 occasions (16% of examinations).

Raw pet meats, particularly those containing kangaroo meat were again monitored during the year and in a total of 88 samples examined, 36 (40%) were contaminated with Salmonella. As in previous years, a wide range of epidemiologically significant Salmonella were detected with S.muenchen, S.chester, S.adelaide, S.singapore, S.havana and S.orion serotypes prominent.

Apart from the outbreak of S.muenchen, two other episodes were investigated. Firstly, an outbreak affecting 60 people dining at a city restaurant and apparently poisoned by Clostridium perfringens in gravy, and, secondly, an incident of food poisoning associated with the consumption of a rice dish in a "take-away" retail outlet in Perth in which the infecting organism was Bacillus cereus.

ENTERIC PARASITES

A total of 2,405 parasitic identifications were recorded during 1979 compared with 2,529 in the previous year. These totals are based on primary identifications and do not include repeat identifications from patients during follow-up investigations.

The regional distribution of parasites during 1979 was - Perth 697, Kimberley 747, and other country regions comprising Pilbara, Southern and Eastern regions 961.

Overall, Giardia lamblia was by far the commonest parasite identified and comprised 63% of all cases. The increase from 1,037 cases in 1978 to 1,506 cases in 1979 occurred throughout all regions of the State and further epidemiological investigations appear warranted to define more precisely methods of transmission, efficiency of treatment and follow-up procedures.

In other investigations including surveys, the endemic patterns of parasites showed no significant changes and Hymenolepis nana, Strongyloides stercoralis and hookworm were commonly identified in patients from the Kimberley or North West of the State. Health screening of Asian migrants continued to reveal a number of parasites including hookworm, Strongyloides stercoralis, Trichuris trichuira, Clonorchis sinensis, Giardia lamblia and Ascaris lumbricoides. Fasciolopsis buski ova were found in one adult immigrant from South East Asia, and one instance of Balantidium coli and Isospora belli were each found on one occasion.

MYCOBACTERIOLOGY

Specimens Received

A total of 9,966 specimens were received. Of these, 9,493 specimens were for both microscopy examination and culture. 863 yielded mycobacteria. Although the number of specimens was less than the number received in 1978, the percentage of specimens yielding mycobacteria increased from 8.8% in 1978 to 9.1% in 1979.

In addition to the above number of specimens received for culture, 473 smears were received for the microscopic examination for M.leprae of which 171 (36.2%) were positive.

Tissue homogenates were received for the detection of isoniazid (INH) or its metabolites. Of these, 16 were positive by the sodium nitroprusside method and 14 were positive by the Bacto INH test strip method.

The distribution of the types of species isolated was very similar to previous years.

Source of Specimens

Most specimens were received from The Queen Elizabeth II Medical Centre, Perth Chest Clinic, Repatriation General Hospital and Kalgoorlie Hospital. A large number of specimens were received from medical practitioners in both metropolitan and country areas.

Referred Cultures

A total of 150 referred cultures were received for identification and for sensitivity testing. Referred cultures from major hospitals, namely Royal Perth Hospital, Fremantle Hospital, Princess Margaret Hospital and King Edward Memorial Hospital, and from the Western Australian Department of Agriculture, constituted the larger portion of these cultures. Referred cultures from a private pathology laboratory and from Christmas Island, Indian Ocean, and from Launceston General Hospital constituted the remainder of the referred cultures.

Animal Inoculations

A total of 1,140 guinea pigs were inoculated for either pathogenicity or virulence tests. All specimens except sputum, gastric contents and bronchial lavages were inoculated into guinea pigs. In addition, all children's specimens up to and including children ten years old were inoculated into guinea pigs.

Nineteen rabbits were used for the production of type-specific antisera for the M.avium - M.intracellulare - M.scrofulaceum (M.A.I.S.) complex organisms.

One chicken was inoculated for suspected M.avium infection from a specimen on bone from a six year old girl.

Sensitivity Testing

A total of 281 sensitivity tests were performed on cultures of M.tuberculosis and atypical mycobacteria. Of these, 21 tests included other drugs (prothionamide, cycloserine, thiosemicarbazone, capreomycin and kanamycin) in addition to the routine drugs tested (streptomycin,

isoniazid, para-amino-salicylic acid, rifampicin and ethambutol). Included in this total are 24 repeated tests because of contamination or poor growth.

Serotyping

The serotyping range for the M.avium-M.intracellulare-M.scrofulaceum (M.A.I.S.) complex organisms was extended by the addition of serotypes 25, 26, 27 and 28. These strains were kindly supplied by the Mycobacteria Laboratory, State Health Department, Queensland. The type-specific antisera was produced in rabbits in our own laboratory.

Strains and type sera of a number of requested serotypes were supplied to the Tuberculosis Department, Statens Seruminstitut, Copenhagen, Denmark.

Special Studies

I.W.G.M.T. (International Working Group for Mycobacterial Taxonomy):

Four strains of mycobacteria have been sent, via the Australian transmitter (Mycobacteria Laboratory, State Health Department, Queensland) for inclusion in the I.W.G.M.T's Open-ended Co-operative Study on Unusual Strains of Slowly Growing Mycobacteria. An invitation to enter the proposed Co-operative Study on Reproducibility of Techniques for Rapid Growers has been extended.

Projects Completed

M. kansasii study:

A study of M. kansasii strains isolated from humans, animal and water sources was completed. It could be shown that these strains were morphologically and biochemically identical.

MYCOLOGY

A decrease in the total number of specimens examined was recorded in 1979, due to a drop in requests for routine isolation of fungi from Special Treatment Clinics. There has been no diminution in requests for full examination for fungi in skin and deeper tissues, and an increase in requests for fungal serology.

Superficial and Cutaneous Mycoses

Four different types of superficial mycoses were recorded during 1979. Pityriasis versicolor 189 cases; trichomycosis axillaris 4 cases; erythrasma 6 cases, and tinea nigra palmaris one case. Tinea nigra palmaris is not endemic to Western Australia and this patient was from Christmas Island.

Cutaneous mycoses are prevalent in Western Australia; 6,394 skin scrapings from patients were examined this year, 34% of which were positive fungal infections. Microsporum canis infections continue to be a problem in school children in the Perth area mainly due to the constant source of infection from stray kittens. Trichophyton infections were prevalent and five different species were isolated this year. Epidermophyton floccosum infections were also common. Six different yeast-like fungi

were isolated from cutaneous infections; most commonly Candida albicans from paronychia of finger nails.

Animals commonly act as a source of human dermatophyte infections. In addition to M.canis from cats and dogs, T.mentagrophytes from guinea pigs, T.verrucosum from bovines and M.nanum from pigs were recorded this year.

Ear Swabs

Aspergillus niger was the fungus most commonly involved in ear infections (33 isolates) but other species including A.flavus and A.terreus were also isolated.

Vaginal and Cervical Specimens

Specimen numbers decreased markedly this year because the Special Treatment Clinic in Moore Street completely ceased culturing swabs from these specimens in November 1978 and none were received in 1979.

A control trial of specimens sent from the Queen Elizabeth II Medical Centre clinic showed that over a ten month period, from 116 patients with vaginal thrush the scanning microscopy indicated 83 patients (71%) were negative for yeast infection. Probably many infections are missed when culture is omitted.

Yeasts were isolated from 883 swabs from other sources, 816 of which were Candida albicans and 27 Torulopsis glabrata, 11 different species were isolated.

Eye Specimens

Few are sent for fungus examination. A corneal ulcer due to Aspergillus terreus and one Candida infection were confirmed this year. Soft contact lenses could be a potential cause of fungus infections of the eye and Aspergillus was identified from one this year.

Subcutaneous Mycoses

There was one case of Sporotrichosis of the arm. Nocardia brasiliensis was the aetiologic agent of subcutaneous infections in three different patients.

Systemic Mycoses

Systemic candidiosis is a rare disease and difficult to diagnose. Now with the help of werological tests to support culture results diagnosis should be assisted. Five patients this year had serological evidence of systemic infection. One was a drug addict with endocarditis and eye involvement.

Allergic aspergillosis as caused by various species of Aspergillus is regularly recorded. It is again invaluable to have our serology to back up culture results and vice versa. There was one case of aspergilloma. A patient with a cavitating lung lesion had two species of Aspergillus and C.albicans isolated regularly and precipitins positive for Aspergillus terreus.

Petriellidium boydii is appearing more frequently as a cause of disease in this State. One patient with suspected atypical T.B. was proved both

culturally and serologically by us to be infected with this fungus.

Cryptococcosis was recorded from one patient from the south west of the State. Only three C.S.F. specimens were received from Laboratories in the north of Western Australia where the disease used to be relatively prevalent. This disease may be diagnosed by both culture and serology. The serological test gives a quick result and should be performed on all cases of non-bacterial meningitis, especially from the north of the State.

Two cases of systemic nocardiosis were recorded this year, one in a patient with pneumonia and the other in a patient with carcinoma.

Two children were found on post-mortem examination to have fungal infections, one had Candida albicans in the lungs and spleen and the other Entomophthoramycosis. Fungal elements were clearly visible in tested tissue and histological sections but extensive cultural studies failed to grow fungus.

Animal Infections

Among animal diseases referred to the Mycology Laboratory were:-

1. Avian lung abscess caused by A. flavus.

2. Cryptococcosis of the lung in a quokka.

3. Fusarium solani infection in crayfish.

4. Two cases of cervical infection in horses due to Petriellidium boydii, a cause of mycotic abortion.

VIROLOGY

There was a slight increase in the number of specimens received for virological investigation in 1979 and the work load was also increased by the type and complexity of tests requested. The number of specimens for virus isolation increased by 6.4% over the 1978 figure of 17,013 and the number of rubella and arbovirus specific IgM tests increased from 359 in 1978 to 786 in 1979. There was a small increase in the number of specimens of serum for Hepatitis tests. A test for Hepatitis A specific IgM was established as a routine procedure during 1979 and a quantitative assay for antibody to Hepatitis B core antigen was also initiated in 1979.

Further progress was made in the development of ELISA (enzyme-linked-immunosorbent-assay) tests. An ELISA test for Legionella pneumophila type 1 was developed and tests for other serotypes are envisaged. An automatic spectrophotometer for reading ELISA test results was recently received and should accelerate progress with this technique.

In 1979 the Virus Laboratory was asked to provide a wide range of serological tests for the diagnosis of exotic virus diseases and tests for Lassa fever and Sindbis virus are now available with tests for Dengue Langat and Tacaribe viruses pending.

During 1979 equipment was received for testing large volume water samples for the presence of virus. It is hoped that routine tests for virus in water will be developed in 1980.

Outbreaks

The outbreak of Mycoplasma pneumoniae infection which started in 1978 continued into 1979 with a further smaller peak in October 1979.

An outbreak of echovirus meningitis (mainly type 11) was seen in the autumn of 1979 followed by a winter outbreak of RSV infection. There was little influenza A in 1979 but a large outbreak of influenza B occurred in the spring preceding a moderate outbreak of rotavirus gastro-enteritis and a large outbreak of rubella virus infection. High rates of HSV, chlamydia, adenovirus and Hepatitis A and B infection were detected throughout the year.

Murray Valley Encephalitis

Active cases	-	1
Retrospective study	-	1,139 saples of stored sera
		522 indicated previous exposure
Ross River Disease	-	1

Influenza

Influenza A	- 7 cases
Influenza B	- During the quarter July-October, 96 cases
	60 diagnosed serologically
	36 diagnosed culturally

Legionnaires' Disease

A fatal case occurred in a 56 year old woman: the diagnosis was made serologically.

CROSS INFECTION, HYGIENE AND QUALITY CONTROL

Staph aureus strains phage typed numbered 4,017, representing an increase of 15% over last year's figure (3,492).

An outbreak of impetigo at Kalgoorlie affecting 14 patients was found due to Staph. aureus phage type 3C/55/71.

Four rural hospitals were visited on request to help with small problems of cross infection and 267 swabs were taken and examined.

Hygiene

On behalf of the Government Pharmacy Services, 83 Kelsey-Sykes tests were performed. For the purposes of hospital hygiene, 829 spore tests were performed. The unit continued to monitor antiseptics issued by the Government Pharmacy.

Work of this section, though reported, had not previously been included in Table I.A as part of Microbiology statistics. This has been remedied this year.

Quality Control

As in previous years, all the branch laboratories had their efficiency examined by a quality control programme. This work is likely to be extended considerably when laboratories require accreditation.

Other Activities

The occurrence of black spots on rock lobsters was investigated at the request of the Directors of the Marine Research Laboratories and the Department of Primary Industries. The fungus responsible (Fusarium) was identified. In addition to the fungus a bacterium was isolated (Vibrio alginolyticus) which is a frequent cause of would infection in this State. To assess its importance 66 fish were examined at the fish market, comprising 9 species and 39 had Vibrio alginolyticus on their skins.

POST GRADUATE EDUCATION

Royal College of Pathologists of Australasia

The Acting Head of the Division of Microbiology conducted the practical examination for three candidates for the General Microbiology qualification.

Practical Education for Trainee Medical Microbiologists

A joint training scheme was developed to ensure that State Health Laboratory Services' registrars could pass through the laboratories of the Sir Charles Gairdner Hospital with similar facilities for the staff of Sir Charles Gairdner Hospital.

TOURS AND CONFERENCES

Mr. V. Bamford	-	2nd National Food Microbiology Conference, University of Sydney.
Dr. M. Bucens	-	Annual Conference of Australian Society for Microbiology, Adelaide.
Mr. R. Curtis	-	A tour of various U.K. Public Health Laboratories.
Mr. A.H. Fitzsimmons	-	Annual Conference, A.S.M., Adelaide.
Mr. G.B. Harnett	-	Annual Conference of A.S.M., Adelaide.
Dr. A. Henderson	-	Two meetings of Committee DS/3 of the Standards Association of Australia in Sydney and Melbourne.
Mr. J.B. Iveson	-	Conference organised by the Poultry Breeders' Association of Sydney.
Mr. V. van Rooyen	-	Visited the Mycobacterium Reference Unit, Cardiff, Wales, and National Health and Medical Research Council Laboratory, London, whilst in U.K.
Miss R. McAleer and Mr. J. Froudist	-	International Conference for Human and Animal Mycology, Israel; and Visited Commonwealth Mycological Institute, U.K.; also Visited London School of Hygiene and Tropical Medicine, U.K.

COURSES

Mr. V. Bamford - Course on Salmonella organised by the University of N.S.W., School of Food Technology.

PUBLICATIONS

Investigation of Food Poisoning Outbreaks.
A.H. Fitzsimmons.
West Australian Health Surveyor, December 1979.

Single Radial Haemolysis Test for the Assay of Rubella Antibody.
G.B. Harnett and C.A. Palmer.
J. Infect. Diseases (1979), 1180.

Pseudotuberculous adenitis due to Corynebacterium pseudotuberculosis.
A. Henderson.
J. Med. Microbiol. (1979), 12, 147.

First Isolation of Clostridium paraperfringens from Necropsy Material.
A. Henderson and D.A. Pocock.
Med. J. Australia, (1979), 95 (letter).

Salmonella infections in Silver Gulls in Western Australia.
J.B. Iveson.
West Australian Health Surveyor, March 1979, 5.

Ecological Aspects of Salmonella Infections in Western Australia with Particular Reference to the Kimberley Region.
J.B. Iveson.
West Australian Health Surveyor, June 1979, 37.

Salmonella and E.coli in the Owen Anchorage Cockburn Sound Environment. A report on Public Health Department and Cockburn Sound Study Team investigations in coastal waters, effluents and fauna.
J.B. Iveson,
Public Health Enteric Diseases Unit, State Health Laboratory Services publication, June 1979.

Public Health aspects of S.muenchen, S.chester and S.orion infections in Perth with particular reference to pet foods.
J.B. Iveson and H. Pickett.
West Australian Health Surveyor, September 1979, 38.

Enteric Parasites in Western Australia 1960-1978. A summary of protozoa and helminthes identified in humans.
J.B. Iveson.
Parasitology Workshop W.A.I.T. publication, 1979 (in press).

Faecal Pollution of Surface Waters in Jakarta, (1979).
J.B. Iveson, M. Gracey, P. Ostergaard, and P. Adnan.
Transactions of the Royal Society of Tropical Medicine and Hygiene, 73, 3, 306.

Vibrio alginolyticus in Retail Fish (letter).
R.F. O'Connor.
Med. J. Australia, 1979, 396.

Investigations of Keratinophilic Fungi from Soils in Western Australia.
R. McAleer.
Mycopathologia (in the press).

Pityriasis versicolor Infections in Western Australia.
R. McAleer.
Aust. J. Dermatol. (in the press).

Incidence of Fungal Infections of the Groin in Western Australia.
R. McAleer.
Aust. J. Dermatol. (in the press).

An Epizootic in Laboratory Guinea Pigs due to Trichophyton mentagrophytes.
R. McAleer.
Aust. Vet. J. (in the press).

Fungas Infections of the Scalp in Western Australia.
R. McAleer.
Sabouraudia (in the press).

7. CLINICAL BIOCHEMISTRY SERVICE

Statistics

The work on the Clinical Biochemistry Service continued to increase, with 167,000 samples being analysed - a rise of 29% on the 1978 figure. There was an increase of 44% in S.H.L.S. samples which now account for 48% of the total (40% in 1978). A significant increase (53%) also occurred in hospital out-patient samples, with a fall in research and survey samples. The Canadian system of work unit statistics was introduced in June.

Staff

Dr. C.I. Bhagat joined the Service as special registrar in chemical pathology. Dr. A. Gaman was successful in the examination in chemical pathology (general) to complete the requirements for Fellowship of the College. Mr. L. Stepatschuk returned from long service and study leave from the Clinical Research Centre, Harrow, where had had worked on the new thin layer chemistry technology. Dr. Garcia-Webb made a major contribution to the 1st South East Asian and Pacific Congress of Clinical Biochemistry as chairman of the scientific sub-committee and seven members of the Service were able to attend and contribute to the congress. Mr. R. Fullerton attended the A.I.M.L.S. meeting in Sydney, Mr. L. Cox took part in the joint working party on immunoassay. Professor Curnow chaired the I.F.C.C./U.P.A.C. education committee meeting in Davos, Switzerland and was appointed A.A.C.B. representative on the newly formed National Pathology Accreditation Advisory Council.

Quality Control

The Service continues to maintain a high place in external quality control achievement.

Teaching, Research and Development

The four M.Sc. course-work students in the laboratory graduated in 1979 and a new course will start in 1980.

Dr. M. Dick and Mr. F. Watson made the important observation of genetically controlled low thyroxine binding globulin levels in a high proportion of Australian Aborigines and called attention to mis-diagnoses in this section of the community in the past.

Dr. P. Garcia-Webb continued his work on diabetes, C-peptide and insulin receptors during the year, while Dr. E. Keogh's association with the laboratory increased with his work on inhibin and male infertility.

Surveys on lead in children at Northampton and in police patrol officers were carried out.

Visiting Professor

A notable event in the year was the visit, for three months, of Dr. F.L. Mitchell from the Clinical Research Centre, Harrow, as Raine Visiting Professor to the University Department of Clinical Biochemistry.

PUBLICATIONS

Papers—

The Binding of Urate by Plasma Proteins.
J. Bertolini and J.R.L. Masarei.
Aust. J. Exp. Biol. & Med. Sci. 57, 51-60 (1979).

The Effect of Chronic Parathyroidectomy on Calcium Metabolism in the Lactating Rat.
J.M. Fry, D.H. Curnow, D.H. Gutteridge and R.W. Retallack.
J. Endocrinol. 82, 323-331 (1979).

Decrease in Measured C-Peptide Immunoreactivity on Storage.
P. Garcia-Webb and Anne M. Bonser.
Clin. Chim. Acta 95, 139-141 (1979).

Post-Operative Pancreatitis as a Complication of Biliary Surgery.
D.M. Ingram, A.K. House and P. Garcia-Webb.
Aust. & N.Z. J. Surg. 49, 466-469 (1979).

The 1977 Busselton Children's Survey.
Michael Gracey, Nancy E. Hitchcock, Kim L. Wearne,
Peter Garcia-Webb and Roger Lewis.
Med. J. Aust. 2, 265-267 (1979).

A Prevalent Low Serum Thyroxine Binding Globulin Level in Western Australian Aborigines - Its Effect on Thyroid Function Tests.
M. Dick and F. Watson.
M. J. Aust. 1, 115-118 (1980).

Obesity and Insulin Secretion in Fasting High School Students.
P. Garcia-Webb, A. Bonser, K.L. Wearne and M. Gracey.
Diabetologia (in press).

Provisional Recommendation (1979) on a Scheme for a Two Year Postgraduate Course in Clinical Chemistry.
C.J. Porter and D.H. Curnow.
Clin. Chim. Acta (in press).

Book —
Metabolic Pathways in Medicine.
H.G.J. Worth and D.H. Curnow.
Edward Arnold (Publishers) Ltd., London, January 1980.

8. COMBINED UNIT OF CLINICAL PHARMACOLOGY AND TOXICOLOGY

Introduction

The Unit is a combined service of the State Health Laboratory Services and the University of Western Australia Pharmacology Department. It provides both quantitative and qualitative measurements of drugs and other chemicals in biological specimens. It is under the control of Professor J.W. Paterson.

Medical Staff

Professor J.W. Paterson, M.B., B.Sc., F.R.A.C.P., F.R.C.P.
Honorary Director of Unit.

Dr. G.M. Shenfield, M.A., D.M., M.R.C.P.
Senior Lecturer in Clinical Pharmacology.

Dr. J.M. Potter, M.B., B.Sc., Ph.D.
Lecturer in Pharmacology.

Dr. J. Schneider, M.D., F.R.C.P.E., F.R.A.C.P., M.R.C.P., D.T.M.&H.

Staffing

The routine daily work is largely handled by a staff of four chemists and one laboratory assistant. In July of 1979 one chemist was seconded to the Medical and Hospital Computer Service to be trained in computer programming. This placed a considerable burden on the remaining staff as a replacement chemist was not available until mid-December 1979. Some assistance was provided to the Unit by a technician from the Pharmacology Department who has been working half-time in the laboratory to assist in routine analyses and in research and development projects.

Work Load

The total number of specimens analysed decreased slightly during 1970. This compares with an increase of some 38% during 1978 and may indicate a stabilisation of sample numbers. Numbers of samples entering the laboratory are, however, not an entirely reliable guide to work load as there was during 1979 a marked trend for requests for multiple drug analyses on the same specimens. For example, it is most noticeable with the anti-epileptic drugs when concurrent therapy with three or four

different agents is common. When this factor is taken into account there is no doubt that the overall workload of the Unit has undergone a moderate increase during 1979.

Therapeutics Monitoring

Therapeutic monitoring of drug levels in clinical samples has become increasingly important with the growth of knowledge in clinical pharmacology. Requests for therapeutic monitoring have increased during 1979 with samples coming from all areas of Western Australia as well as from the Northern Territory. Drugs routinely monitored in this way include anti-asthmatics (e.g. theophylline), anti-epileptics (phenytoin, phenobarbitone, valproic acid carbamazepine, ethosuximide, methoin and sulthiame), anti-inflammatories (e.g. salicylate) and anti-arrhythmics (e.g. quinidine and disopyramide. Growth of this area may be anticipated as the indications for therapeutic monitoring are further defined.

Narcotic Screening

The number of urine samples received from the Alcohol and Drug Authority for narcotic screening has decreased substantially in the past twelve months. Nevertheless, on average 270 samples per month come from this source, making a large contribution to the total number of clinical drug samples. While narcotics can usually be recognised by their thin-layer chromatographic properties, in some cases time consuming confirmation of identity by gas chromatography-mass spectrometry is required.

On-Call Emergency Drug Screening

These screens are necessitated mainly for the management of patients suffering from drug overdosage, particularly with analgesics and tricyclic anti-depressants. During 1979 an average of six such on-call screens were requested per week with 2-3 hours analysis time utilised per call.

Forensic Work

Requests for this work originate from the State Health Forensic Pathology Department and are most often performed to assist in determining the cause of death in situations where a result is urgently required by the Coroner.

Other Work

The numbers of pesticide assays, both organochlorines and organophosphates increased significantly in 1979, due to a survey conducted on pest control operators in the Northern Territory.

Research and Development

Several new drug assays were developed during 1979:-

(i) Mianserin, a new tetracyclic anti-depressant drug, which is reported to have a better therapeutic index than the commonly used tricyclic anti-depressants, can now be analysed in plasma using high performance liquid chromatography.

(ii) In August 1979 the radiotherapy department of the Queen Elizabeth II Medical Centre commenced a clinical trial of misonidazole, a new anti-cancer drug. The high performance liquid chromatographic method for the assay of this drug in plasma has been developed to assist in correlation of both the

beneficial anti-cancer actions and the toxic central nervous system side effects of the drug with plasma drug concentrations.

(iii) An assay for the active constituents of Syrup of Ipecacuahna (emetine and cephaeline) has also been developed using high performance liquid chromatography. The syrup is widely used in the community as an emetic in the emergency treatment of poisoning in children. The assay procedure will be used to determine the storage stability of its pharmacologically active alkaloid constituents.

(iv) Currently a number of colorimetric methods for the estimation of plasma paracetamol are being evaluated. In overdosage, paracetamol is a potent hepatotoxin and it is hoped that this research will provide an assay procedure which can be used by laboratories in country areas to give the information required for the prompt treatment of overdosage with minimal need for sophisticated analytical instrumentation.

(v) A number of reports have appeared in recent scientific literature suggesting that some drugs may be absorbed to the inner surfaces of plastic specimen containers or to the rubber closures used in "Vacutainer" specimen tubes. Investigations in this Unit indicate no such interference for phenytoin, carbamazepine, theophylline, amitriptyline, imipramine, and doxepin in short term storage tests.

Quality Control of Clinical Drug Assays

The Unit has now participated in the quality control scheme run by Dr. A Richens from St. Bartholomews Hospital in London for some two years. Quality control specimens for several anti-epileptic drugs and for theophylline are received monthly and the results indicate that assays from this Unit continue to compare favourably with those from over 180 other participating laboratories. The scheme has been most helpful in ensuring that reproducible and reliable analytical methods are used and in impressing upon staff the need for constant attention to the care and accuracy with which work is performed.

Research Publications

Dusci, L.J. and Hackett, L.P. (1979).
Determination of Labetalol in Human Plasma by HPLC.
Journal of Chromatography, 175, 208-210.

Hackett, L.P. and Dusci, L.J. (1979).
The Use of HPLC in Clinical Toxicology II Tricyclic Anti-Depressants.
Clinical Toxicology, 15, 55-61.

Hackett, L.P. and Dusci, L.J. (1979).
The Analysis of Propranolol in Human Serum by HPLC.
Clinical Toxicology, 15, 63-66.

Hackett, L.P. and Dusci, L.J. (1979).
Determination of Dantrolene Sodium in Human Plasma by HPLC.
Journal of Chromatography, 179, 222-224.

Hackett, L.P. and Dusci, L.J. (1979).
Determination of Metronidazole and Tinidazole in Human Plasma Using HPLC.
Journal of Chromatography, 175, 347-349.

Illett, K.F., Madsen, B.W. and Woods, J.D. (1979).
Pharmacokinetics of Disopyramide in Patients with Myocardial Infarction.
Clinical Pharmacology and Therapeutics, 26, 1-7.

Shenfield, G.M., Illet, K.F., Tjokrosetio, R. and Tearne, P. (1979).
Bioavailability of Two Different Formulations of Carbimazole in Man. Clinical and Experimental Pharmacology and Physiology, 6, 479-485.

9. HAEMATOLOGY

Dr. J.L. Raven remained head of the Combined Unit. No major changes in the unit occurred during the year, and the work load declined by 9%. This drop was due mainly to the lack of survey specimens. When surveys are undertaken now, authorities are much more selective in the substances they wish assayed and this has led to a diminution of requests for haematology. So far as the divisions of the laboratory are concerned, changes are shown below:-

	Routine Lab.	Blood Bank	Coagulation	Special Investigations and Radioisotopes
1979	50,741	12,162	11,780	6,542
1978	55,113	14,964	10,355	8,968
1977	47,371	12,998	9,578	1,569

Every section apart from Coagulation, thus shows a fall in specimen receipt.

Special Remarks

1. Malaria is an increasing problem in Western Australia, due mainly to tourist or migrant importation. Undoubtedly more needs to be done to persuade tourist agencies to propagate information that malarial prophylaxis is necessary for those visiting endemic areas. Twenty five new cases were reported in the year.

2. Some attention was paid to the necessity of night staffing of Haematology. The urgent work involved, almost entirely from the Sir Charles Gairdner Hospital, was beginning to strain overtime resources, both financially and psychologically. Resolution of the problem had not been completed when the year ended.

3. During the year 572 single and multiple red cell antibodies were identified - 179 from the Sir Charles Gairdner Hospital and 393 from the State Health Laboratories.

4. New diagnostic tests in coagulation introduced were for von Willebrand's Disease (Ristocetin Co-Factor, Factor VIII Antigen by immunoelectrophoresis).

5. An increasing number of HbE traits and α-Thalassaemia traits have been identified recently, chiefly influenced by Vietnamese migrants.

10. HISTOPATHOLOGY & CYTOLOGY

The volume of work in this department did not change fundamentally during 1979, as can be seen from Tables VI.A and B. A decision was taken in January to separate the technical control of Cytology from that of Histopathology, while retaining both under the administrative control of the Pathologist in Charge. Previously during periods of leave the technical head of one branch had been responsible for both, without necessarily having any skill in the second subject.

In November 1979 a decision was made to combine Cytology first and later Histopathology with the neighbouring Hospital and University Service, the whole under the control of Professor M.N-I. Walters, Director of of the Hospital and University Pathology Services (H.U.P.S.). The new combined service (the Combined Anatomical Pathology Service) was given the blessing of the Commissioner of Public Health and Medical Services, the Board of the Sir Charles Gairdner Hospital and the Vice Chancellor, University of Western Australia. Details of such amalgamation as was necessary have been carefully documented.

So far as Cytology is concerned, there was a much greater degree of actual amalgamation than was necessary in Histopathology, where under one Head, each section in Hospital/University and the State Service remains with considerable autonomy but sharing many facilities and much of the work.

Staff Changes

Drs. McCully and Carroll resigned as sessional histopathologists as from 30.10.79 and were replaced by Drs. Pollard and Glancy as full time histopathologists. The administrative arrangements of Histopathology so far as the State section was concerned were assumed by the Director and Deputy Director, State Health Laboratory Services.

Dr. F.A. Frost was appointed registrar in Anatomical Pathology as from 1.11.79.

All registrars are shared in the combined unit.

11. FORENSIC SERVICES

FORENSIC PATHOLOGY

The statistics show a sligh reduction in the number of post mortems performed by doctors practising in this department in 1979. This may be attributed, in part, to the encouragement offered to doctors in major country centres to perform coronial necropsies.

There was a noticeable decrease in the number of traffic accident victims coming here and a slight decrease in the number of deaths from industrial accidents and suicides. However, the number of homicides almost doubled from 22 in 1978 to 40 in 1979. A further distressing aspect of this was the shooting of two policemen, while on duty, in separate incidents.

Staff Changes

There were no medical staff changes during the year.

Of the technical staff, the following changes occurred - Miss Janes resigned her position in Derby and her place was taken by Mr. S. Sheminant. Mr. Andre Minton joined the staff and was posted to Port Hedland. Mr. Keith Smith was posted to Bunbury. The presence of these trained mortuary technicians in the major country centres has averted a significant increase in the medical work load in the department.

Training Courses

The first cohort of technicians completed their course in December 1979. This course proved successful and worthwhile and has significantly extended the range of assistance we can offer.

Conferences, Publications and Research

Dr. Pocock attended the biannual Symposium of the Australian Forensic Science Society in Adelaide in March 1979 and presented a paper. He also presented a paper to the Tasmanian Branch of the Society in October 1979. He published the following papers:-

1. Effects of Atenolol and Propanolol on Human Performance and Subjective Feelings (jointly). Psychopharmacology 60, 211-215, (1979).

2. "..............to make the punishment fit the Crime". Australian Law Quarterly, September 1979.

3. Forensic Pathology Services - Western Australia. Forensic Society Internation 12 (1979), 207-209.

Dr. Hilton attended the 2nd National Meeting of the Sudden Death in Infancy Syndrome Foundation in Melbourne in October 1979, and addressed several service clubs on this subject.

Investigations into this problem is continuing in conjunction with other departments in the State Health Laboratory Services, the University of Western Australia and Royal Perth Hospital.

Finance

Re-arrangement of air routes and services has had an effect on our travel finances. Whereas previously we could rely more on late bookings, the ability of the major carrier to respond is lessened by these changes. Consequently when dealing with homicides, it is more often necessary to charter light aircraft, with an obvious increase in costs.

Mortuary Statistics

Place of Post Mortem

The Queen Elizabeth II Medical Centre	1,175
Country	74
Total:	1,249

Type of Death

Sudden Death	871
Suicide	112
Homicide	40
Traffic Accident	213
Industrial Accident	13
Total:	1,249

FORENSIC BIOLOGY

There was a 12% increase in the number of cases received by this section. Most items received were from the Police Department and varied from medical samples, such as blood and swabs, to items of clothing, weapons etc.

There was no change to staff numbers during the year. The section moved from the Queen Elizabeth Medical Centre to the Swanbourne Hospital at the end of 1978 and encountered no difficulties at the new location. No major changes have been made to techniques used in the laboratory.

Statistics

	Number of Cases Received
From C.I.B.	
Sexual Offences	100
Murder, assault etc.	86
	186
From other departments	41
Total:	227

12. SEROLOGY

Statistics

(See 1978-79 comparison table).

On comparing 1978 with 1979 statistics there has been an overall decrease of 17% in the number of tests performed. The reasons for this are:

1. Antithyroid requests and rheumatoid factor requests are now performed by the Department of Clinical Immunology at Royal Perth Hospital to reduce unnecessary duplication of services.

2. A real decrease in the number of some tests.

3. Increasing range of tests now done by private laboratories.

Methods

New tests introduced into Serology in 1979 include the following:

Toxoplasma	FAT
Toxocara	FAT
Diphtheria	HA
Tetanus	HA
E. coli	HA
Isohaemagglutinins	
Radioallergosorbent test	

The Toxoplasma FAT replaced the less sensitive Toxoplasma CFT. Several cases of acute Toxoplasmosis were detected in 1979 as a result of the introduction of the Toxoplasma FAT - IgM specific test. One of these positives was forwarded to Dr. J. Remington, a recognised authority on Toxoplasmosis, and the correlation between our results was excellent.

The Toxocara FAT is still being evaluated and positive or doubtful results are being forwarded to London for confirmation. Live larvae are supplied by the courtesy of Mr. Lindsay Jue Sue of Murdoch University.

While in London Miss Jenny Cheney visited Dr. Woodruff of the Toxocara reference laboratory and returned with valuable information on their Toxocara method. Some modifications to our method will be implemented, in particular a method of fixation of the larvae.

Dr. Winterbottom (S.H.L.S. registrar) successfully completed a Toxocara survey on dog owners.

In keeping with the policy of decentralization, country branches should soon be commencing CRP, cold agglutinins and "Streptozyme" testing.

The RAST has been successfully introduced and the expertise of Dr. Stuckey in the field of allergy has been a great asset. The assistance of A/Professor K.J. Turner in the setting up of RAST is gratefully acknowledged.

Staff Report

Dr. Stuckey has received a grant from "Telethon" to study allergic diseases in the Busselton population. The grant will provide salaries for research assistants to collect and analyse data from the 1978 and 1979 immunology studies on the Busselton population.

Towards the end of the year a senior technologist started a course in computer programming with the object of computerizing serology reporting

in July 1980.

New Initiatives

The acquisition of a flat bed electrophoresis system from the 1978/79 budget will supply this department with the capability to perform straight electrophoresis, rocket electrophoresis, immunoelectrophoresis and some isoelectric focusing. Column chromatography is also being introduced.

The electrophoresis and column chromatography has too many specific uses to list here but in general it will be used for:

1. Separation of immunoglubulin classes.

2. CIEP (e.g. Hydatid are 5 antigen, detection of pneumococcal capsular antigen).

3. Preparation of various antigenic materials to investigate specificity of some antibodies with a view to improving our present methods and introducing new ones. (e.g. Toxocara, Filaria, Amoeba etc.).

4. Straight IEP (test purity, identify antigens and antibodies).

5. The enzyme linked immunosorbent assay also be investigated for its potential application to bacterial serology.

Quality Control

Serology has started its own internal quality control programme and also plans a proficiency testing programme for private laboratories, dependent on their co-operation. The Centre for Disease Control (U.S.A.) proficiency testing programme is still performed on a regular basis with excellent results. A.R.C.P.A. proficiency testing programme is also to be started.

Conferences

Dr. Stuckey attended the annual meetings of the Australian College of Paediatrics and the Paediatric Research Society of Australia and presented a paper on bone marrow transplantation.

He also attended the annual course in clinical pathology (Royal College of Pathologists of Australasia and Australian Association of Clinical Biochemists) and a workshop on quality control in radioimmunoassay.

Education

Pathnotes have been produced on the following topics:

C-reactive protein, immunodeficiency, HLA, rheumatoid factor, syphilis serology and "Streptozyme" methods. Pathnotes for Anti-Nuclear factor, Autoantibodies, IgE, RAST and Toxoplasmosis are in preparation.

Medical students have attended the department for tutorials on syphilis serology, during their period of training at the V.D. Clinic. Bacterial serology is also included in the clinical immunology course given to 4th

year medical students.

In May 1979 Dr. Stuckey accompanied Dr. Arthur Newnham (Director of the V.D. Control Branch) on a lecture tour of the North West and Kimberley districts of the State. The lectures and ensuing discussions were well received by the medical officers, nursing staff and health officers who attended.

13. CYTOGENETICS

Work Load

1577 specimens were referred for cytogenetic analysis. Of these, 445 specimens were amniotic fluids for prenatal diagnostic monitoring. The proportion of work devoted to prenatal diagnosis has therefore increased slightly, although the overall number of specimens has remained about the same.

New Techniques

Giemsa Banding has now become a routine and its applied to all specimens received in the laboratory. C, T and NOR staining have also been used when deemed necessary.

Preliminary studies have been undertaken on the BUDR techniques for demonstration of the late replicating X and sister chromatid exchanges. Use of these techniques has provided a definite diagnosis in a rare case of Bloom's syndrome which will be the subject of a future publication. Use of the RBG technique will enable more precise identification of break-points in complex translocations.

Teaching

As in previous years, lectures and demonstrations have continued to medical students, post-graduate nurses, post-graduate education students and high school students. Lectures are also routinely given to doctors from the Department of Community Health and to the Registrars participating in the Paediatric post-graduate programme at Princess Margaret Hospital.

Visitors

Dr. Arabella Smith from the Cytogenetics Unit, Oliver Latham Laboratories, Sydney, spent one week visiting this unit in order to observe the techniques and procedures employed. In several letters she has expressed her gratitude to Miss Jenkyn for the extensive information supplied.

Publications

Four papers have been published:-

(a) Carrier Detection in X-Linked Mental Retardation.
Med. Journal of Australia, 1:233-234 (1979).

(b) Down's Syndrome in Western Australia:Cytogenetics and Incidence.
Hum. Genet. 48:67-72 (1979).

(c) Down's Syndrome in Western Australia:Mortality and Survival. Clinical Genetics, 16:103-108 (1979).

(d) Trisomy 3q:Two Clinically Similar but Cytogenetically Different Cases.
Ann. Genet., 22:No.4, (1979).

A further paper:-

"Amniocentesis:Seven Years Experience" was read at the Annual Meeting of the Australian Council of the Royal College of Obstetricians and Gynaecologists in Tasmania, 1979.

Tissue Culture for Biochemical Estimation

Initiation and maintenance of tissue cultures for biochemical estimations undertaken at Princess Margaret Hospital, King Edward Memorial Hospital and overseas laboratories have involved this unit in a considerable amount of work. Further work of this nature may need to be done under the auspices of a research grant, the possibility of which is at present being explored.

Seminal Analysis

Since November 1979 this unit is co-ordinating the microscopy of specimens sent for seminal analysis from branch laboratories and is undertaking the analysis of specimens received at Central Laboratories. 64 specimens were received in 1979.

At the suggestion of Dr. Cohen, experimental work on sperm survival will be undertaken in 1980.

TABLE I A

STATE HEALTH CENTRAL LABORATORIES (INCLUDING COMBINED UNITS)

SPECIMENS ANALYSED AND AUTOPSIES PERFORMED

1979

	1979	1978	% Increase
Clinical Bacteriology	11,671	11,134	+ 4.82
Virology	41,632	40,758	+ 2.14
Mycology	10,172	16,506	- 38.37
Mycobacteria	9,966	10,214	- 2.42
Venereal Disease	30,564	32,021	- 4.55
Enteric + Parasitology	47,694	45,182	+ 5.56
Foods	4,784	3,527	+ 35.64
Waters and Sewerage	25,143	21,980	+ 14.39
Phage Typing, Cross Infection etc.	5,113	3,618	+ 41.32
Total Microbiology:	186,739	184,940	+ 0.97
Biochemistry (including Radioisotopes	167,199	129,537	+ 29.07
Toxicology	14,272	15,053	- 5.19
Haematology	81,225	89,400	- 9.14
Serology	53,802	64,707	- 16.85
Cytogenetics	1,641	1,613	+ 1.74
Histopathology	19,810	20,906	- 5.24
Cytology (cases)	24,137	23,851	+ 1.20
Autopsies	1,249	1,282	- 2.57
Total Pathology:	363,335	346,349	+ 4.90
GRAND TOTAL:	550,074	531,289	+ 3.54

TABLE I B

STATISTICS - BRANCH LABORATORIES

1978 - 1979

BRANCH	1979	1978	% DECREASE INCREASE
Albany	16,256	14,055	+ 15.66
Armadale	3,414	3,586	- 4.80
Broome	5,196	4,500	+ 15.47
Bentley	7,044	6,930	+ 1.64
Bunbury	13,609	14,189	- 4.09
Busselton	7,833	7,528	+ 4.05
Carnarvon	7,020	7,052	- 0.45
Collie	3,177	3,016	+ 5.34
Dampier	8,348	9,631	- 13.32
Derby	16,097	12,113	+ 32.89
Esperance	5,341	6,116	- 12.67
Geraldton	27,784	21,188	+ 31.13
Kalamunda	2,618	*	
Katanning	4,262	3,918	+ 8.78
Kununurra	86	294	
Manjimup	9,443	8,714	+ 8.37
Merredin	8,394	8,030	+ 4.53
Mount	4,381	3,843	+ 14.00
Narrogin	14,182	11,544	+ 22.85
Newman	379	524	- 27.67
Northam	9,226	9,000	+ 2.51
Osborne Park	18,265	15,329	+ 19.15
Pinjarra	13,576	10,198	+ 33.12
Rockingham	8,943	7,532	+ 18.73
Port Hedland	19,171	18,134	+ 5.72
Swan Districts	14,205	14,013	
Tom Price	3,084	2,068	+ 49.13
Wyndham	8,070	8,943	- 9.76
	259,404	231,988	+ 11.82

* Included with Swan Districts 1978

TABLE II A

CLINICAL BACTERIOLOGY - SPECIMENS 1979

	1979	1978	% Change
Medical Practitioners	1,734	1,361	+ 27.4
Country Hospitals	1,645	2,009	- 18.1
Metropolitan Hospitals	917	975	- 6.0
Mental Health Services	791	771	+ 2.6
Department of Corrections	1,009	868	+ 6.2
Family Planning Association & Women's Health & Community Centre	2,166	3,185	- 32.0
Special Treatment Clinic Q.E.II	2,238	785	+ 185.1
Sexual Assault Referral Centre	175	76	+ 130.3
Aboriginal Medical Service	461	404	+ 14.1
Forensic etc.	157	247	- 36.4
Referred Cultures	378	453	- 16.6
TOTAL:	11,671	11,134	+ 4.8

TABLE II B

SEXUALLY TRANSMITTED DISEASES - SPECIMENS 1979

	1979	1978	% Change
Specimens for N. gonorrhoeae	28,759	30,822	- 6.7
No. Positive	1,668	1,648	
% Positive	5.8	5.35	
Specimens for Syphilis (D.G.I.)	354	477	- 25.8
No. Positive	19	36	
% Positive	5.4	7.55	
Other	1,451	722	+ 101.0
TOTAL SPECIMENS:	30,564	32,021	- 4.6

TABLE II C

WATERS AND SEWERAGE - SPECIMENS 1979

	State	Commonwealth	Local Health Authority	MWSS & D	Country Water Supply	Other	Total	Positive for Pathogens
Water Supplies	579	1,300	2,215	5,526	1,958	-	11,578	76
Bores & Wells	55	88	339	40	88	-	610	19
Reservoirs & Tanks	28	42	141	1,797	533	-	2,541	51
Swimming Pools	40	-	349	-	11	-	400	-
Natural Waters	-	-	-	109	-	-	109	11
Sewerage & Drainage	360	44	318	1,353	52	33	2,160	450
Water Catch-ment & Supply	60	8	123	7,554	-	-	7,745	523
TOTAL:	1,122	1,482	3,485	16,379	2,642	33	25,143	1,130

TABLE II D

ENTERIC

PUBLIC HEALTH BACTERIOLOGY - SPECIMENS 1979

	State	Common-wealth	Local Health Authority	Public Hospital	Private Service	Country Town Water Supply	MWSS & D	Other	Total	Positive for Pathogens
Human Faeces	15,233	1,129	1,133	82	368	-	-	-	17,945	2,183
Abattoirs and Meat Processors	965	-	513	-	-	8	-	-	1,486	595
Soils and Ground Waters	2,920	-	640	-	-	99	343	43	4,045	293
Animals	6,295	12	25	-	-	-	21	399	6,752	1,040
Cultures Referred (Human)	935	53	-	278	199	-	-	-	1,465	1,241
Cultures Referred (Environment)	301	-	-	-	1,998	-	-	-	2,299	2,044
TOTAL:	26,649	1,194	2,311	360	2,565	107	364	442	33,992	7,396

TABLE II E

FOODS - SPECIMENS 1979

State	Common-wealth	Local Health Authority	Other	Total	No. Positive for Pathogens	% Positive
2,089	739	1,182	774	4,784	790	16.51

TABLE II F

PARASITOLOGY - SPECIMENS 1979

Number Positive	% Positive	Total Specimens
2,405	17.55	13,702

TABLE II G

MYCOBACTERIA - SPECIMENS 1979

Queen Elizabeth II Medical Centre	3,360
Perth Chest Clinic	1,172
Repatriation General Hospital & Kalgoorlie	1,070
Others	3,741
Cultures Referred	150
Smears for M. leprae	473
TOTAL:	9,966
Positive Specimens - Mycobacteria Atypical	433
Positive Specimens - M. tuberculosis/M. bovis	430
TOTAL:	863

TABLE II H

MYCOLOGY - SPECIMENS 1979

	1979	1978	% Change
Total Specimens	10,172	16,506	- 38.4
Total Specimens Positive	3,674	4,942	- 25.7
Specimens Positive %	36.12	29.94	-
Total Skin Scrapings	6,394	7,125	- 10.3
Total Skin Scrapings collected by Mycology	3,778	4,598	- 17.8

TABLE II I

VIROLOGY - SPECIMENS 1979

Specimens for Isolation	Positive Isolations	Specimens for Rubella	Specimens Viral Serology	Positive Serology	Sera for Hepatitis	Survey etc.	Total Specimens
18,108	2,321 (12.8%)	12,606	5,380	524 (9.7%)	3,829	1,709	41,632

Tests and Results on 3,829 sera tested for Hepatitis

	No. of Tests	% Positive
Hepatitis A IgM	681	12.3
Hepatitis B surface antigen (HB_SAg)	3,829	7.0
Anti-HB_SAg	1,508	
Anti-HB_CAg	345	

TABLE III

CLINICAL BIOCHEMISTRY - SPECIMENS 1979

	1979	1978	% Increase
Sir Charles Gairdner Hospital	86,171	66,252	+ 30.07
State Health Laboratory Services	63,347	44,130	+ 43.55
Commonwealth Instrumentalities	4,731	2,851	+ 65.94
Surveys, Research etc.	12,950	16,304	- 20.57
TOTAL:	167,199	129,537	+ 29.07

TABLE IV

COMBINED UNIT OF CLINICAL PHARMACOLOGY & TOXICOLOGY

SPECIMENS 1979

	1979	1978	% Change
CLINICAL			
Drugs	12,342	13,634	- 9.5
Alcohol	161	148	+ 8.8
Pesticides	563	293	+ 92.2
Miscellaneous	554	50	
FORENSIC			
Drugs	211	272	- 22.4
Alcohol	441	656	- 32.7
TOTAL:	14,272	15,053	- 5.2

TABLE V

HAEMATOLOGY - SPECIMENS 1979

	1979	1978	% Change
Sir Charles Gairdner Hospital	60,490	60,809	- 0.52
State Health Laboratory Services	18,734	18,537	+ 1.06
State Health Laboratory Services' Surveys	1,474	9,292	- 84.14
University & Repatriation General Hospital	527	762	- 30.84
TOTAL:	81,225	89,400	- 9.14

TABLE VI A

HISTOPATHOLOGY & MORBID ANATOMY - SPECIMENS 1979

	1979	1978	% Increase
Autopsies - Forensic	1,249	1,282	- 2.57
Surgical Biopsies	19,810	20,906	- 5.24
Blocks Cut (Autopsies)	19,570	18,876	+ 3.68
Blocks Cut (Biopsies)	45,219	46,145	- 2.01
Frozen Sections (Biopsies)	435	461	

TABLE VI B

CYTOLOGY - SPECIMENS 1979

	1979	1978	% Change
Cervical	22,507	22,493	+ 0.06
Sputa	1,042	929	+ 12.16
Miscellaneous	588	429	+ 37.07
TOTAL:	24,137	23,851	+ 1.20

TABLE VII A

SEROLOGY - SPECIMENS 1979

	1979	1978	% Increase
Treponemal Serology	39,350	44,026	- 10.62
Bacterial Serology	4,098	6,220	- 34.12
Viral, Rickettsial, Helminthic and Protozoal Serology	3,086	3,886	- 20.59
Hormone Serology	887	1,122	- 20.95
Auto antibodies	2,842	7,824	- 63.68
Others	3,539	1,629	+ 117.25
TOTAL:	53,802	64,707	- 16.85

TABLE VII B

CYTOGENETICS - SPECIMENS 1979

	1979	1978	% Increase
Chromosome Analysis	1,577	1,593	- 1.0
Seminal Analysis (part year)	64	-	-
House Dust Mites	-	20	-
TOTAL:	1,641	1,613	+ 1.73

99606-6

Appendix II

CHEST AND TUBERCULOSIS SERVICES

J.T. Cassidy
M.D., F.R.C.P., F.R.A.C.P.
Director

The work load for the year showed no great variation from 1978 apart from marked increase in home visits by sisters to non T.B. patients.

The figures are as follows:

		1978	1979
Attendances at—			
	Perth Chest Clinic	12,691	12,533
	Fremantle Chest Clinic	2,072	1,981
	Kalgoorlie Chest Clinic	183	118
	Examinations at Graylands Hospital	864	1,015
	Domiciliary Assessment	33	35
		15,843	15,682
Country Chest X-Ray Film Readings—			
	Chest Clinic Requests	885	931
	Other	8,281	11,145
		9,166	12,076
Sisters Home Visits—			
	Supervision of anti-T.B. Drug Therapy	3,131	2,657
	Other Visits to Patients on T.B. Register	808	665
	Non T.B. Chest Patients	817	1,390
		4,756	4,712

TUBERCULOSIS

Notifications

The incidence rate for 1979 for new cases (per 100,000) was 13.7 an increase on the 1978 figure of 11.7. This increase relates largely to non-pulmonary cases, the incidence of pulmonary cases being 9.7 compared to 9.6 in 1978. A total of 179 patients were notified consisting of 169 new cases, 2 transferred in from other states and 8 with reactivation of previous disease. The sex ratio for pulmonary disease showed a male preponderance about a 3:1 ratio. The notifications included 89 who were born outside Australia - 40 of the latter being Vietnamese nearly all of whom had been in Australia for

only one year.

There were 106 cases of active pulmonary T.B. on the Register at the end of the year a prevalence rate of 8.6 per 100,000, as compared to a prevalence rate of 11.1 per 100,000 in 1978.

The changes in the extent of disease since 1973 when compulsory mass x-rays were phased out is shown and no significant fluctuation is noted.

	Pleural Effusion	Minimal	Moderate	Advanced
1973	4.6	40.9	41.8	12.7
1974	6.7	34.6	46.2	12.5
1975	0.9	42.2	42.2	14.7
1976	2.4	39.8	38.5	19.3
1977	1.8	42.0	48.2	8.0
1978	0.7	52.5	38.0	8.8
1979	1.6	44.5	39.8	14.1
Average 1973-1979	2.7	42.4	42.1	12.9

Non-Pulmonary Tuberculosis

Non pulmonary notifications for the year were 51 including 16 atypicals. This figure does not differ significantly from the figures for 1950 to 1979 - ranging between 18-50.

Bacteriology

65 of the 109 new pulmonary cases were bacteriologically positive.

Bovine organisms were recovered from one pulmonary case and from two non-pulmonary cases - renal and bowel.

14 patients had tubercle bacilli resistant to one or more drugs - seven of these had come from outside Australia and the majority were resistant to Streptomycin. One showed resistance to Ethambutol, Isoniazid and PAS.

Source of Cases

Again a large proportion of these - 38 (30.2%) were discovered by examination of Vietnamese refugees. Five cases were discovered at post mortem. Three of these were aged 92, 83 and 79. One of these had extensive disease of the right upper lobe caused by M. Bovis, another had right upper lobe disease caused by M. intracellulare and the third had a duodenal fistula, caused by M. T.B.

Of the other two cases - both young, one died in hospital from Miliary T.B. and the other - a diabetic - was attending the Out-patient Department of a general hospital. His diabetes was very difficult to control, he had marked weight loss and severe lethargy. He was brought in dead and on post mortem was found to have extensive cavitatory disease with miliary spread. He had never had a chest x-ray.

Reactivations

Eight patients with previously documented disease reactivated. Six of these were Vietnamese and though these appeared to have had adequate treatment in the past, there could be no certainty of this.

Of the remaining two, one was a girl born in India who had cervical adenitis some years ago. M. T.B. was cultured from her glands.

The last reactivation was a man 72 years. His previous history extended from 1916 - 1930 and includes T.B. Glands, pleurisy, T.B. spine and T.B. shoulder. He had never had chemotherapy.

It will be seen from the above therefore that none of our own conventionally treated cases had reactivated.

Migrants and Refugees

962 Vietnamese migrants arrived during 1979 - 38 were notified as pulmonary T.B. - 30% of our notifications for the year.

60 were given prophylactic treatment with Isoniazid.

In addition to the routine checks on arrival and routine follow-up procedures for those with a T.B. Undertaking, an attempt is being made to follow-up for 5 years all Mantoux positive individuals and those with radiological evidence of a healed primary.

The 1979 positive reactor rates for W.A. schools and Vietnamese refugees are shown.

The reactor rate in W.A. schools is significantly raised from the previous year - the 1978 figures are in brackets.

	W.A. Schools	Vietnamese Refugees
Age 0 - 9 years	-	12.1% (13.5%)
Age 10 - 14 years	6.2% (1.9%)	26.0% (25.2%)
Age 15 - 19 years	8.9% (2.6%)	39.3% (42.0%)

Deaths

There were eight deaths directly attributed to pulmonary tuberculosis - in five of these the diagnosis was made post mortem. Among this group were five cases of miliary tuberculosis. Increasing numbers of cases of miliary tuberculosis are being reported in elderly patients - the diagnosis frequently being a post mortem one. Typically the patient is an elderly female with pyrexia and a pancytopenia or a leukaemoid reaction.

Treatment

146 cases were admitted to the tuberculosis ward at the Sir Charles Gairdner Hospital during the year and 155 were discharged. The average stay in hospital was 40 days - this period of stay is unchanged from 1978. Again most of the patients admitted, 58.7% were in hospital for one month or less, those retained for longer than this usually had complicating factors such as poor compliance, alcoholism, etc.

Some patients on discharge had supervised chemotherapy either at one of the Clinics or by nurses of the Silver Chain Association or the Community Health Services. Some of these patients had intermittent chemotherapy usually a twice weekly regimen and it is felt that possibly more use could be made of this form of fully supervised intermittent chemotherapy. It ensures compliance and effects a considerable saving in drug costs, at the same time being therapeutically highly effective.

During the year 255 patients received chemotherapy - 28 of these for atypical tuberculosis.

Prevention

Epidemiological tuberculin testing was continued using largely the same schools as in previous years. As already stated of those not previously vaccinated with B.C.G. in the 10 - 14 age group 6.22% were reactors. This percentage compares with 1.95% in 1978, 2.30% in 1977 and 2.28% in 1976. This trend was continued in the 15 - 19 age group the figures being 8.8% in 1979, 2.65% in 1978 and 4.04% in 1977.

These figures are disturbing as they may indicate a significant pool of infectious cases in the community.

During 1979 17,716 High School students were given B.C.G. vaccination, 15,865 by direct vaccination. There were no complications. All High Schools throughout the State are covered by this programme apart from two in extremely remote areas, B.C.G. was also given to selected groups, at the University of W.A., Murdoch University and H.M.A.S. Leeuwin.

Mass x-rays were continued during 1979 and the mobile units visited the following local Government areas:

Shire of Capel, Town of Busselton, Shire of Nannup, Shire of Augusta - Margaret River, Shire of Coorow, Shire of Carnamah, Shire of Three Springs, Shire of Mingenew, Shire of Irwin, Shire of Greenough, Shire of Northampton, Shire of Chapman Valley, Town of Geraldton, Shire of Mullewa, Shire of Morawa, Shire of Perenjori, Shire of Yalgoo, Shire of Menzies, Shire of Leonora, Shire of Laverton, Shire of Dundas, Shire of Esperance, Shire of Ravensthorpe, Shire of Yilgarn, City of South Perth, Shire of Denmark including Walpole.

A total of 13,090 persons were examined and three cases of tuberculosis were discovered giving a yield of .22 per 1,000 persons. One of the cases discovered by mass radiography was a teacher in a boys' school - a survey of this school yielded a 2nd bacteriologically positive case of tuberculosis. 446 of those x-rayed had other significant abnormalities including 8 with changes suggestive of carcinoma.

Atypical Tuberculosis

26 of the notifications were for atypical tuberculosis. Of these 15 were cases of cervical adenitis and were caused by Group II or Group III organisms. One was a discharging sinus on the wrist caused by a Group I organism, M. marinum. The remaining 10 cases were of pulmonary disease all caused by M. intracellulare. For atypical pulmonary disease, early resection if feasible is favoured.

It is recognised that total removal of the involved area in the lung is required as if any disease is left breakdown is very likely. Two of our cases that had upper lobes removed were noted at operation to have minimal involvement of the apex of the lower lobe. Both of these brokedown shortly after resection.

We propose in future to use CT scanning to deliniate exactly the extent of the disease before operation.

Mines Medical Section and Occupational Health

A total of 7,754 x-ray examinations were carried out in respect of the mining industry as follows:

	New Applicants	Re-examinations	Total
Perth Chest Clinic	2,814	1,288	4,102
Kalgoorlie Chest Clinic	507	649	1,156
Mobile Unit	334	2,162	2,496
	3,655	4,099	7,754

The Pneumoconiosis Board held 28 sessions at the Perth Chest Clinic and 5 at Kalgoorlie Chest Clinic and examined a total of 195 persons.

Mine surveys under the 1976 Mines Regulation were carried out at:

Jarrahdale, Dell Park, Huntley, Cable Sands Bunbury, Capel Heavy Sands, Greenbushes Tin, Eneabba Heavy Sands, Three Springs Talc, Pioneer Quarries - Walkaway, Nargala, Paynes Find, Bullfinch, Koolyanobbing, Marvel Lock, Coolgardie, Kalgoorlie, Kambalda, Norseman, Grass Patch, Ovabands, Menzies, Laverton, Leonora, Mt. Windama, Leinster.

Respiratory Diseases Programme

Clinic attendances under the programme were 2,509 for the year. The visiting Asthma Nurse has carried out the following activities:-

Visits	
-initial	106
-follow-up	424
Group Discussions & Lectures	35
Symposium	4
Camps	2
Country Trips (Education)	2
Hospital Team Meetings	84

Referrals to the Asthma Nurse came from the following sources:

Asthma Foundation	15
General Practitioners	6
Specialist Physicians	72
Community & Child Health Sisters	10
Self-referral	3

Conclusion

Some concern is felt over the present lack of an active case finding programme. As indicated earlier the significant increase in the number of reactors found during epidemiological tuberculin testing in the north west may be a reflection of this lack. Most of the procedures that helped case finding in the past have now been abandoned, i.e. x-ray requirement for jobs, routine check x-ray on hospital admission even in high risk groups like diabetics, pre-operative x-rays, annual screening of hospital staff - student nurses are no longer required to have a chest x-ray on commencing - a clinical examination is thought to be sufficient, etc.

As most of our new cases of pulmonary tuberculosis are now in the older age groups, it would be a step in the right direction if patients aged 45 years and over - many of them on steroids or immunosuppressed - were routinely x-rayed on hospital admission.

With large scale immigration from areas where tuberculosis is endemic and lack of an active case finding programme, the pool of undiagnosed cases in the community seems bound to rise.

TABLE 1.

TUBERCULOSIS - MAIN STATISTICAL FIGURES

Year	Mean Population 1,000s	Notification (includes Transfers-in)				No. on Register (Pulm.) at 31st Dec	No. on Register per 100,000 (Pulm.)	Number Receiving T.B Allowance at 31st Dec	Deaths			Death Rate per 100,000	
		Pulm. (incl. Pleural effus.)	Non-Pulm.	Total	Pulm. per 100,000				Pulm	Non-Pulm	Total	Pulm.	All Forms
1950	558	586	18	604	104.8	2,100	376	515	125	3	128	22.4	22.9
1951	580	467	37	504	80.4	2,402	413	474	76	6	82	13.1	14.1
1952	601	508	49	557	84.5	2,574	428	396	75	7	82	12.5	13.6
1953	621	378	34	412	60.6	2,762	445	361	43	3	46	6.9	7.4
1954	640	348	34	382	54.3	2,769	432	326	57	4	61	8.9	9.5
1955	659	413	39	452	62.7	2,965	450	330	31	2	33	4.7	5.0
1956	677	424	44	468	62.6	2,900	428	264	43	3	46	6.3	6.8
1957	692	332	32	364	47.9	2,786	403	198	36	1	37	5.2	5.3
1958	706	355	24	379	50.3	2,726	386	213	22	4	26	3.1	3.4
1959	726	320	34	354	44.1	2,684	369	182	24	-	24	3.3	3.3
1960	731	296	34	330	40.5	2,388	327	148	29	1	30	4.0	4.1
1961	737	209	41	250	28.4	1,349	183	89	18	1	19	2.4	2.6
1962	755	243	25	268	32.2	1,333	177	90	24	4	28	3.2	3.7
1963	773	216	28	244	27.9	1,218	158	92	13	-	13	1.7	1.7
1964	790	176	32	208	22.3	1,221	154	88	20	-	20	2.5	2.5
1965	806	153	25	178	19.0	919	114	65	12	-	12	1.5	1.5
1966	836	134	36	170	16.0	840	100	64	16	-	16	1.9	1.9
1967	877	137	34	171	15.6	814	93	54	9	-	9	1.0	1.0
1968	910	145	37	182	15.9	680	75	44	8	1	9	0.9	1.0
1969	947	133	27	160	14.0	659	70	43	8	-	8	0.8	0.8
1970	983	113	35	148	11.5	653	67	32	10	-	10	1.0	1.0
1971	1,029	113	30	143	11.0	625	61	27	17	2	19	1.6	1.8
1972	1,053	125	30	155	11.9	569	54	40	8	-	8	0.8	0.8
1973	1,068	110	36	146	10.3	522	49	15	11	-	11	1.0	1.0
1974	1,090	104	36	140	9.5	480	44	17	8	1	9	0.7	0.8
1975	1,127	102	36	138	9.1	460	41	29	10	2	12	0.9	1.1
1976	1,145	83	27	110	7.3	437	38	13	4	-	4	0.4	0.4
1977	1,183	112	43	155	9.5	424	36	13	7	1	8	0.6	0.7
1978	1,222	137	28	165	11.2	442	36	24	8	-	8	0.7	0.7
1979	1,232	128	51	179	10.4	453	37	14	8	-	8	0.6	0.6

Table 2.

CASES OF TUBERCULOSIS NOTIFIED AND NUMBER BACTERIOLOGICALLY PROVEN 1968 - 1979

(Excludes Inter-State Transfers In, Reactivations and Cases Caused by Atypical Mycobacteria)

Year	Pulmonary	No +ve	Non-Pulmonary	No +ve	Total	Total +ve
1968	104	74	25	12	129	86
1969	90	63	17	6	107	69
1970	75	52	25	10	100	62
1971	89	68	21	9	110	77
1972	100	72	17	8	117	80
1973	92	60	20	15	112	75
1974	80	61	26	17	106	78
1975	77	57	26	16	103	73
1976	64	46	21	11	85	57
1977	76	45	32	9	108	54
1978	104	60	20	10	124	70
1979	109	64	34	12	143	76

Table 3

PULMONARY TUBERCULOSIS

Year	Population in 1,000s	Notifications Received	Incidence Rate per 100,000 Population	Deaths Registered	Mortality Rate per 100,000 Population
1911	287	259	90.2	190	66.2
1912	301	429	142.5	220	73.1
1913	313	424	135.5	206	65.8
1914	323	353	109.3	229	70.9
1915	321	336	104.7	233	72.6
1916	313	511	163.5	225	71.9
1917	306	464	151.6	217	70.9
1918	308	432	140.5	245	79.5
1919	320	467	145.9	289	91.6
1920	330	442	139.9	259	78.4
1921	334	424	126.9	277	82.9
1922	341	387	113.8	256	75.1
1923	351	361	102.8	216	61.5
1924	363	381	104.6	228	62.8
1925	373	403	108.4	259	69.4
1926	381	415	108.2	252	66.1
1927	392	409	104.3	231	56.4
1928	408	395	96.8	282	69.1
1929	421	400	95.0	245	53.4
1930	429	569	132.6	218	50.8
1931	432	372	86.1	223	51.6
1932	435	339	77.9	203	46.7
1933	439	295	67.2	207	47.2
1934	442	287	64.9	218	49.3
1935	447	270	60.4	210	47.0
1936	452	338	74.8	193	42.7
1937	457	239	53.0	172	37.6
1938	464	247	53.2	177	38.1
1939	470	202	43.0	179	38.1
1940	473	231	48.8	181	38.3
1941	474	154	32.5	185	39.0
1942	477	113	23.7	175	36.7
1943	477	273	57.3	144	30.2
1944	481	219	45.4	134	27.9
1945	488	271	55.5	149	30.5
1946	493	343	69.6	163	33.1
1947	502	372	74.0	128	25.4
1948	515	325	63.1	157	30.5
1949	533	499	93.6	123	23.1
1950	558	586	104.8	129	23.1
DEATH CLASSIFICATIONS ACCORDING TO 6TH (1948) INTERNATIONAL LIST					
1950	558	586	104.8	125	22.4
1951	580	467	80.4	76	13.1
1952	601	508	84.5	75	12.5
1953	621	378	60.6	43	6.9
1954	640	348	54.3	57	8.9
1955	659	413	62.7	31	4.7
1956	677	424	62.6	43	6.3
1957	692	332	47.9	36	5.2
1958	706	355	50.3	22	3.1
1959	726	320	44.1	24	3.3
1960	731	296	40.5	29	4.0
1961	737	209	28.4	18	2.4
1962	755	243	32.2	24	3.2
1963	773	216	27.9	13	1.7
1964	790	176	22.3	20	2.5
1965	806	153	19.0	12	1.5
1966	836	134	16.0	16	1.9
1967	877	137	15.6	9	1.0
1968	910	145	15.9	8	0.9
1969	947	133	14.0	8	0.8
1970	983	113	11.5	10	1.0
1971	1,029	113	11.0	17	1.6
1972	1,053	125	11.9	8	0.8
1973	1,068	110	10.3	11	1.0
1974	1,090	104	9.5	8	0.7
1975	1,127	102	9.1	10	0.9
1976	1,145	83	7.3	4	0.4
1977	1,183	112	9.5	7	0.6
1978	1,222	137	11.2	8	0.7
1979	1,232	128	10.4	8	0.6

Table 4.

ANNUAL NOTIFICATIONS OF PULMONARY TUBERCULOSIS SHOWING STAGE OF DISEASE *

Year	Parenchymal Disease						Pleural Effusion		Total
	Minimal		Moderately Advanced		Advanced				
1952	122	24.0%	275	54.1%	101	19.9%	10	2.0%	508
1953	98	25.9	210	55.5	65	17.2	5	1.4	378
1954	96	27.6	178	51.1	74	21.3	-	-	348
1955	111	26.9	225	54.5	64	15.5	13	3.1	413
1956	127	38.0	217	51.1	72	17.0	8	1.9	424
1957	102	30.7	153	49.1	61	18.4	6	1.8	332
1958	91	25.6	187	52.7	72	20.3	5	1.4	355
1959	103	32.2	151	47.2	55	17.2	11	3.4	320
1960	89	30.1	144	48.6	49	16.6	14	4.7	296
1961	90	43.1	73	34.9	34	16.3	12	5.7	209
1062	117	48.1	84	34.6	36	14.8	6	2.5	243
1963	99	45.8	89	41.2	26	12.0	2	1.0	216
1964	71	40.3	81	46.0	23	13.1	1	0.6	176
1965	75	49.0	60	39.2	17	11.1	1	0.7	153
1966	59	44.0	54	40.3	18	13.4	3	2.2	134
1967	56	40.9	59	43.1	20	14.6	2	1.4	137
1968	71	48.9	59	40.7	11	7.6	4	2.8	145
1969	57	42.9	62	46.6	13	9.8	1	0.7	133
1970	51	45.1	47	41.6	10	8.9	5	4.4	113
1971	42	37.2	52	46.0	17	15.0	2	1.8	113
1972	51	40.8	50	40.0	20	16.0	4	3.2	125
1973	45	40.9	46	41.8	14	12.7	5	4.6	110
1974	36	34.6	48	46.2	13	12.5	7	6.7	104
1975	43	42.2	43	42.2	15	14.7	1	0.9	102
1976	33	39.8	32	38.5	16	19.3	2	2.4	83
1977	47	42.0	54	48.2	9	8.0	2	1.8	112
1978	72	52.5	52	38.0	12	8.8	1	0.7	137
1979	57	44.5	51	39.8	18	14.1	2	1.6	128

*Classified according to Diagnostic Standards N.T.A.

Table 5.

ANALYSIS OF REGISTER AS AT 31ST DECEMBER, 1980

A. Pulmonary Tuberculosis
(excluding Pleural Effusions)

Activity	Number on Register According to Original Extent of Lesions			Total
	Minimal	Moderate	Advanced	
Active	34	62	10	106
Inactive:				
0-1 years	64	41	8	113
1-2 years	41	30	6	77
2-3 years	25	23	9	57
3-4 years	25	26	8	59
4-5 years	10	20	1	31
5+ years	1	-	1	2
	200	202	43	445

B. Pleural Effusion	8
C. Non-Pulmonary Tuberculosis ...	145
Total All Forms	598

Table 6.

TUBERCULOSIS NOTIFICATIONS FOR YEAR ENDED 31ST DECEMBER 1979

SHOWING AGE, SEX, FORM AND STAGE OF DISEASE

Age Group	Males					Females					Persons					Total
	Pulmonary			Non Pulm	Pleur Effus	Pulmonary			Non Pulm	Pleur Effus	Pulmonary			Non Pulm	Pleur Effus	
	Min.	Mod. Adv.	Adv.			Min.	Mod. Adv.	Adv.			Min.	Mod. Adv.	Adv.			
0-4	1*			12		2*			15		3			27		30
5-9				3					1					4		4
10-14	2										2					2
15-19						1					1					1
20-24	4	1		1		1	3		1		5	4		2		11
25-29	6	2	1	1		2		1	1		8	2	2	2		14
30-34		2	2	1			1	1	1			3	3	2		8
35-39	2	2	1	1	1		1				2	3	1	1	1	8
40-44	7	3	3			1			1		8	3	3	1		15
45-49	4	6	1	2		2	2		2		6	8	1	4		19
50-54		4	1	1		2					2	4	1	1		8
55-59	3	6	1	1		1	2				4	8	1	1		14
60-64	4	2				2			2		6	2		2		10
65-69	1	4	1	1		2	1				3	5	1	1		10
70-74	3	2	2	1	1						3	2	2	1	1	9
75 and over	3	5	2	1		1	2	1	1		4	7	3	2		16
Total	40	39	15	26	2	17	12	3	25		57	51	18	51	2	179

* Includes one primary

Table 7.

SITE AND TYPE OF DISEASE (excludes transfers-in)

Pulmonary				Extrapulmonary			
Diagnosis	No.	% of		Diagnosis	No.	% of	
		Pulmonary Cases	All Cases			Extrapulmonary Cases	All Cases
Primary	2	1.6	1.1	Genito-urinary	10	19.6	5.6
Pleural effusion	2	1.6	1.1	Lymph glands	31	60.8	17.5
				Bone & Joint	4	7.8	2.3
Post-Primary				Meninges			
1. Minimal	55	43.6	31.1	Skin	2	3.9	1.1
2. Mod. Adv.	49	38.9	27.7	Abdominal	2	3.9	1.1
3. Advanced	18	14.3	10.2	Ear	1	2.0	0.6
				Liver	1	2.0	0.6
TOTAL	126	100	71.2	TOTAL	51	100	28.8

BACTERIOLOGICALLY PROVEN TUBERCULOSIS CASES NOTIFIED 1970 - 1979

(EXCLUDES INTERSTATE TRANSFERS-IN AND DISEASE CAUSED BY ATYPICAL MYCOBACTERIA)

PULMONARY	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	TOTAL
Primary			1		1	2			1	1	6
Pleural Effusion		1	1	3	4	1	1		1	1	13
POST PRIMARY											
Min.	26	25	28	20	15	18	17	20	21	17	207
Mod.	24	31	36	30	34	30	19	25	29	30	288
Adv.	9	15	11	13	11	12	11	7	10	16	115
	59	72	77	66	65	63	48	52	62	65	629
EXTRA PULMONARY											
Genito-Urinary	6	5	7	10	13	10	7	6	2	6	72
Lymph Glands	2	1		2	1	3	2	2	3	1	17
Bone & Joint		3	1	3	2	3		2	3*	3	20
Menginges							2				2
Generalised									1		1
Abdominal	3									2	5
Chest Wall		1	1								2
Empyema		1			1	1					3
Mastoiditis					1						1
Ear									1	1	2
	11	11	9	15	18	17	11	10	10	13	125
TOTAL	70	83	86	81	83	80	59	62	72	78	754

* Includes 1 Sternal Cold Abscess

Table 9.

REACTIVATIONS

Previous Treatment	Number of Reactivations									
	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
(1) No chemotherapy	2	6	4	3	3	4	3	1	2	1
(2) Inadequate Chemotherapy										
Without Surgery	6	5	3	4	3	7	1	5	4	
With Surgery	-	-	-	-	1	1	-	-	1	1
(3) Apparently Adequate Chemotherapy	3	1	1	-	1	1	-	2	3*	6
TOTAL	11	12	8	7	8	13	4	8	10*	8

* Includes 1 with atypical tuberculosis due to M. Kansasii

Table 10.

REACTIVATION RATES

Year	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
No. of reactivations	11	12	8	7	8	13	4	8	10	8
As % of total cases	7.4	8.4	5.2	4.8	5.7	9.4	3.7	5.2	6.1	4.5
Per 100,000 population	1.1	1.2	0.8	0.7	0.7	1.2	0.4	0.7	0.8	0.6

Table 11.

WESTERN AUSTRALIA: TUBERCULOSIS INCIDENCE BY COUNTRY OF BIRTH 1970 - 1979: MALES

Country of Birth	Pop. at June 30 1976 Thousands (Census)	Incidence per Thousand Persons										Total Notifications 1970-79
		1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	
U.K. & Rep. of Ireland	90.8	0.51	0.31	0.23	0.21	0.29	0.12	0.13	0.26	0.19	0.06	169
Germany	3.7	0.34	0.69	0.56	0.56	-	0.28	-	0.56	-	0.27	11
Greece	2.4	0.32	-	1.11	0.74	0.74	-	-	0.74	-	0.42	11
Italy	16.1	0.37	0.44	0.41	0.29	0.41	0.12	-	0.35	0.12	0.12	44
Netherlands	5.8	-	0.17	0.16	-	0.16	0.16	-	0.16	-	0.17	6
Poland	2.5	-	0.36	1.07	0.36	-	0.36	-	-	0.40	-	7
Yugoslavia	6.0	0.65	0.43	0.16	0.16	1.29	0.81	-	0.32	0.33	0.83	29
Other European	8.0	0.92	-	0.05	0.93	0.23	0.23	0.12	0.23	0.75	0.25	30
Other Birthplaces	28.9	1.27	0.93	0.67	0.50	0.55	0.92	0.76	0.59	1.21	1.45	198
Total non-Aust. born	164.1	0.55	0.38	0.48	0.31	0.37	0.29	0.20	0.33	0.38	0.36	505
Australian born	417.1	0.12	0.12	0.22	0.12	0.10	0.13	0.09	0.15	0.10	0.15	451

Table 12.

WESTERN AUSTRALIA: TUBERCULOSIS INCIDENCE BY COUNTRY OF BIRTH 1970 - 1979: FEMALES

Country of Birth	Pop. at June 30 1976 Thousands (Census)	Incidence per Thousand Persons										Total Notifi-cations 1970-79
		1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	
U.K. & Rep. of Ireland	85.8	0.14	0.20	0.16	0.09	0.12	0.12	0.17	0.07	0.06	0.08	84
Germany	3.7	0.33	0.33	-	-	-	0.86	-	-	-	-	5
Greece	2.1	-	-	0.43	0.87	0.43	0.87	0.43	-	0.48	0.48	9
Italy	13.2	0.08	0.41	0.15	0.15	-	-	0.07	0.07	-	0.08	13
Netherlands	4.9	-	0.22	-	-	0.20	-	0.20	-	0.20	-	4
Poland	1.9	-	1.00	0.50	1.00	0.50	-	0.50	1.00	-	-	9
Yugoslavia	4.4	-	0.34	0.51	0.51	0.26	0.51	0.51	0.51	0.45	-	14
Other European	6.4	0.45	-	0.68	0.34	-	0.71	0.34	0.34	0.31	-	15
Other Birthplaces	26.0	0.61	1.33	0.47	0.36	0.41	0.47	0.41	0.62	0.96	0.81	118
Total Non-Aust. born	148.4	0.19	0.37	0.21	0.18	0.16	0.20	0.22	0.18	0.24	0.20	271
Australian born	415.3	0.11	0.09	0.11	0.08	0.07	0.06	0.04	0.07	0.06	0.07	252

TABLE 13

PATIENTS FROM WHOM MYCOBACTERIA WERE ISOLATED (FOR THE FIRST TIME) IN 1979 (OTHER THAN M. TB)

Type	Isolations not clinically significant	Atypical Tuberculosis			Total
		Pulm.	Non-Pulm.	Total	
M. Kansasii	3	-	-	-	3
M. Scrofulaceum	8	-	6	6	14
M. Gordonea	5	-	-	-	5
M. Flavescens	2	-	-	-	2
M. Intracellulare	29	9	8	17	46
M. Terrae	5	-	-	-	5
M. Fortuitum	10	-	-	-	10
Mixed	2	-	-	-	2
M. Chelonei	1				1
M. Marinum	1		1		2
M. Triviale	1				1
Total Patients	67	9	15	23	91

(+ 2 cases originally isolated 1978)

TABLE 14.

MYCOBACTERIAL DISEASE OF LYMPH NODES IN CHILDREN

Year	M. Scrofulaceum Identified	M. intracellulare Identified	M. T.B. (Human) Identified	Cultures Negative	Total Cases
1970	3	2	-	5	10
1971	-	3	-	3	6
1972	3	7	-	5	15
1973	6	8	-	1	15
1974	2	5	-	5	12
1975	-	5	-	3	8
1976	-	2	1	2	5
1977	1	6	-	9	16
1978	-	6	-	2	8
1979	6	9	-	15	30
TOTAL NUMBER OF CHILDREN 1961 - 1979	30	86	2	96	214

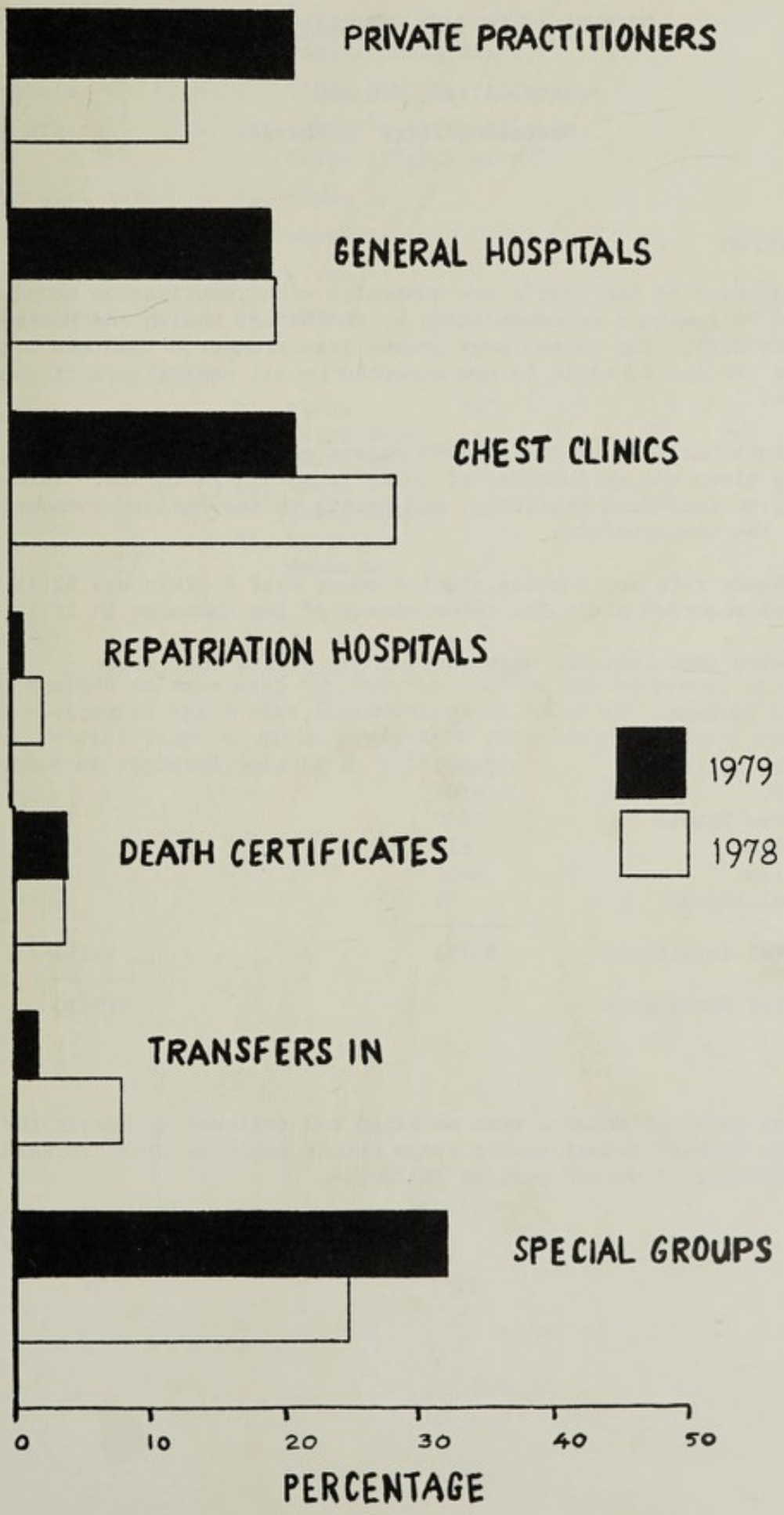
TABLE 15.

PATIENTS NOTIFIED WITH ATYPICAL TUBERCULOSIS

(INCLUDING REACTIVATIONS)

Year	M. Kansasii		M. Scrofulaceum				M. Intracellulare				Rapid Growers	
	Pulm.	Other	Pulm.	Lymph Nodes	Other	Total	Pulm.	Lymph Nodes	Other	Total	Pulm.	Lymph Nodes
1970	3	-	2	3	-	5	11	3	-	14	-	-
1971	-	-	1	-	-	1	5	3	-	8	-	-
1972	2	-	1	3	-	4	12	7	1	20	1	-
1973	-	1	-	6	-	6	8	8	-	16	-	1
1974	2	-	-	2	-	2	9	5	-	14	-	-
1975	2	-	-	1	-	1	8	6	1	15	-	-
1976	-	3	-	-	-	-	10	2	-	12	-	-
1977	2	-	1	2	-	3	17	6	2	25	1	-
1978	1	-	-	-	-	-	13	6	-	19	-	-
1979	-	1	-	6	-	6	10	9	-	19	-	-
TOTAL: 1955-1979	18	5	31	32	1	64	222	92	4	318	3	1

DIAGRAM SHOWING THE SOURCE OF NOTIFICATION OF PULMONARY TUBERCULOSIS AS A PERCENTAGE OF TOTAL NOTIFICATIONS



Appendix III

EPIDEMIOLOGY AND SPECIAL SERVICES

R. Allen, M.B.B.S.
Medical Officer in Charge

IMMUNISATION

At the beginning of the year a new Australia wide immunisation schedule was introduced following a recommendation by the Nation Health and Medical Research Council. The change over proved less traumatic than was originally feared and the new schedule is now accepted by all medical practitioners and clinics.

Immunisations carried out during 1979 showed an increase of 7.8% in injections given and an increase of 16.2% in total treatments. This was due partly to increased publicity, and partly to the earlier commencing age under the new schedule.

The acceptance rate for Rubella vaccine among Year 8 girls was 82.1% - the highest recorded since the commencement of the campaign in 1971.

The following immunisations were carried out during the year:-

Sabin Vaccine		69177
Triple Antigen	19519	
C.D.T.	9186	
Tetanus Toxoid	5050	
Measles	7613	
Rubella	8810	
Miscellaneous	75	
Total Injections	50253	50253
Total Treatments		119430

MALARIA

Thirty five cases of malaria were notified and followed up during the year. This is the highest annual number since checks began in 1969. Disease type and country of origin were as follows:-

			TOTAL
Papua New Guinea	-	Pl. vivax 10 Pl. falciparum 1 Pl. vivax + malariae 1	12
Indonesia	-	Pl. vivax 9 Pl. falciparum 2	11
East Africa	-	Pl. vivax 2 Pl. malariae 1 Pl. vivax + falciparum 1	4
South East Asia	-	Pl. vivax 3	3
India	-	Pl. vivax 2	2
Vietnam	-	Pl. vivax 2	2
Arabian Gulf	-	Pl. vivax 1	1
			35

Pl. vivax	29
Pl. falciparum	3
Pl. malariae	1
Pl. vivax + falciparum	1
Pl. vivax + malariae	1
	35

Vigilance against malaria must not decrease in the coming years, as it is envisaged that, with the recent introduction of lower air fares to Asian countries, tourist trade to these areas will inevitably increase, resulting in more cases of imported malarie in this State.

Appendix IV

VENEREAL DISEASE CONTROL BRANCH

M.M. Gollow M.R.C.S. L.R.C.P. Dip. Ven. (Lond.)
Director

1979 showed a gradual slowing down in the decrease of notifications for venereal disease. In this year there were 3.2% less notifications than in 1978, making a total decrease of 45.69% since the peak year of 1975.

TABLE 1

VENEREAL DISEASE - WESTERN AUSTRALIA
1968 - 1979

YEAR	GONORRHOEA	SYPHILIS	GRANULOMA	CHANCROID	TOTAL VENEREAL DISEASE
1968	718	60	1	0	779
1970	817	209	0	2	1,028
1971	1,166	159	3	0	1,328
1972	1,236	254	2	1	1,493
1973	1,657	290	2	3	1,952
1974	2,032	436	1	6	2,475
1975	1,977	657	5	9	2,648
1976	1,947	643	1	8	2,599
1977	1,874	280	4	10	1,668
1978	1,249	230	4	2	1,485
1979	1,203	230	1	4	1,438

IN COMPARISON WITH 1976, THE 1977 FIGURES SHOW A DECREASE OF 35.8% IN THE TOTAL NUMBER OF NOTIFIED CASES.
1978 FIGURES SHOW A FURTHER DECREASE OF 10.97%.
1979 FIGURES SHOW A FURTHER DECREASE OF 3.2%.

This now gives an incidence in Western Australia of -

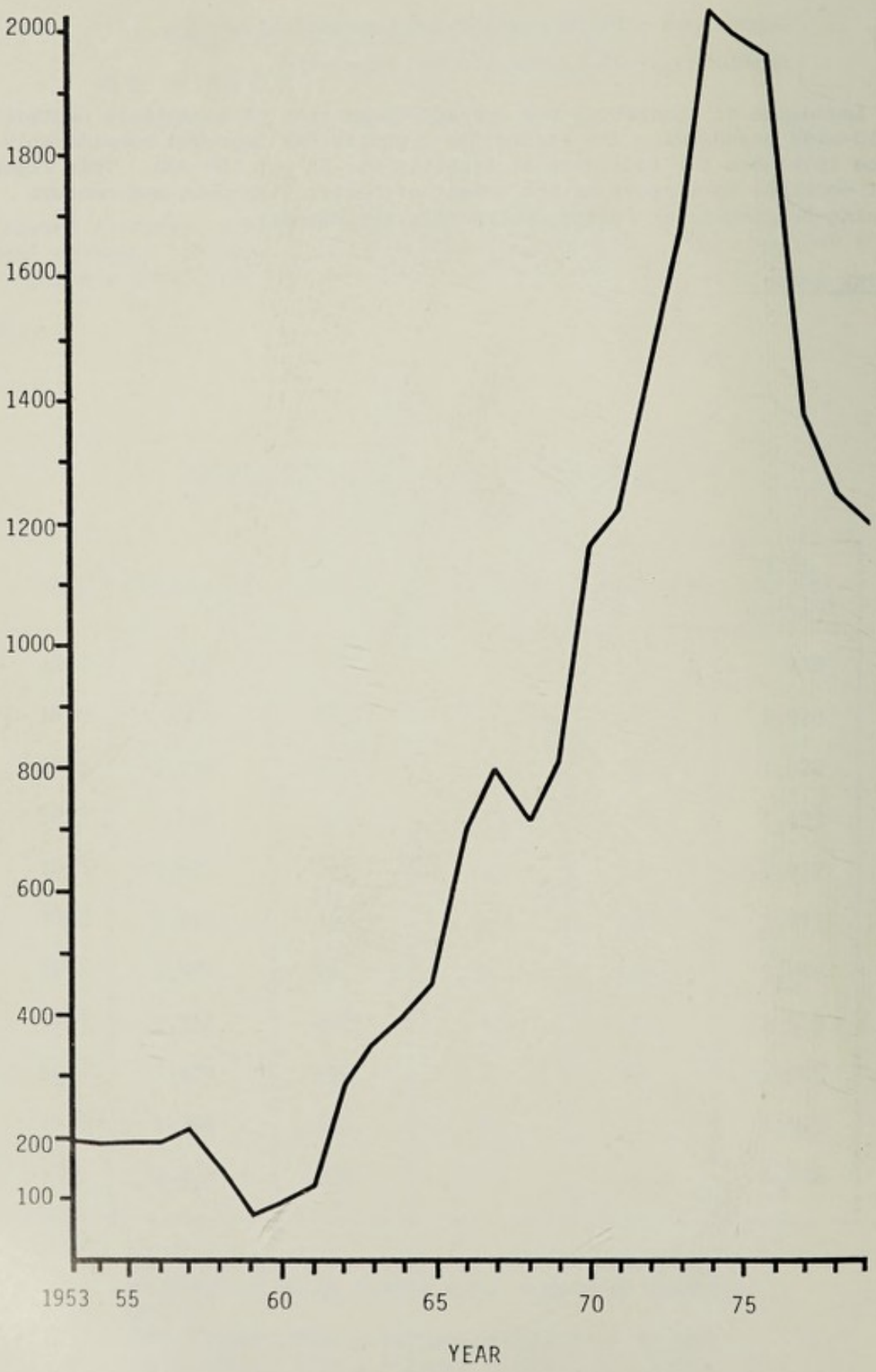
Gonorrhoea - 96.86 per 100 000 population

Syphilis - 18.52 per 100 000 population

The incidence of Gonorrhoea now appears to be that of acceptable control by world-wide standards. The figure for Syphilis has improved considerably since 1975 when the incidence of Syphilis was 55 per 100 000. This figure will continue to improve as the result of better diagnosis and contact tracing leading to a greater control for the disease.

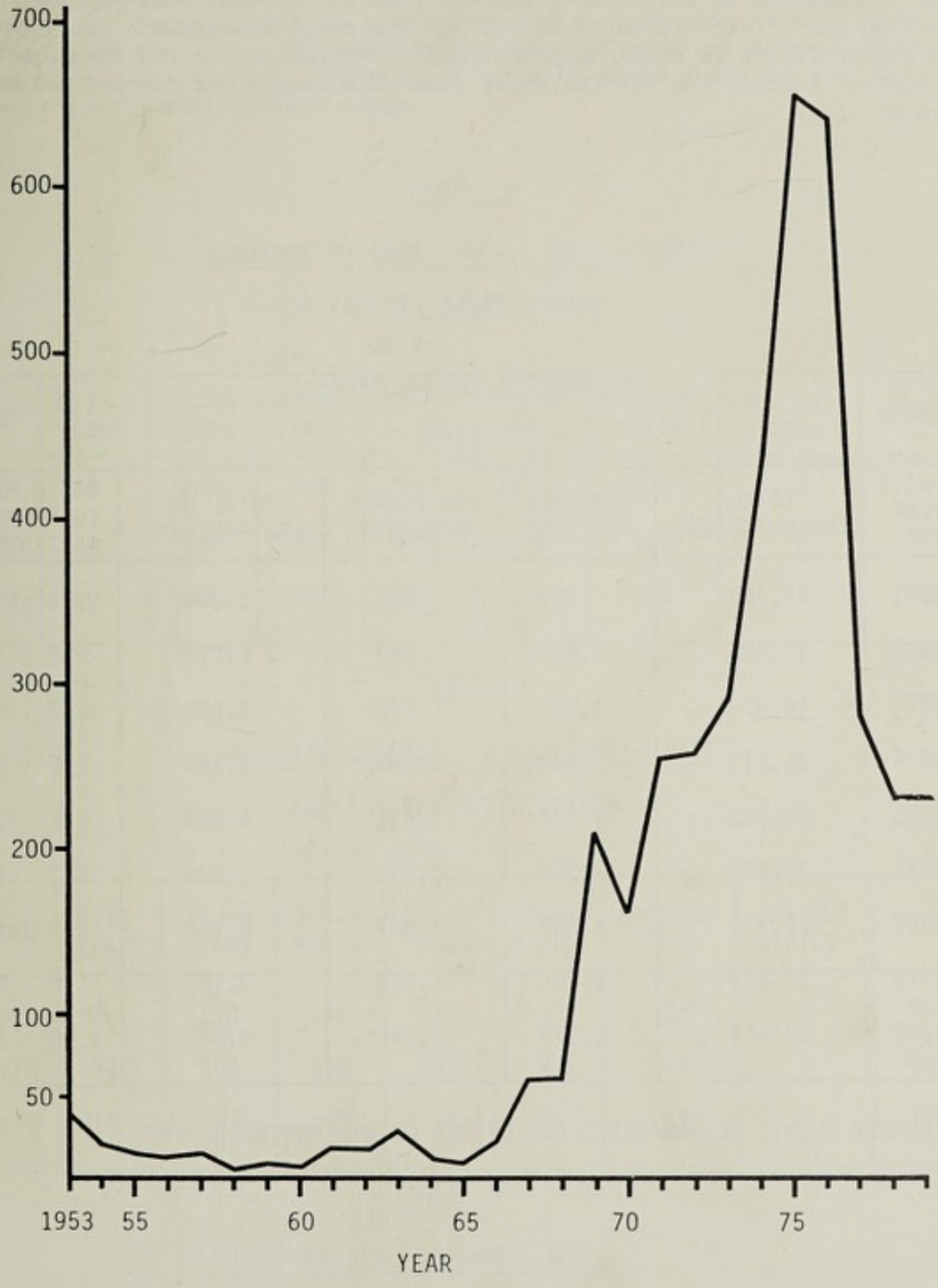
GRAPHS 1 and 2

GONORRHOEA NOTIFICATIONS W.A. (1953 - 79)



GRAPH 1.

SYPHILIS NOTIFICATIONS W.A. (1953 - 79)



GRAPH 2.

Total attendances at all Clinics for the year was 39,462. New patients attending the Clinics numbered 8,073, and the ratio male:female was 1.99:1. This latter figure is still dropping, and is indicative of the adequacy of our contact tracing, as for the first time this figure has dropped below a ratio of 2:1.

TABLE 2

PATIENT CONSULTATIONS

1979

YEAR	TOTAL CONSULTATIONS	NEW MALE PATIENTS	NEW FEMALE PATIENTS	TOTAL OF NEW PATIENTS	RATIO MALE TO FEMALE PATIENTS
* 1971	5,760	799	235	1,034	3.4 : 1
1972	10,786	1,615	597	2,212	2.7 : 1
1973	10,879	1,922	770	2,692	2.7 : 1
1974	15,119	2,698	1,089	3,787	2.5 : 1
1975	20,335	3,178	1,411	4,589	2.2 : 1
1976	28,373	4,069	1,830	5,899	2.2 : 1
1977	29,435	4,307	1,857	6,164	2.3 : 1
1978	32,573	4,795	2,372	7,167	2 : 1
1979	39,462	5,378	2,695	8,073	1.99 : 1

* PRESENT CLINIC RE-ORGANISED AND OPENED ON 8th NOVEMBER, 1971

Age : Sex distribution for the years 1977, 1978 and 1979 are shown below for males and females, and the percentage age distribution is also shown in a table below for 1979. The maximum incidence of venereal disease occurs in the age group 20-24 years. In the age group of 15-29 years we see that 72.1% of total notifications occur.

TABLE 3

VENEREAL DISEASE - W.A. 1977 - 1979

AGE AND SEX DISTRIBUTION

a) - MALES:

YEAR	0-14 YEARS	15-19 YEARS	20-24 YEARS	25-29 YEARS	30-34 YEARS	OVER 35 YEARS	AGE NOT STATED	TOTAL
1977	7	207	366	237	107	172	12	1,108
1978	6	146	326	201	149	160	9	997
1979	6	165	283	231	139	155	1	980

TABLE 4

VENEREAL DISEASE - W.A. 1977 - 1979

AGE AND SEX DISTRIBUTION

b) - FEMALES:

YEAR	0-14 YEARS	15-19 YEARS	20-24 YEARS	25-29 YEARS	30-34 YEARS	OVER 35 YEARS	AGE NOT STATED	TOTAL
1977	27	173	188	77	41	52	0	558
1978	13	151	155	76	43	44	1	483
1979	16	132	147	79	40	43	1	458

TABLE 5

VENEREAL DISEASE - W.A.

TOTAL VENEREAL DISEASE AGE % DISTRIBUTION - 1979

0-14 YEARS	15-19 YEARS	20-24 YEARS	25-29 YEARS	30-34 YEARS	OVER 35 YEARS	AGE NOT STATED
1.5%	20.6%	29.9%	21.6%	12.4%	13.8%	0.2%

FREMANTLE HOSPITAL CLINIC

Total consultations for the year were 885. The Clinic continues as in previous years, and is open from 2.00 to 4.300 p.m. each weekday. The co-operation of the Medical Superintendent, Dr. P. Smith, and his staff, is gratefully acknowledged.

QUEEN ELIZABETH II MEDICAL CENTRE CLINIC

Total consultations for 1979 were 2,459. During this time the clinic hours were extended, and are now from 8.00 a.m. to 2.30 p.m. each weekday. Lectures are delivered to all interns during orientation. The organization of a regular course of tutorials at each change of residents in the Emergency Department is now a firmly established ongoing programme. The co-operation of the Medical Superintendent, Dr. R. Kilgour, and his staff is gratefully acknowledged.

KING EDWARD MEMORIAL HOSPITAL FOR WOMEN

There has been an increase in the number of consultations at this Hospital, and a large drop in the number of cases of venereal diseases notified. The co-operation and enthusiasm of the Medical Superintendent, Dr. S. Reid, and his staff, who are continuously and actively involved in all aspects of Venereal Disease Control, has given us another highly successful year in this important area.

ROYAL PERTH HOSPITAL

Active co-operation between the Clinic at 69 Moore Street, and all the staff at Royal Perth Hospital has been maintained. The two areas are mutually dependent on each other for expertise, diagnosis and treatment. For these benefits grateful acknowledgement is made to the Medical Superintendent, Mr. N. Rees F.R.C.S., and his staff.

COMMUNITY HEALTH SERVICES

The co-operation of the Director of Community and Child Health Services, Dr. F. Quadros, and his deputy, Dr. Judy Henzell, is gratefully acknowledged. The active co-operation of all members of this branch of the Public Health Department has enabled the work of the Venereal Disease Control Branch of Western Australia both within the metropolitan area, and in the rural areas of Western Australia, to be extended and brought up to a high standard.

The active involvement of the Venereal Disease Control Branch in the orientation of Community Health Medical Officers and Nursing personnel, has enabled us to provide educational services in the form of clinic lectures and in-service practical instruction.

The importance of personal contact between the Community and Child Health Services personnel in the field, and all members of the Venereal Disease Control Branch is ensured by this, and a high degree of co-operation between the two branches is maintained.

STATE HEALTH LABORATORY SERVICES

All diagnoses of the Venereal Diseases Control Branch are microbiologically or serologically confirmed by the State Health Laboratory Services. Active co-operation between the two branches is the mainstay of the venereal disease eradication programme. A debt of gratitude to the Director, Dr. V. Blackman, and his staff, is acknowledged.

BETA LACTAMASE GONOCOCCI

Increasing numbers of these organisms were detected in Western Australia during 1979 - fifteen at the Moore Street Clinic, four at the Fremantle Clinic and two at the Queen Elizabeth II Medical Centre Clinic. Five other cases were detected by State Health Laboratory Services, Shenton Park. This total of twenty-six cases in ominous in its significance in comparison with the numbers detected in previous years.

EDUCATION

Medical Undergraduate Education.

For the first time in Western Australia, final year medical students were allocated to the Venereal Diseases Control Branch for six - half days over a period of three weeks. They were provided with a tutorial at each session and clinical training in dealing with all aspects of the sexually transmissible diseases. In addition to this, medical students received the following lectures -

3rd year - two lectures of one hour duration on the pathology of Venereal Diseases

4th year - two lectures of one hour duration on the microbiology of Venereal Diseases.

6th year - A final lecture on patient management in Venereal Diseases.

This gives a minimum training period now of 25 hours in the medical undergraduate curriculum, and from 1980 onwards, will provide the community of Western Australia with a continous supply of doctors well trained in all aspects of sexually transmissible diseases.

The education programme was also applied to undergraduate and postgraduate nurses, postgraduate medical groups, service clubs, schools, and medical practitioners in the rural areas. This is all part of the on-going programme of the Venereal Diseases Control Branch, to raise the levels of knowledge in the general community, and the standard of expertise amongst professional groups dealing with these diseases.

CO-ORDINATING COMMITTEE FOR THE CONTROL OF VENEREAL DISEASES IN WESTERN AUSTRALIA

This Committee continued its activity under the Chairmanship of Dr. D.D. Letham, who retired in August, and was succeeded by Professor J.D. Martin, Professor of Obstetrics and Gynaecology, University of Western Australia. It provided the usual high standard of expertise and encouragement that we

have grown to expect from this multi disciplinary body. The Venereal Disease Control Branch gratefully acknowledges its assistance.

RETIREMENTS

Mr. Frank Kitchener Hillman joined the Branch in 1974 after many years of service with the Public Health Department. His cheerful personality was a permanent feature of the Venereal Disease Control Branch for many years. It is to be hoped that he will enjoy his well earned retirement.

Mr. Stanley William Fleming I.S.O. retired on August 31, 1979. He was with the Venereal Disease Control Branch from the inception of the new format in 1971 as the Senior Health Officer. His experience in all areas of Western Australia in the administration of the Public Health Department, in his knowledge of the geography of the State and of the medical population, proved invaluable during his years of service. The award of the Imperial Service Order is, in itself, the acknowledgement given for years of public service to the people of Western Australia.

Dr. William Arthur Newnham retired from the Branch on December 31, 1979. He joined the Department on November 1, 1971 and was given the heavy responsibility of completely reorganizing the Venereal Disease Control Branch. He approached this with energy, enthusiasm and continual acquisition of expertise over his years of service. He has been responsible for the organization of the Branch into its present form, for the success of the programme that he initiated over the years, and it is anticipated that the format of his organization will be continued in the future. His personal approach will be missed by all citizens of Western Australia who have known him over the years. We wish him a healthy and happy retirement.

CONCLUSION:

Western Australia is now approaching a limited degree of control of Venereal Disease. Continuous effort will be needed to maintain this control as our geographically contiguous areas are not in the same fortunate position as ourselves.

Vigilance and meticulous contact tracing will have to be maintained with regards to Beta Lactamase Gonococci to prevent this becoming endemic in Western Australia.

The need for an Australia-wide form of Notification of Sexually Transmissible Diseases to be identical in each State, as well as a common Interstate Contact Tracing system is a pressing need. The context of these diseases in the isolation of each State will only propagate our problems, rather than contain them.

I would like to thank the Medical Officers, Nursing Officers, Health Officers and Clerical Officers of the Venereal Disease Control Branch for their invaluable assistance and co-operation during the year. My special thanks to the Commissioner of Public Health and Medical Services, Dr. J. McNulty and the Deputy Commissioner, Health and Medical Services, Dr. L.J. Holman - without their understanding and assistance the standard of work achieved in this Branch would have been impossible.

Appendix V

COMMUNITY AND CHILD HEALTH SERVICES

Dr. J.M. Henzell, MBBS., DCH.
Acting Director

INTRODUCTION

1979 has continued the consolidation of the three sections of the community based health services which were amalgamated in 1976. Emphasis has been on the development of programmes with a specific aim and the utilisation of the health team in achieving that aim, rather than the emphasis on programmes being developed by individual sections.

Dr. C.F. Quadros was appointed as Director of the Community and Child Health Services Branch in January 1979. Dr. M. Gibson was appointed as Senior Medical Officer (School Health) in November 1979 and Mrs. E. Panter was appointed Nursing Supervisor (Community Health Section). Dr. F. Stanley, as Senior Medical Officer (Child Health) took maternity leave in June 1979 until the end of the year.

Within the Community Health Section the Aboriginal Health Assistant Training Programme was continued. The difficult task of writing and editing the draft Training Manual is being continued with Dr. G. Hart as editor. A special programme for health surveillance of Aboriginal children from 0-5 years (Under Fives Programme) was developed for implementation in 1980. This will record all birth notifications of Aboriginal children through the Midwives Notifications System and all children will be followed up by field Nurses and Health Assistants. Services to Vietnamese Refugees continued during 1979 and an Ethnic Health Service employing a Community Health Nurse and two field assistants has been established under the Community Health Programme. An Ear Health Programme was initiated.

The School Health Programme to High Schools was expanded by a further ten Nurses in 1979. In addition the Koondoola Special School for Physically Handicapped Children to service the northern suburbs was opened in February 1979. The health team at the School consists of a part time Medical Officer, full time School Health Nurse, 2 Nursing Aides, 2 Physiotherapists, 2 Occupational Therapists and 1 Speech Therapist.

The infant mortality rate for both Aboriginal children and for the total population continued to fall. The most recent figure available is for 1978 during which year, Western Australia had an infant mortality rate of 11.2 per thousand live births. The figure for the metropolitan area was 8.7 per thousand live births which is the lowest as yet recorded. These trends are shown in Table 1. The neonatal mortality rate was 7.5 per thousand live births and the stillbirth rate 9.6 per thousand live births (Table 2).

Aboriginal infant mortality for 1978 continued to fall and the total figure for the State for that year was 27.5 per thousand live births. This is the lowest yet achieved and is probably the lowest in Australia. The neonatal mortality rate for Aboriginal children in that year was 12.3 per thousand live births (Table 3).

Trends in Western Australia in birth rate, neonatal, post neonatal, infant death rates and perinatal mortality are shown in Tables 4-8.

During 1979, the Director, Dr. F. Quadros, proceded on long service leave for three months. I would like to express my appreciation to all the staff of the Branch for their support particularly during this period and throughout the year.

TABLE 1 INFANT MORTALITY IN WESTERN AUSTRALIA 1972-78

	PERTH			REST OF STATE			WHOLE STATE		
Year	Live Births	Infant Deaths	I.M. Rate	Live Births	Infant Deaths	I.M. Rate	Live Births	Infant Deaths	I.M. Rate
1972	14,400	188	13.1	7,777	160	20.6	22,177	348	15.7
1973	13,307	213	16.01	7,203	181	25.13	20,510	394	19.21
1974	13,313	174	13.07	6,894	153	22.19	20,207	327	16.18
1975	13,406	150	11.19	6,932	121	17.46	20,338	271	13.32
1976	13,448	147	10.93	7,222	126	17.45	20,670	273	13.21
1977	13,571	154	11.35	7,080	97	13.70	20,651	251	12.15
1978	13,719	119	8.7	6,892	111	16.1	20,611	230	11.2

TABLE 2 INFANT MORTALITY, NEONATAL DEATHS AND STILLBIRTHS

DEATHS	PERTH STATISTICAL DIVISION	REST OF STATE	WHOLE STATE
INFANT DEATHS (Aged under 1 yr)			
Number	119	111	230
Rate Per 1000 Live Births	8.7	16.1	11.2
NEONATAL DEATHS (Aged under 28 days)			
Number	81	74	155
Rate Per 1000 Live Births	5.9	10.7	7.5
STILLBIRTHS (≥20 wks gestation)			
Number	136	63	199
Rate Per 1000 Total Births	9.8	9.1	9.6
PERINATAL DEATHS (Stillbirths plus neonatal deaths)			
Number	217	137	354
Rate per 1,000 Total Births	15.7	19.8	17.1

TABLE 3 WA ABORIGINAL INFANT MORTALITY STATISTICS

	1971	1976	1977	1978
Live Births		1009	1014	1054
Infant Deaths		46	30	29
Infant Mortality Rate (per 1,000 live births)	76	45.6	29.6	27.5
Neonatal Deaths		20	19	13
Neonatal Mortality Rate (per 1,000 live births)		19.8	18.7	12.3
Stillbirth Rate (per 1,000 total births)		18.5	17.4	8.9

TABLE 4

BIRTH RATE IN WESTERN AUSTRALIA (1964-1978)

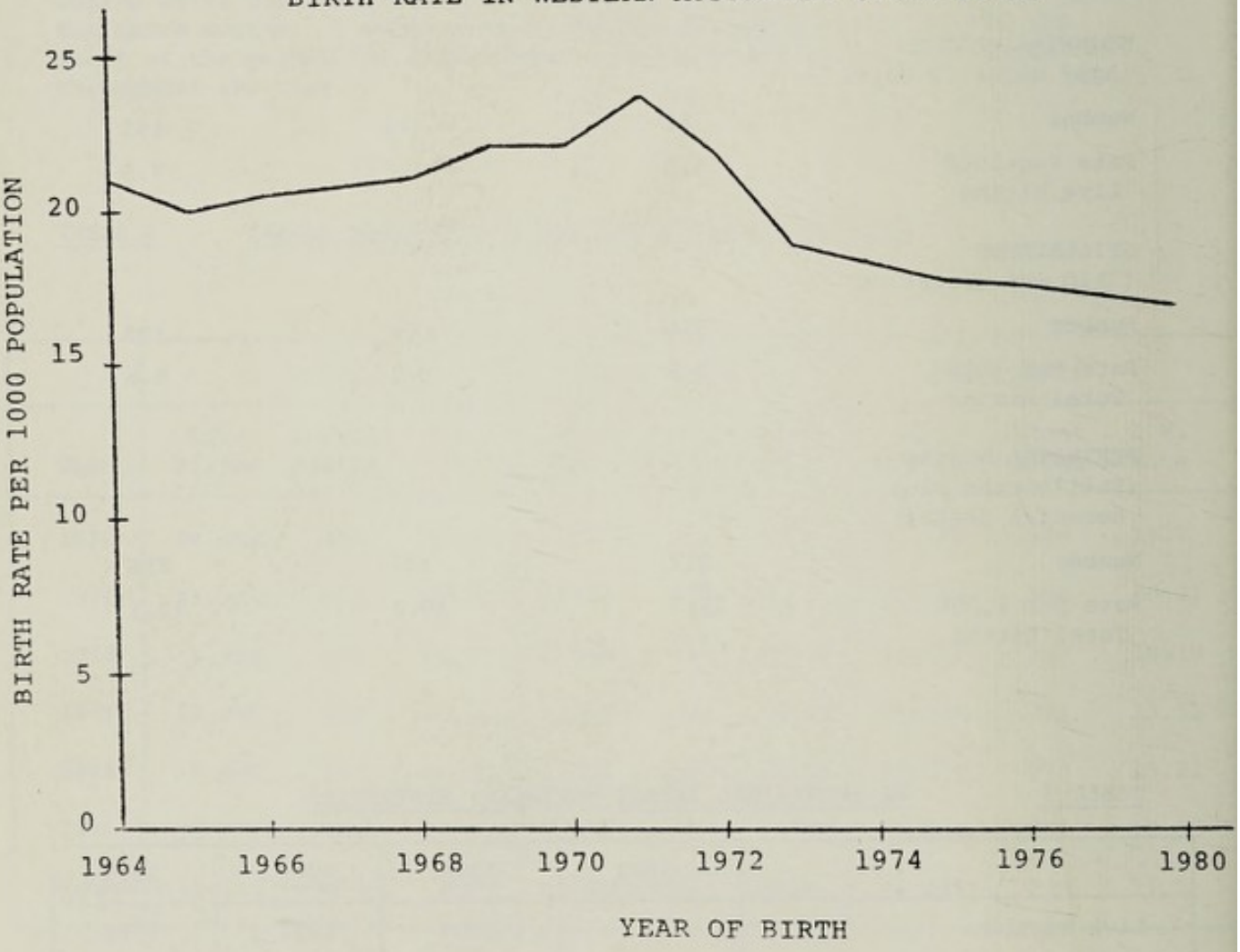


TABLE 5

NEONATAL, POSTNEONATAL AND
INFANT DEATH RATES
WESTERN AUSTRALIA (1973-78)

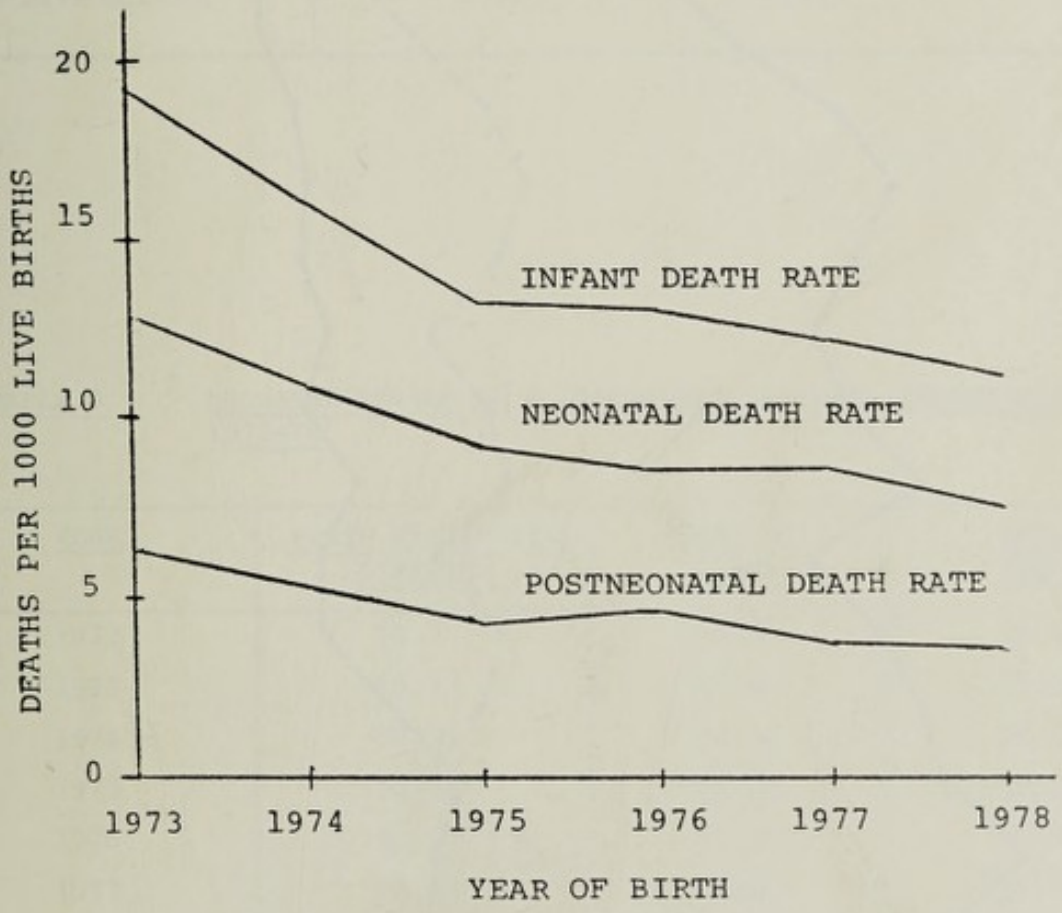


TABLE 6

PERINATAL MORTALITY - WESTERN AUSTRALIA

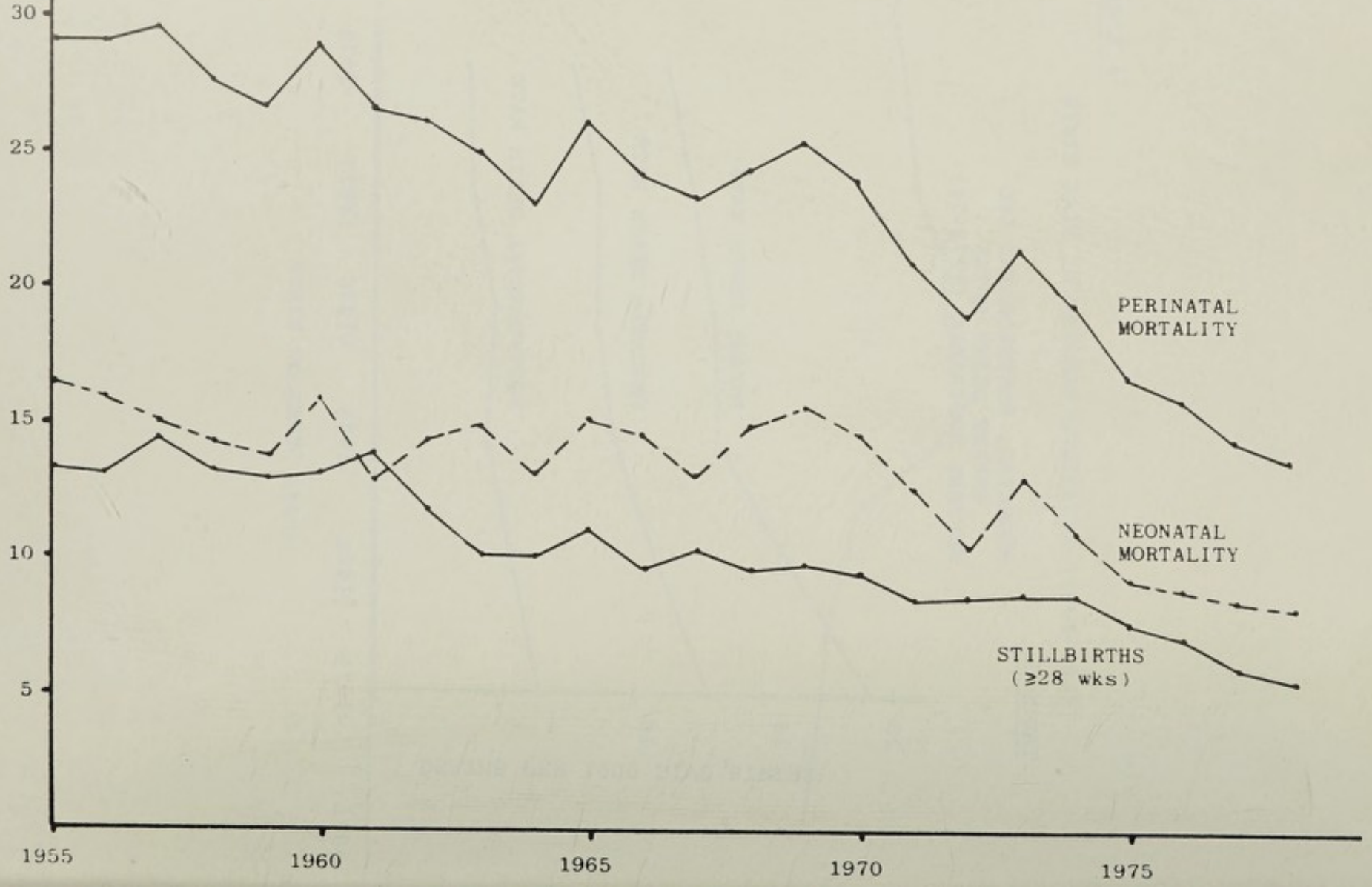


TABLE 7 WESTERN AUSTRALIAN STATISTICS (1978)

BIRTHS	PERTH STATISTICAL DIVISION	REST OF STATE	WHOLE STATE
LIVE BIRTHS			
Number	13,719	6,892	20,611
Rate Per 1000 Population	15.9	19.3	16.9
EX-NUPTIAL			
Number	1,407	1,247	2,654
% Live Births	10.3	18.1	12.9

TABLE 8 NEONATAL DEATHS AS A PERCENTAGE OF TOTAL INFANT DEATHS 1972-78

YEAR	PERTH STATISTICAL DIVISION	REST OF STATE	WHOLE STATE
1972	72.3	59.4	66.4
1973	73.23	59.66	67.00
1974	77.01	54.90	66.67
1975	72.00	64.46	68.63
1976	66.67	61.90	64.47
1977	68.18	72.16	69.72
1978	68.07	66.67	67.4

CHILD HEALTH SECTION

1. STAFF

1.1 During 1979 a total of 17 nursing appointments were made. In the same period there were 14 nursing resignations. This resulted in an actual staff complement of 141 nurses. Vacancies in country areas have been particularly difficult to fill.

1.2 Three nurses completed nursing degrees in Health Science at the Western Australian Institute of Technology and another nurse completed a Nursing Diploma at the Lincoln Institute, Melbourne.

1.3 Supervisory visits were undertaken to nurses in all regions of the State throughout 1979.

1.4 In-service nursing staff education programmes were actively continued through 1979. The Annual Conference held in August was highly successful with all nurses attending.

2. STATISTICS

2.1 Child Health Centres

2.1.1 Two new Child Health Centres were opened in 1979. The number of facilities currently available are shown in Table 9.

TABLE 9 CHILD HEALTH CLINIC FACILITIES

	METROPOLITAN	COUNTRY	TOTAL
Child Health Centres	126	100	226
Halls	1	80	81
Mobile Vans	6	1	7
TOTAL	133	181	314

2.1.2 Gross attendance figures have continued to rise. In the five years since 1975 attendances have increased by 9% in spite of a relatively constant birth rate. This rise is largely due to an increasing trend for mothers to bring older children to the clinics.

TABLE 10 CHILD HEALTH CLINICS 1975 - 1979

	1975	1976	1977	1978	1979
Birth Notifications	18,744	19,313	19,404	20,055(c)	20,046
Births Registered	20,574	20,670	20,575	20,611	N/A(a)
Gross Attendances	263,163	274,535	276,787	287,742	289,180
Individual Attendances:					
Under 1 Year	24,526	24,581	23,762	23,926	23,903
1 - 2 Years	11,898	11,550	12,736	12,997	13,812
Over 2 Years	9,935	10,109	11,254	12,621	13,457
TOTAL	46,359	46,240	47,752	49,544	51,172
Home Visits	37,641	40,100	40,636	40,310	36,862(b)
Telephone Consultations	36,910	41,463	49,514	60,657	62,703
Hospital Visits	19,190	19,203			21,327
Number of Urine Tests	22,036	17,119	17,051	16,637	17,046
Number of Stycar Screenings					99,090
Number of Expectant Parent Classes	358	682	909	1,200	1,113
Gross Attendance: Expectant Parent Classes			19,876	18,734	19,808

(a) Preliminary A.B.S. figures indicate similar number of births registered to other years.

(b) Lower figure due to exclusion of "Ineffective visits". Comparison with previous years shows actual increase in home visits.

(c) The difference between the number of birth notifications and the number of births registered is due to birth notifications for children in remote areas being dealt with by Community Health Services.

2.1.3 A total of 99,090 Stycar screenings (for developmental, hearing and visual problems) were performed in 1979. Of these 70.8% were performed in the under 1 year age group, 15.2% in the 1 to 2 year group and 14.0% in the 2 to 5 year group (Table 11).

TABLE 11 STYCAR SCREENING IN CHILD HEALTH CENTRES

	1977	1978	1979
0-2 years	67,301	72,047	70,140
1-2 years	14,871	16,002	15,081
2-5 years	11,056	12,294	13,869
	93,228	100,343	99,090

2.1.4 Referrals made as a result of Stycar screening are shown in Table 12. The majority of referrals were made to General Practitioners, Princess Margaret Hospital for Children or the Child Development Centre, West Perth.

TABLE 12 NUMBER OF REFERRALS RESULTING FROM STYCAR SCREENING

	1977	1978	1979
Hearing	603	290	215
Speech	250	138	189
Vision	666	505	615
	1,519	933	1,019

2.1.5 The actual number of home visits has continued to increase. The lower figure shown in 1979 is as a result of the exclusion of "ineffective visits" which had been included in all previous statistics.

2.1.6 Advice given by telephone has continued to increase in 1979.

3. PARENTHOOD SECTION

3.1 Attendance at the Preparation for Birth Classes has continued to increase. The gross attendance for 1979 was 19,808. The drop out rate was estimated at less than 1% for the year. The statistics for 1979 are shown in Table 13.

TABLE 13 PARENTHOOD SECTION STATISTICS - 1979

Number of classes held	1,113
Individual Attendances	4,743
Gross Attendances	19,808

3.2 Post natal classes were introduced in 1979. These have proved popular and will be expanded in 1980.

3.3 Special programmes arranged during 1979 included a seminar for physiotherapists conducting ante-natal classes and an evening seminar titled "Bonding in the Hospital Environment".

4. SCHOOL RESOURCES SECTION

4.1 This section continues its aim of transferring an increasing amount of the teaching of parenthood to the school teacher. During 1979, 136 teachers attended "intensives". Tentative arrangements have been made to have the concepts of the Parenthood Course introduced to trainee teachers in the Colleges of Advanced Education.

4.2 Total attendances have continued to increase. The attendance figures are shown in Table 14.

TABLE 14 TOTAL NUMBER OF STUDENTS - PARENTHOOD COURSE

City	5,984
Country	1,256
Extra Visits	2,870
TOTAL	10,110

5. CHILD HEALTH RESOURCES (CORRESPONDENCE) SECTION

5.1 This was previously known as the Correspondence Section. The name was changed during 1979 to acknowledge the other functions of this section which include visits to families in remote areas, hospital visiting and relieving duties in metropolitan Child Health Centres.

5.2 The Tea and Sugar Train service continued on a monthly basis through 1979. The annual statistics are shown in Table 15. These include all age groups.

TABLE 15 COMMUNITY SERVICE CARE - ANNUAL STATISTICS

Gross Attendances	710
Individual Attendances	345
Number of Stycar Screenings	124
Number of Immunisations	222

5.3 Statistics for 1979 are shown in Table 16.

TABLE 16 STATISTICS FOR 1979 ARE SHOWN IN TABLE 16

Birth Notifications received	277
First Contacts (including referrals)	362
Subsequent Contacts	1,393
Letters received from parents	566
Telephone Advice	4,224
Hospital visits (all hospitals)	1,100

6. SPECIAL PROGRAMMES

6.1 Play At Home Programme

This continued from the successful pilot programme of 1978 and included 14 centre nurses who visited families at home where there was a child with a known behavioural problem. During 1979 this programme proved highly successful though was somewhat time consuming.

6.2 Play and Information Mobile Service (PIMS)

PIMS was established in 1979 with the aim of improving child-parent relationships with a particular emphasis on the importance of play for the 0-12 year age group.

A mobile van fully equipped with a variety of play materials and staffed by Child Health Nurses visits by invitation Child Health Centres, Play groups, private home or any other interested group. It is envisaged that teachers and school children will also make use of this service.

PRE-SCHOOL HEALTH TEAM

1. ACTIVITIES

1.1 The aim of the Pre-School Health Team is to provide integrated preventive health services to all children placed in day care in the Perth metropolitan area.

1.2 The service provided by the team includes comprehensive screening methods to identify children with physical, emotional or social problems. There is an increasing demand on the team nurses for the provision of health education to both Centre staff and parents. The number of contacts for 1979 are shown in Table 17.

TABLE 17 PRE-SCHOOL HEALTH TEAM STATISTICS - 1979

Number of visits to Day Care Centres	1181
Counselling Contacts	1352
Number of Full Health Appraisals	1465
Number of Review Examinations	400
Number of Referrals	336

2. STAFF

2.1 The team consists of 1 Medical Officer, 4 Nurses, 1 Social Worker, 1 Speech Pathologist and 1 Typist. Apart from the Nurses, all staff work only part-time for the team.

3. TARGET POPULATION

3.1 Though there has been no increase in day care centres in the metropolitan area, there has been an increase in the number of family care centres. Many of these centres do not as yet have a full quota of children.

TABLE 18 NUMBER OF CHILD CARE CENTRES

Day Care	69
Occasional Care	15
Family Care	215

TABLE 19 POTENTIAL ENROLMENTS

Day Care	2062	(actual population 3,533)
Family Care	860	

COMMUNITY HEALTH SECTION

1. INTRODUCTION

The aim of the Section is to promote health in those individuals or groups of greatest need. Emphasis is placed on environmental or social change designed to produce permanent improvement in the long-term rather than on theapeutic activities to alleviate the immediate symptoms of illness.

The greatest single group of clients, particularly in remote areas, is the Aboriginal population. With increasing awareness of the Aboriginal identity and demands by Aboriginals for greater involvement in Government programmes, the nature of health services for Aboriginals is rapidly changing. The most obvious manifestation within the service is the expansion of the Health Workers and Camp Nurses employed by the Section, and the increased emphasis on their training by the Section as a whole. Aboriginals are also becoming more vocal about the types of services they require, and in several areas have attempted to develop their own medical services. During 1979 such services were initiated in Broome and Geraldton.

Community Health also provides extensive support for pensioners, migrants, isolated communities, single parents, handicapped persons and the homeless.

The major activities of the staff include health education, immunisation, accident prevention, family planning, management of childhood illnesses, infectious disease control, psychosocial problems and clinical services in some remote areas.

2. ADMINISTRATION

2.1 Staff

There has been increasing difficulty in recruitment and retention of suitable staff particularly for isolated areas. This shortage is most acute for senior supervisory staff.

Table 20 summarises present staffing.

2.2 Staff Training

Three orientation programmes were organised for 30 new Nurses and individual orientations for 7 Medical Officers.

External Courses

Diploma Course, Lincoln Institute - 2 nurses.
Overseas Helen Bailey Scholarship - 1 nurse to Alaska.
Study leave - 2 nurses to Ngal-a, 2 nurses to KEMH.
WAIT bridging course - 2 nurse aides.

Local Workshops

Health Education Workshop (6 senior nurses, 2 doctors).
St. John's Ambulance Seminar (senior staff). Kubler Ross Seminar on Death and Dying (senior nurse).

New Centres Opened During 1979

Day Care Centre - Mandurah - 19.7.79
Kwinana Health Centre - 21.6.79
Claremont Health Centre - 30.8.79
Bremer Bay (staffed) - 19.11.79
Wiluna - 7.5.79
Ravensthorpe - 24.4.79
Merredin - 13.8.79
Mt. House Station - 23.4.79

TABLE 20 MEDICAL AND PARAMEDICAL STAFF - 31.12.79

Category Location	No.	Resigned During 1979	Recruited in 1979
Medical Officer:			
Admin (Perth)	2	-	1
Kimberley	4	-	1
Pilbara	2	-	1
Northern	2	-	-
Metropolitan	4	1	1
South West	2	-	2
Goldfields	0	-	1 to commence 1980
TOTAL	16	1	7
Dentists:			
Itinerant	1	-	-
Health Education Officer	1	-	1
Anthropologists:			
Perth	0	1	-
Study Leave	1	-	-
TOTAL	3	1	1
Field Nurses	185	66	73
Field Nurse Aides/ Assistants	77	32	45
Consultants employed on sessional basis:		Leprology E.N.T. Ophthalmology	

99806—9

Centres Closed

Wagin
Manjimup

3. CLIENT ENCOUNTERS

3.1 Client Population

Some aspects of the client population are shown in Tables 21-27.

The client population is predominantly Aboriginal (Table 26), although in some areas, for instance the metropolitan region (Table 25) there is an increased non-Aboriginal clientele including Vietnamese, other ethnic groups, single parents and other socially disadvantaged individuals.

Clients aged 0-5 predominate with a continually decreasing contribution from older age groups (Table 26). However, older groups, as well as pre-school children have a high frequency of encounter with the service (Table 27), whereas single encounters are more common in school age children.

3.2 Major Encounter Problems

Table 28 shows the major reasons for encounter. The major specific categories were 24,051 (15%) encounters for infectious and parasitic diseases, 22,328 (14%) for diseases of the nervous system and sensory organs, 18,601 (11.6%) for skin disease and 18,053 (11.3%) for injuries and poisoning.

Table 29 shows the numbers of clients seen for major infectious and parasitic disease. Pediculosis accounted for 3,622 (28%) of these clients and scabies for 1963 (15%) whereas about 6% of clients were seen for each of Hansens disease, trachoma, syphilis, gonococcal infection, fungal infection and hookworm. Over half of the clients with infectious disease were children, with 3,124 (24.4%) under 5 and 4,455 (34.8%) aged 6-14 years.

3.3 Hansens Disease

There were 12 notifications for 1979, 2 of whom were Indian born.

Most clients encountered were in the Kimberley region. In this region 266 clients are on treatment and surveillance, and 157 on surveillance only. Thirteen leprosy patients died during 1979.

3.4 Immunization

There were 23,782 client encounters for immunization with 8,348 (35%) for Sabin vaccine and 11,493 (48%) for combinations of tetanus/diphtheria/pertussis vaccines (Table 30).

TABLE 21

CLIENTS IN WESTERN AUSTRALIA, 1979 BY AGE, SEX AND RACE

Sex	Race	Age 0-5	Age 6-14	Age 15-19	Age 20-49	Age 50-64	Age 65+	Unknown	Total	%
Male	Aboriginal	2437	2830	715	2522	728	491	236	9959	39.5
Female	Aboriginal	2266	2760	1045	3727	797	449	264	11308	44.9
Male	Non Aboriginal	437	310	112	539	108	100	29	1635	6.5
Female	Non Aboriginal	413	274	114	900	126	107	53	1987	7.9
Unknown		48	44	20	111	23	30	32	308	1.2
TOTAL		5601	6218	2006	7799	1782	1177	614	25197	100
PERCENT		22.2	24.7	8.0	31.0	7.1	4.7	2.4	100	

TABLE 22

CLIENTS IN WESTERN AUSTRALIA, 1979 BY AGE AND NUMBER OF VISITS

Age	One Visit	Two Visits	Three Visits	Four Visits	Five Visits	Six Visits	Seven Visits	Eight Visits	Nine Visits	Nine + Visits	Total Visits	%
0-5	860	712	614	472	398	342	284	200	220	1499	5601	22.2
6-14	1561	1165	771	550	383	350	234	194	155	855	6218	24.7
15-19	601	353	193	143	112	90	66	59	46	343	2006	8.0
20-49	1625	1070	780	576	460	376	326	288	204	2094	7799	31.0
50-64	301	207	168	104	119	113	68	65	60	577	1782	7.1
65+	171	112	92	78	73	71	52	51	44	433	1177	4.7
Unknown	115	102	60	52	44	36	30	9	12	154	614	2.4
TOTAL	5234	3721	2678	1975	1589	1378	1060	866	741	5955	25197	100
TOTAL %	20.8	14.8	10.6	7.8	6.3	5.5	4.2	3.4	2.9	23.6	100	

TABLE 23

METROPOLITAN - NORTH - CLIENT CONTACTS

Age	M/Ab.	F/Ab.	M/Non-Ab	F/Non-Ab	Sex Unknown	Total No.	Total %
0- 5	385	398	310	341	16	1450	24.3
6-14	341	362	193	168	12	1076	18.1
15-19	79	180	119	92	5	475	8.0
20-49	219	684	532	857	45	2337	39.2
50-64	73	105	86	106	9	379	6.3
65+	33	29	19	51	7	139	2.3
Unknown	31	27	13	29	5	105	1.8
Total No.	1161	1785	1272	1644	99	5961	
%	19.4	30.0	21.3	27.6	1.7	100	100

TABLE 24

1979 - CLIENT ENCOUNTERS - W.A.

Region	No.	%
Kimberley East	34,454	12.6
Kimberley West	24,390	8.9
Pilbara	29,963	10.9
Northern	20,348	7.4
Eastern Goldfields	26,201	9.6
South West (North)	33,463	12.2
South West (South)	24,284	8.8
Metropolitan (North)	43,066	15.7
Metropolitan (South)	26,560	9.7
Irwin	12,142	4.4
TOTAL	272,871	100

TABLE 25 CLIENT ENCOUNTERS BY AGE AND RACE, METROPOLITAN NORTH, 1979

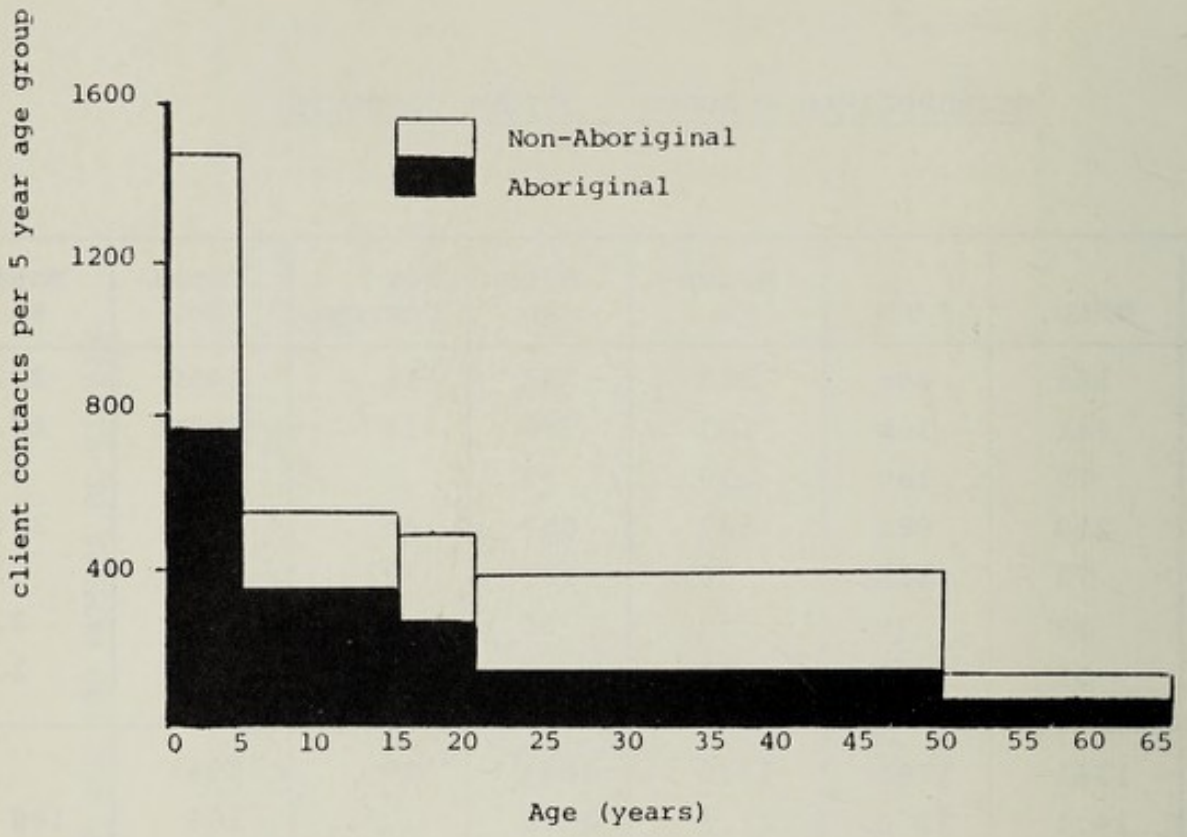


TABLE 26 CLIENTS BY AGE AND RACE, WESTERN AUSTRALIA, 1979

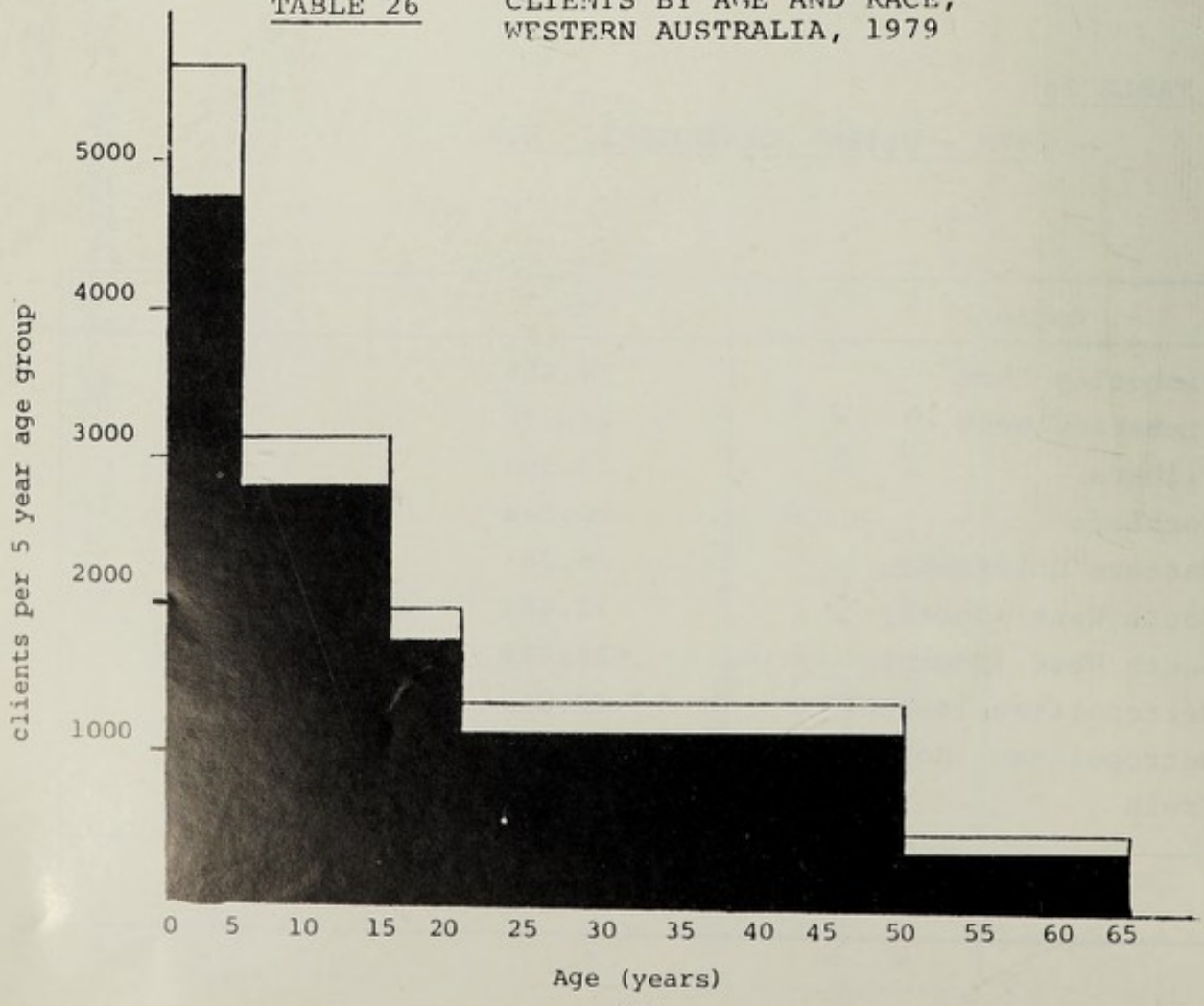


TABLE 27 CLIENT VISITS BY AGE AND RACE, WESTERN AUSTRALIA, 1979

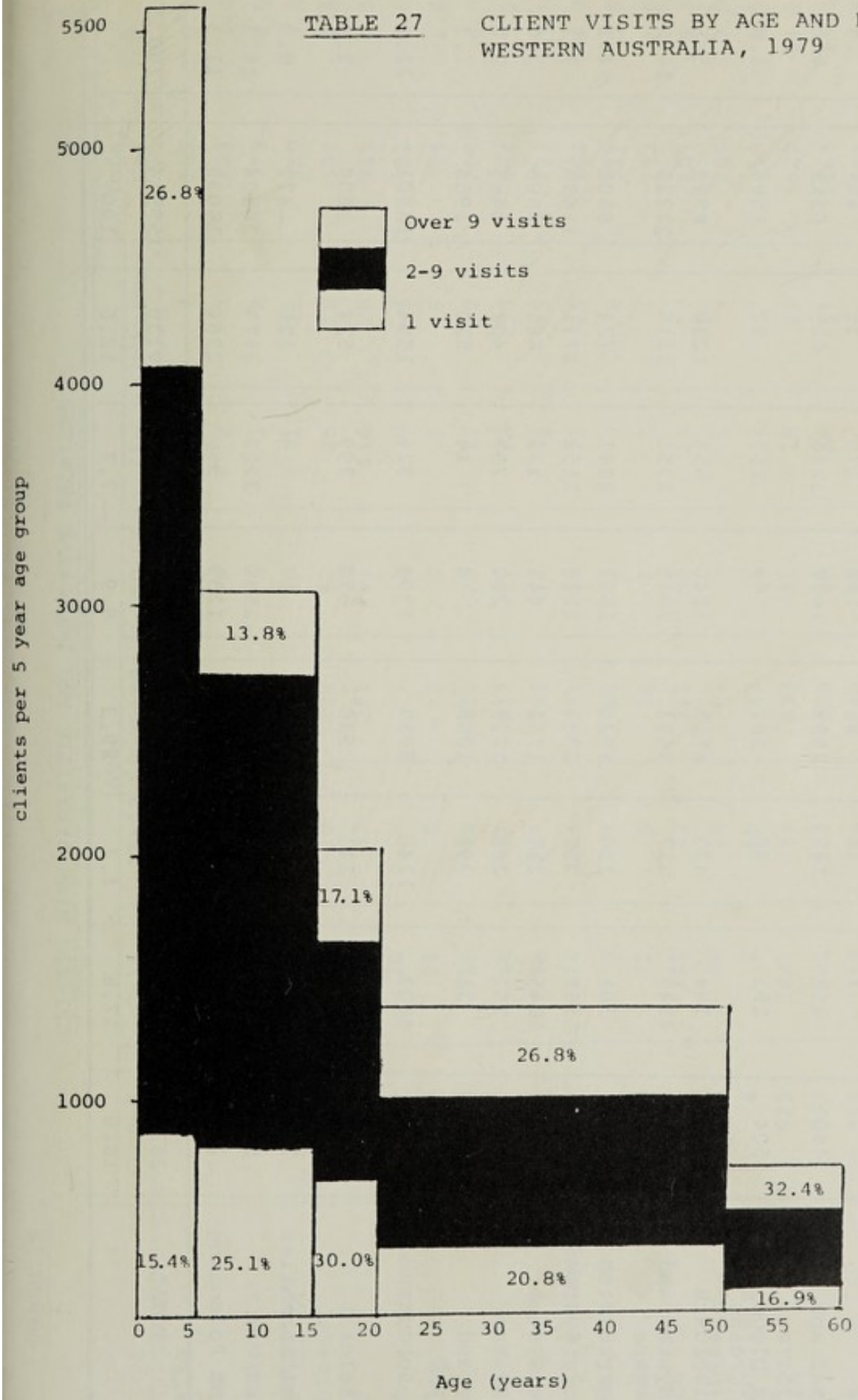


TABLE 28

MAJOR REASONS FOR ENCOUNTER

	Age 0-5	6-14	15-19	20-49	50-64	65+	Unknown	Total	%
Infective and Parasitic	4879	6939	1396	5824	1224	662	3127	24051	15.0
Neoplasms	-	3	15	91	139	170	39	457	.3
Nutritional and Metabolic	440	152	148	2091	1617	1246	625	6319	4.0
Blood and Blood Forming Organs	504	293	98	362	64	153	92	1566	1.0
Mental Disorders	209	304	423	4713	1240	655	1238	8782	5.5
Nervous System and Sense Organs	5740	4949	517	4611	2045	1351	3115	22328	14.0
Circulatory System	94	351	156	1925	1661	1841	774	6802	4.2
Respiratory System	3747	1159	307	2334	1213	1152	1771	11683	7.3
Digestive System	496	1045	215	1751	441	272	666	4886	3.0
Genital System	260	257	280	1737	292	257	402	3485	2.2
Pregnancy and Childbirth	8	31	391	1008	4	14	510	1966	1.2
Skin and Subcutaneous Tissue	3857	4603	1140	5089	1394	924	1594	18601	11.6
Musculoskeletal System	125	398	111	986	676	799	514	3609	2.3
Congenital Anomalies	221	77	8	20	17	3	126	472	0.3
Illdefined	6083	3803	1409	7634	2530	2222	3173	26854	16.8
Injury and Poisoning	2095	4056	1008	6735	1239	556	2364	18053	11.3
TOTAL	28758	28420	7622	46911	15796	12277	20130	159914	100
%	18.0	17.8	4.7	29.3	9.9	7.7	12.6	100	

TABLE 29

CLIENTS WITH PARASITIC AND INFECTIVE PROBLEMS

	Age							Total No.	%
	0-5	6-14	15-19	20-49	50-64	65+	Unknown		
Salmonella	31	18	10	39	5	1	3	107	0.8
Shigella	73	26	1	26	0	2	5	133	1.0
Giardia lamblia	198	102	9	57	4	1	8	379	3.0
Gastroenteritis	295	15	3	36	10	11	10	380	3.0
Tuberculosis	46	44	10	138	57	26	18	339	2.6
Leprosy	7	51	87	361	167	116	26	815	6.5
Measles	49	20	-	7	1	0	4	81	0.6
Hepatitis	17	22	5	22	0	2	6	74	0.6
Trachoma	210	318	42	131	29	12	22	764	6.0
Syphilis	26	18	87	413	57	28	35	664	5.2
Gonococcal	13	48	127	392	84	33	25	722	5.6
Fungal Infections	170	174	84	231	66	22	15	762	5.9
Moniliasis	86	3	5	17	2	0	4	117	0.9
Tapeworms	98	71	8	26	1	1	7	212	1.6
Hookworm	212	288	42	167	50	33	17	809	6.3
Other Intest.	104	68	14	62	1	2	9	260	2.0
Trichomoniasis	4	2	10	33	1	2	7	59	0.5
Pediculosis	679	2427	91	339	31	18	37	3622	28.3
Scabies	591	601	134	436	86	64	51	1963	15.3
Other	215	139	19	140	18	6	16	553	4.3
TOTAL	3124	4455	788	3073	670	380	325	12815	100
%	24.4	34.8	6.1	24.0	5.2	3.0	2.5	100	

TABLE 30

ENCOUNTERS FOR IMMUNISATION

	Age							Total No.	%
	0-5	6-14	15-19	20-49	50-64	65+	Unknown		
Triple Antigen	1739	0	0	0	0	0	3694	5433	22.8
CDT/ADT	1023	1181	25	81	8	6	1543	3867	16.3
Tetanus	19	741	211	796	101	31	294	2193	9.2
Sabin	2526	486	63	329	46	14	4884	8348	35.1
Measles	526	112	3	17	-	4	929	1591	6.7
Rubella	-	557	18	23	-	-	1	599	2.5
Mantoux	81	149	60	129	43	36	104	602	2.5
BCG	235	128	53	142	93	131	139	921	3.9
Influenza	6	12	-	35	3	3	11	70	.3
Other	24	18	4	37	2	51	22	158	.7
TOTAL	6179	3384	437	1589	296	276	11621	23782	
%	26.0	14.2	1.8	6.7	1.2	1.2	48.9	100	100

4. NUTRITIONAL ANTHROPOMETRY

Although there has been a remarkable improvement in Aboriginal infant mortality in recent years, a similar improvement has not occurred in the growth pattern of children. Table 31 shows the distribution of Aboriginal birth weights which has not changed significantly from 1968 to recent times.

Table 32 shows more precisely the pattern of growth problems. Between 6 and 9 months of life, infant growth deteriorates, months after which it is maintained with no signs of "catch-up" under 2 years.

In 1979 plans were initiated for increased nutritional anthropometry with immunization, nutrition and health education programmes. The aim of this programme is to improve the poor growth patterns which now exist.

5. VIETNAMESE REFUGEES

During 1979, 975 refugees arrived in Western Australia. Table 33 lists the most common abnormalities which were detected during the screening procedure. Skin infestations (scabies, ringworm and pediculosis) were the commonest problems. Figures were not collected for the incidence of pediculosis capitis as it was so common that most groups were treated en masse. Dental disease was the next most common problem. Management of this has been made much easier by having a mobile dental van staying for several weeks at the Hostel on two or three occasions throughout the year. This has saved staff the trouble of transporting many people to the Perth Dental Hospital.

3.9% of the refugees had some form of Thalassaemia, both α and β Thalassaemia occurring in South East Asia. During 1980 a genetic counselling service for people with Thalassaemia minor will commence.

The incidence of positive treponemal serology was 5.1%. These were referred to the Special Treatment Clinic for diagnosis, treatment and follow up.

All people received a dose of Combantrin upon arrival and this has reduced the prevalence of A. lumbricoides and A. duodenale. In December 1979 two people were found to be excreting S. typhosa in their faeces and were admitted to the infectious diseases annexe of Royal Perth Hospital.

6. ARTHRITIS FIELD NURSES

2,145 home visits and 1,008 clinic visits were made by the four Field Officers. This involved 117,422 kilometres of travel. The role is to co-ordinate with general practitioners, community nurses, hospitals and the Rheumatologists in maintaining optimum well-being of clients in their own environment.

TABLE 31

ABORIGINAL BIRTH WEIGHTS IN W.A.

FREQUENCY DISTRIBUTION	1968 - 1971		1972	1973	1974	1975	1976	1977	AFTER 1977		TOTAL
	No	%							No	%	
Less than 1.49Kg	6	.8	7	5	7	1	7	5	6	.7	44
1.50 to 1.99Kg	16	2.1	16	19	19	31	14	24	21	2.3	160
2.00 to 2.49Kg	78	10.2	56	65	60	79	60	63	90	10.5	557
2.50 to 2.99Kg	198	25.9	175	187	214	241	196	172	245	26.7	1628
3.00 to 3.49Kg	283	37.0	212	245	235	296	259	221	310	33.8	2061
3.50 to 3.99Kg	133	17.4	133	144	159	143	133	136	180	19.6	1161
4.00 to 4.49Kg	49	5.4	36	32	45	40	46	26	48	5.2	314
4.50 to 4.99Kg	9	1.2	7	11	11	8	7	5	10	1.1	68
5.00 and over	1	.1	3	4	4	5	1	3	1	.1	22
TOTAL BIRTHS	765	100.0	645	712	754	844	723	655	917	100.0	6015
COMPARATIVE STATISTICS											
MEDIAN	3140		3125	3165	3124	3107	3130	3150	3400		
MEAN	3149		3152	3147	3157	3112	3136	3110	3122		

TABLE 32

MASS AND HEIGHT DEFICIENCIES OF ABORIGINAL INFANTS

PERCENT OF CLIENTS

Age	Under 75% of standard mass (below 3rd percentile)		Under 96% of standard height (approx. 10-13th percentile)	
	Male	Female	Male	Female
3 months	20.1	27.3	25.2	41.4
6 months	21.3	38.0	18.8	39.9
9 months	38.6	57.8	35.2	56.2
12 months	41.4	61.5	55.3	62.4
15 months	47.6	59.9	67.8	69.3
18 months	52.4	67.9	61.2	74.5
24 months	48.1	60.2	74.9	79.4

TABLE 33

VIETNAMESE REFUGEES

DISEASES FOUND AT INITIAL SCREENING 1979

	Number	%
No. of refugees	975	100
Number with -		
Dental problems	253	25.9
Scabies	287	29.4
Thalassaemia	38	3.9
Tinea	83	8.5
Trachoma	63	6.5
Tuberculosis	46	4.7
Syphilis	50	5.1
Otitis media	25	2.6
Hypertension	6	.6
Anaemia	7	.7
Bronchitis	7	.7
Enlarged thyroid	5	.5
Conjunctivitis	4	.4
Poor vision	4	.4
G. lamblia	44	4.5
T. trichiura	26	2.7
A. duodenale	4	.4
A. lumbricoides	3	.3
S. stercoralis	2	.2
H. nana	1	.1
C. sinesis	3	.3
S. typhosa	2	.2
Other salmonella	30	3.0
Shigella	3	.3

The majority of the patient load (65%) is long term. Rheumatoid arthritis, chronic disabling osteoarthritis and ankylosing spondylitis form the greater number of conditions seen.

The area currently covered, stretches from Geraldton to Kalgoorlie and Esperance, and west to Augusta, so much travelling is involved by the four Sisters. Field Officers work on the principle of one week away and one week in Perth. A Community Health Field Nurse based in Geraldton and another at Albany have been trained to take over the after care in these areas with supervision from the more experienced Field Officers.

7. MULTIPLE SCLEROSIS

Emphasis has been on public relations work to increase awareness not only between co-workers but the public also, of the particular medical, socio-economic and psychological needs of persons afflicted with this disease.

Talks, films and discussion groups were held in schools, at WAIT, with Silver Chain Nurses, Community Health Nurses, Occupational Therapists at Royal Perth Hospital and several other hospitals.

A total of 499 home visits were made during the year by one field nurse. There were 31 new patients seen during the year, and listed clients in the metropolitan area totalled 125. Counselling and liaison with other professional agencies and arrangements for medical aids were part of the resource facilities supplied.

8. COMMUNICATION AND ESCORT

Details of discharges from hospitals and activities of communication and escort for 1979 are:

Royal Perth Hospital	117
Mount Lawley Annexe	81
Shenton Park Hospital	38
Princess Margaret Hospital	266
Lady Lawley Cottage	46
Sir Charles Gairdner Hospital	138
King Edward Memorial Hospital	110
Fremantle Hospital	4
Hollywood Hospital	17
Other areas	21
	838

Discharge Destinations

Kimberley	207
Pilbara	114
Northern	167
South West	149
Goldfields	112
Metropolitan	88
Eastern States	1
	838

9. FLYING SISTERS

These nurses provide escort in conjunction with the Royal Flying Doctor Service, for patients evacuated to hospitals and for those entering hospital. They assist in remote clinic flights and in other Community Health aspects, e.g. immunizations, contact tracing, etc. These nurses are located at Jandakot, Kalgoorlie, Geraldton, Carnarvon, Port Hedland, Derby and Wyndham.

The following Table summarised Flying Doctor activities:

TABLE 38

Centre	Patients Carried	Mileage	Number of Flights
Derby	1,184		412
Wyndham	610	129,798	328
Port Hedland	1,214	-	571
Carnarvon	510	183,061	291
Meekatharra	400	121,672	190
Geraldton	491	137,614	260
Jandakot	-	2,614 hours	715

10. GASTROENTERITIS IN ABORIGINAL CHILDREN

Hospital admission rates for gastroenteritis have continued to show a progressive decline for both Aboriginal and non-Aboriginal children and the trend from 1971-78 is shown in Table 34.

Mortality from gastroenteritis in 1978 showed a slight increase, there being 2 deaths from this cause in Aboriginal children. There were no deaths in 1977. Acknowledgement is given for this information to Dr. M. Gracey and Dr. R. J. Berry of the Princess Margaret Medical Research Foundation.

TABLE 34 AGE-SPECIFIC ADMISSION RATES* FOR DIARRHOEA+, WESTERN AUSTRALIA, 1971-78

	ABORIGINAL		NON-ABORIGINAL	
	Metropolitan	Rural	Metropolitan	Rural
INFANTS				
1971	774	872	23	59
1972	857	855	24	70
1973	669	944	20	76
1974	678	869	25	66
1975	613	897	25	72
1976	422	996	23	62
1977	317	826	21	71
1978	290	685	22	68
CHILDREN 1-4 YEARS				
1971	126	216	6	24
1972	110	228	7	22
1973	137	235	5	30
1974	120	257	7	25
1975	126	246	7	23
1976	77	240	7	25
1977	88	204	6	23
1978	62	180	8	26

* per 1000 per year

\+ I.C.D. categories 007-009

TABLE 35

CHILDHOOD DEATHS* FROM GASTROENTERITIS** WESTERN AUSTRALIA, 1971-78

YEAR	ABORIGINAL	NON-ABORIGINAL	TOTAL
1971	12	5	17
1972	12	1	13
1973	12	2	14
1974	8	2	10
1975	3	2	5
1976	2	1	3
1977	0	0	0
1978	2	0	2
TOTAL	51	13	64

* Aged from 1 month to 15 years

** I.C.D. Classifications 000-0009

Acknowledgements are given to Dr. R. J. Berry and Dr. M. Gracey of the Princess Margaret Research Foundation.

99806—10

SCHOOL HEALTH SECTION

1. STAFF ESTABLISHMENT AS AT 31.12.79

Medical Officers	Establishment (9 full time, 2 part time)	11
Social Workers	Establishment	1
Speech Therapists	Establishment	4
Physiotherapists	Establishment	4
Occupational Therapists	Establishment	4
Nurses	Establishment	127
Nursing Aides	Establishment	4
TOTAL STAFF ESTABLISHMENT		155

2. HIGH SCHOOL PROGRAMME

New appointments of School Health Nurses were made at the following high schools:

Cannington
Carnarvon
Craigie
Esperance (part time)
Greenwood
Lynwood
Mandurah
Merredin
Mount Barker
Newton Moore
Wanneroo

The total number of high schools with a nurse permanently based on the staff in 1979 was 60.

39 of these are in the metropolitan area, 21 in country high schools.

1979 again showed increasing use of school medical centres with a total of 147,546 consultations being made.

3. PRIORITY SCHOOLS PROGRAMME

There are 9 nurses based in high schools and primary schools which are designated as priority schools by the Education Department. The following schools are included in this programme.

South Fremantle Senior High School
Hamilton Senior High School
Highgate Primary School
Roebourne Primary School (services of school nurse half time)
Midland Primary School
East Fremantle Primary School
Lockridge Primary School (part time)
Balga Senior High School (part time)

TABLE 36 NUMBER OF SCHOOLS VISITED 1979

	METROPOLITAN	COUNTRY	TOTAL
GOVERNMENT SCHOOLS:			
Primary and Pre-Primary	263	259	522
Secondary	50	26	76
District High	-	53	53
Government Special Schools	18	10	28
NON-GOVERNMENT SCHOOLS:			
Primary and Pre-Primary	80	37	117
Secondary	20	8	28
Primary and Secondary	24	10	34

TABLE 37 ENROLMENTS FOR 1979

GOVERNMENT SCHOOLS (Pre-Primary)	24,210
GOVERNMENT SCHOOLS (Primary)	140,511
GOVERNMENT SCHOOLS (Secondary)	64,901
SPECIAL SCHOOLS	1,617
TOTAL	231,239
NON-GOVERNMENT (Pre-Primary)	1,604
NON-GOVERNMENT (Primary)	25,395
NON-GOVERNMENT (Secondary)	20,186
TOTAL	47,185
TOTAL NUMBERS GOVERNMENT AND NON-GOVERNMENT SCHOOLS	278,424

4. SPECIAL SCHOOLS FOR PHYSICALLY HANDICAPPED CHILDREN

Enrolments at Willetton Special School for Physically Handicapped Children were 65 at December 1979. This presented an increase of 16 on the 49 students who were admitted when the school opened in 1978. During the year therapeutic programmes, medical reviews and case conferences were arranged for all the children.

Koondoola Special School for Physically Handicapped Children opened in 1979 with staff jointly provided by the Education Department and the Department of Health and Medical Services. The health team comprises:

1 Medical Officer (part time)
1 School Health Nurse
2 Nursing Aides
2 Physiotherapists
2 Occupational Therapists
1 Speech Therapist (half time)

43 children were admitted at the beginning of the school year and at December 1979 the enrolment was 67.

All children were assessed medically and by the team of therapists and a variety of therapeutic programmes was commenced.

The medical and therapy staff are an integral part of the school. They have been involved in many school activities e.g. Hallewick swimming classes, independence training, grooming classes, transport training, shopping and cooking, organisation of the canteen which was run by the students on one day each week, schools clubs such as weaving, outings which incorporated training in independence skills and in road safety, school camps, horse riding classes for the disabled (outside schools hours), relaxation classes, home visits, P & C meetings, information and education sessions involving integration with students from adjacent ordinary primary school, participation with students in WAY 79 pageant, and involvement in spinning and weaving classes from an Education Department caravan based at the school for 6 weeks in July and August 1979.

During 1979 the services of a visiting orthopaedic specialist were arranged on a sessional basis, alternating each month between Willetton and Koondoola Special Schools.

5. SCOLIOSIS SCREENING PROGRAMME

The scoliosis screening programme continued for students in year 8 of high school where a nurse was based at the school. All government schools in the metropolitan area were covered, and a limited number of government country high schools and non-government schools were included. Where nurses had the time students in the latter years of primary school (year 6 and 7) were also screened. The results are shown in Tables 41 and 42.

In 1979, 11 children required fitting with a spinal brace and 5 children needed spinal surgery for scoliosis as a result of the school screening programme. As a result of extension of the programme in the future it is hoped that active intervention with a brace will eliminate the need for surgery.

6. SCREENING AND ASSESSMENT PROGRAMME

Of the total number of full health appraisals performed in 1979 two-thirds of these were for children in pre-primary centres. There were increases in the number of vision and hearing screening tests for year 1 children compared with the previous year, showing that the full health appraisals were carried out in 1978 at pre-primary level and for most children it was only necessary to rescreen for vision and hearing impairment.

There was a marked increase in the number of home visits made for problems identified in primary school children in 1979, from 4,541 to 7,020. The number of primary school children with pediculosis increased from 6,285 in 1978 to 11,993 in 1979.

The parents of 22,267 school children were notified regarding updating of immunisations.

It was especially pleasing to note the dramatic reduction in the incidence of dental caries among primary school children from 3,048 to 1,689 in 1979, the comparable figures for dental caries in secondary school children showing no change over the 2 years. The location of dental therapy clinics adjacent to and in the grounds of many primary schools has no doubt played an important role here.

1979 showed increasing use of the team approach in identification and management of children's problems. There was nearly a threefold increase in referrals to Community and Child Health Services district offices during the year.

Visual problems continue to be the largest group of conditions identified with highest incidence in pre-primary, years 1, 5 and 8, as expected from the screening regime. During 1979 a total of 1,590 refractive errors were found and spectacles were prescribed for 1,232 children.

205 children in the pre-school age group were found to have refractive errors, 72 pre-schoolers were identified with strabismus and spectacles were prescribed for 150 children in this age group.

Chronic suppurative otitis media continues to be a problem, particularly in country areas. Children with hearing loss due to secretary otitis media and nerve deafness also continue to be identified. In 1979, 12 children were fitted with hearing aids and most of these were issued to children in pre-primary and years 1, 2 and 3.

Children who have speech and language disorders which require therapy continue to be identified in large numbers in the early school years. In 1979 a higher proportion of such children were referred from pre-school and from year 1 classes. In all 477 children were identified to be in need of therapy.

7. HEALTH EDUCATION

School Health nurses took 2,625 teaching periods in pre-primary and primary schools and a total of 4,002 periods in high schools. Overall this represents almost a 5% increase in time spent in formal health education sessions compared to 1978.

Total student visits to medical centres in high schools was 147,546 and undoubtedly a significant contribution would have been made on an individual basis to students' health education during these attendances.

Thus the nurses' time spent in health education is continuing to increase and more schools are involving the subject of health in their curriculum planning.

TABLE 39

SCHOOL HEALTH SECTION

OUTCOME OF SCREENING - METROPOLITAN AND COUNTRY

(PRE-PRIMARY AND PRIMARY)

REASON FOR CONTACT	YEAR								TOTAL
	P	1	2	3	4	5	6	7	
Full Health Appraisals	16721	7118	1465	1256	1118	1201	820	767	30466
Vision Test	20235	23572	6897	5496	4377	22860	4520	3914	91871
Hearing Test	20155	23243	4770	4374	3673	22862	3161	2640	84878
Other Examination	13597	34022	31180	31497	26654	27560	22457	20635	207602
Scoliosis	16991	7756	1875	1617	1390	1562	1456	1367	34014
Home Visit	698	1690	1068	971	785	797	587	424	7020
Emergency	25	77	62	73	63	59	59	73	491
First Aid	335	1810	1696	1853	2111	1709	1900	1910	13324
POSITIVE FINDINGS									
Pediculosis	383	2018	2002	2068	1770	1660	1212	880	11993
Scabies	22	50	22	40	16	24	21	18	213
Impetigo	35	145	85	59	38	54	23	17	456
Ringworm	39	74	55	26	27	36	35	17	309
Dental Caries	657	493	127	103	88	140	46	35	1689
Colour Vision Defect	3	69	5	8	14	505	35	25	664
Notified For Immunisation	2322	4599	1123	973	975	1170	1172	1053	13387
HEALTH EDUCATION PROGRAMME									
Periods Taken	96	180	126	102	150	258	468	1245	2625

TABLE 39 contd

SCHOOL HEALTH SECTION

OUTCOME OF SCREENING - METROPOLITAN AND COUNTRY

(PRE-PRIMARY AND PRIMARY)

REFERRAL AFTER SCREENING	P	1	2	3	4	5	6	7	TOTAL
Vision	295	341	210	188	164	231	160	126	1715
Hearing	308	298	129	86	95	151	78	52	1197
Speech	777	561	143	121	50	65	36	7	1760
Cardiovascular	1633	1078	249	141	109	84	31	35	3360
Undescended Testes	386	243	54	29	11	4	2		729
Hernia	46	20	1	4	1		1		73
Orthopaedic	67	50	17	3	15	9	6	4	171
E.N.T.	294	226	82	57	55	58	32	24	828
Scoliosis	255	270	112	68	54	66	69	111	1005
Strabismus	664	440	168	94	57	44	21	14	1502
Growth Below 3rd Percentile	143	130	17	12	7	13	11	3	336
Development	283	186	84	28	33	17	10	6	647
Behaviour Disorder	67	51	22	24	20	25	9	9	227
Other	235	239	138	116	95	94	41	50	1008
REFERRED TO									
Family Doctor	578	521	256	218	178	278	151	129	2309
C.C.H.S. Medical Officer	3760	2973	973	580	426	432	252	241	9637
C.C.H.S. District Office	144	145	19	21	23	22	14	8	396
Child Development Centre	30	20	10	5	6	3	2		76
Guidance Branch	59	42	19	7	17	11	10	8	173
Irrabeena		1	2		2			1	6
Princess Margaret Hospital	110	81	39	33	29	34	27	25	378
Fremantle Hospital	31	22	14	19	17	18	12	14	147
Other Hospital	70	26	12	2	3	5	3	3	124
Private Specialist	17	19	16	11	6	15	9	5	98
National Acoustic Lab.	31	18	11	2	6	11	7	1	87
Social Worker	10	6	6	4	4	3	3	2	38
Other	45	33	18	19	16	6	10	5	152
Other Than Assessments	95	218	155	137	136	114	136	113	1104

TABLE 40

SCHOOL HEALTH SECTION

OUTCOME OF SCREENING - METROPOLITAN AND COUNTRY

(SECONDARY)

REASON FOR CONTACT	YEAR 8		9		10		11		12		TOTAL		TOTAL
	M	F	M	F	M	F	M	F	M	F	M	F	M & F
Vision Test	11547	11060	1127	1396	769	730	243	348	126	143	13812	13677	27489
Hearing Test	1288	1227	233	218	156	158	48	81	38	34	1763	1718	3481
Other Examination	2819	3201	2175	2554	1622	1686	508	671	292	353	7416	8465	15881
Scoliosis	5886	5966	750	806	274	303	72	105	4	3	6986	7183	14169
Home Visit	707	820	583	651	361	523	106	219	39	75	1796	2288	4084
Emergency First Aid Medical Centre Visits	19154	26660	20320	29196	14255	22442	3686	7446	1480	2907	58895	88651	147546
POSITIVE FINDINGS													
Pediculosis	367		225		121		22		55		790		790
Scabies	49		23		7		4		1		84		84
Impetigo	64		38		18		2		2		124		124
Ringworm	102		69		46		14		2		233		233
Dental Caries	217		172		107		38		8		542		542
Colour Vision Defect	122		7		14		11		2		156		156
Notified for Immunisation	3093		2666		2186		640		295		8880		8880
HEALTH EDUCATION PROGRAMME													
Periods Taken	1286		640		1261		611		204		4002		4002

TABLE 40 contd

SCHOOL HEALTH SECTION

OUTCOME OF SCREENING - METROPOLITAN AND COUNTRY

(SECONDARY)

REFERRAL AFTER SCREENING (FOR ASSESSMENT OF)	YEAR 8 M	8 F	9 M	9 F	10 M	10 F	11 M	11 F	12 M	12 F	TOTAL M	TOTAL F	TOTAL M & F
Vision	108	196	51	75	32	48	11	27	16	6	218	352	570
Hearing	36	20	10	10	4	4	1	4	2		53	38	91
Speech	10	1	5	2	5	1	1				21	4	25
Cardiovascular	3	5				1				1	3	7	10
Hernia													
Orthopaedic		2	1	1				1			1	4	5
E.N.T.	9	5	4	2	1						14	7	21
Scoliosis	601	838	128	163	43	40	10	30	2		784	1071	1855
Strabismus	1		2			1	1				4	1	5
Growth Below 3rd Percentile		6				2					8	11	19
Development	2	5	5	3	1	1					8	9	17
Behaviour Disorder	21	13	12	8	5	7	2	3	1	1	41	32	73
Other	35	29	21	24	2	17	2	11	3	4	63	85	148
REFERRED TO													
Family Doctor	170	266	61	61	25	34	11	25	12	6	279	392	671
C.C.H.S. Medical Officer	512	677	141	165	49	53	12	34	5	3	719	932	1651
C.C.H.S. District Office	66	66	4	3	1	2					71	71	142
Child Development Centre		2	2		1		1				4	2	6
Guidance Branch	11	11	8	9	1	5	1	1	1	1	22	27	49
Irrabeena		1										1	1
Princess Margaret Hospital	4	2									4	2	6
Fremantle Hospital	15	17	7	15	5	8		4	3		30	44	74
Other Hospital	12	34	6	14	6	9	1	3	1	1	26	61	87
Private Specialist	7	6	5	3	2	4	1	4	1		16	17	33
National Acoustic Lab.	3			1	1						4	1	5
Social Worker	5	3	3	6	2	3		1		1	10	14	24
Other	10	8	1	11	2	3	1	3			14	25	39
Other Than Assessments	628		617		531		134		65		1975	2244	4219

TABLE 41

OUTCOME OF SCOLIOSIS SCREENING

(SECONDARY SCHOOLS)

	YEAR (GRADE)						TOTAL
	8		9		10		
	M	F	M	F	M	F	
Number Screened by Nurses	5886	5966	750	806	274	303	13985
Number Referred to Medical Officer	601	838	128	163	43	40	1813
Number Referred to G.P., Specialist or Scoliosis Clinic	54	130	9	23	3	10	229
Number on School Review	253	401	48	88	25	27	842
Number on Review At Scoliosis Clinic	28	77	3	22	2	4	136
Limb Length Inequality	14	20	1	4	-	2	41
Postural Scoliosis	12	32	-	2	-	1	47
Treated with Brace	1	5	-	2	-	1	9
Treated Surgically	-	2	1	1	-	1	5

TABLE 42

OUTCOME OF SCOLIOSIS SCREENING

(PRIMARY SCHOOLS)

	YEAR (GRADE)								TOTAL
	P/P	1	2	3	4	5	6	7	
Number Screened by Nurses	16991	7756	1875	1617	1390	1562	1456	1367	34014
Referred to Medical Officer	255	270	112	68	54	66	69	111	1005
Referred to G.P., Specialist or Scoliosis Clinic	3 M - F	- M - F	- M - F	- M 1 F	- M 1 F	1 M 2 F	3 M 2 F	1 M 5 F	19
Number on Review at Scoliosis Clinic	- M - F	- M - F	- M - F	- M 1 F	- M - F	- M - F	- M - F	- M 2 F	3
Treated with Brace	1 M - F	- M - F	- M - F	- M - F	- M - F	- M - F	- M - F	1 M - F	2
Treated Surgically	- M - F	- M - F	- M - F	- M - F	- M - F	- M - F	- M - F	- M - F	0

TABLE 43

SCHOOL HEALTH SECTION

ANNUAL DIAGNOSIS AND ASSESSMENTS

METROPOLITAN

OPTHALMOLOGISTS	YEAR (GRADE)													TOTAL
	P	1	2	3	4	5	6	7	8	9	10	11	12	
Refractive errors	145	166	77	100	94	132	87	74	162	84	45	35	19	1220
Infections	5	3	2		2	3	3	2	3	4	1	1	1	30
Trachoma		1												1
Strabismus	47	41	18	7	7	7	5	4	9	4				149
Foreign Bodies		2			1									3
Congenital nystagmus			1			1								2
Retinal scarring	2	2	2											6
Congenital ptosis				2			1							3
Post meningitis impairment														
Amblyopia	5	11	7	2	2	2	3	5	5	3	1			46
Normal vision	27	36	15	15	16	21	14	10	25	8	2	2	1	192
Results pending	66	31	24	26	29	35	16	20	27	13	7	4	3	301
Other	10	14	9	11	6	7	6	9	16	3	11	6	3	111
Spectacles prescribed	109	143	55	78	65	100	55	53	143	65	33	25	15	939
Surgery	4	4	4	3	2			1	1					19
HEARING														
Sensorineural deafness	10	19	9	2	5	14	11	5	6	3	1	3		88
Secretary otitis media	43	35	15	13	8	13	6		2	1				136
Chronic suppurative otitis media	2	2	4	1	3	2	3	2	4					23
Perforations (chronic)	1	2	2	1		1	1	1	1					10
Foreign bodies	1	5	1	1										8
Otitis externa	4	2	2	1	1	1								11
Transient hearing loss	23	19	13	7	6	14	7	2		1	1			93
Wax (cerumen)	19	9		8	3	5	1		2					47
Acute otitis media	5	10	4	7	1	6		1	2					36
Normal hearing	6	8	5	3	2	4	4	2	3					37
Results pending	9	8	1	4	4	6	4	6	1					43
Other	6	7	3	1	4		2	1	4					28
Hearing aids supplied	1	1	2		1		1		1					7
Surgery	23	17	11	9	12	10	7	2	3					94

TABLE 43 contd

SCHOOL HEALTH SECTION

ANNUAL DIAGNOSIS AND ASSESSMENTS

METROPOLITAN

	YEAR (GRADE)													
CARDIOVASCULAR SYSTEM	P	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
Congenital heart disease	1								1					2
Artrial septal defect														
Ventricular septal defect	2			4										6
Aortic stenosis														
Pulmonary stenosis		1		5										6
Patent ductus arteriosus	1													1
Coarctation of the Aorta						1								1
Rheumatic heart disease			1											1
Other	1		1	1			2							5
MUSCULOSKELETAL SYSTEM														
Muscular dystrophies			1					1						2
Scoliosis	3		1	3	1	3	5	4	117	44	17	6		204
Feet (Pes planus, etc)	2		1			1		1	1	3				9
Perthes disease "Irritable Hip" etc														
Genu Valgum	4	1			3	2			1					11
Fractures and trauma	1	4	2	2	3		3	3	6	3	2	2		31
Other	5		6	5	1	3	3	2	5	6	2			38
DISORDERS OF GROWTH & NUTRITION														
Under Nutrition	2	4	1			2				1				10
Obesity	7	5	7	4	5	3	3	3	10	1				48
Growth Retardation	1		1				1		1					4
Dwarfism														
Malabsorption														
Nutritional Anaemia														
Thyrotoxicosis														
Hypothryoidism														
Other	1					1			3					5

TABLE 43 contd

SCHOOL HEALTH SECTION

ANNUAL DIAGNOSIS AND ASSESSMENTS

METROPOLITAN

	YEAR (GRADE)													
GENITO-URINARY SYSTEM	P	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
Bilateral undescended testes		5	3	1	2									11
Unilateral undescended testes	14	16	8	4	1		1							44
Hydrocoele	13	5		3										21
Inguinal Hernia	5	1			1									7
Enuresis	2	5	7	4	5	1	1	3		2				30
Other	1	5	2			2	1							11
CENTRAL NERVOUS SYSTEM														
Cerebral Palsy														
Congenital Tremor														
"Clumsy child" syndrome	5	14	5	5	5		1		1	1				37
Epilepsy		3	3		1			1	1					9
Migraine & recurrent headache						1	2		1	1	1			6
Cerebral Neoplasm														
Congenital Hypotonia														
Craniostenosis														
Other	2	2		2	3		1							10
PSYCHOSOCIAL & DEVELOPMENT DISORDERS														
Speech disorders (req therapy)	210	77	28	9	10	13	7	4	5	5	3			371
Developmental delay	25	3	2	3		1		1						35
Behaviour problems (Referral other agencies)	4	7	5	6	7	5	1	4	5	3		1		48
Behaviour problems (Managed within the service)	25	5	5	1	6	3	1	1	5	5	5	2		64
Learning difficulties	6	10	6	4	5	3			1			1		36
Mental retardation	4	2		1	2									9
Encopresis	3	4	2	1		1								11
Other	4	3		5		4		1				1		18

TABLE 44

SCHOOL HEALTH SECTION

ANNUAL DIAGNOSIS AND ASSESSMENTS

COUNTRY

OPTHALMOLOGISTS	YEAR (GRADE)													TOTAL
	P	1	2	3	4	5	6	7	8	9	10	11	12	
Refractive errors	60	49	34	39	18	48	30	14	47	16	11	4		370
Infections	4	6	2	2	2	1	1	1	4		1			24
Trachoma	10	25	18	15	22	14	7	13	9	7	1	1		142
Strabismus	27	22	12	8	3	4	7	1	3	1	1			89
Foreign bodies				2		1								3
Congenital nystagmus	1	1		3	1			1	1					8
Retinal scarring						1			1					2
Congenital ptosis	1													1
Post meningitis impairment														
Amblyopia	8	6	4	4	1	6	2	1	2	1				35
Normal vision	17	10	6	5	5	2	3		3	1	4	1		57
Results pending	32	17	14	11	5	21	12	10	17	6	8	1		154
Other	6	7	2	6	2	6	2	2	2		1			36
Spectacles prescribed	41	42	29	34	14	39	21	10	42	10	8	3		293
Surgery	5	2	4	1		1	1	1			1			16
HEARING														
Sensorineural deafness	8	6	4	3	1	4	3	1	2		1			33
Secretary otitis media	14	16	11	13	10	6	3	2	2					77
Chronic suppurative otitis media	36	36	36	21	22	25	15	11	9	8	4	2		225
Perforations (chronic)	13	21	19	11	11	15	10	23	18	3	2			146
Foreign bodies	4	9	3	2	2	1	1	2						24
Otitis externa	1	3	1	4	6	6	2	1	3	2		1		30
Transient hearing loss	10	13	12	6	11	10	14	4	7	1				88
Wax (cerumen)	5	6	6	3	1	4	1				1	1		28
Acute otitis media	13	10	4	4	5	2	1	3	1	1				44
Normal hearing	3	1	1			2	2							9
Results pending	19	10	6	10	4	9	4	3	2	1	1			69
Other	4	3		1				1				1		10
Hearing aids supplied	1	1	1	1		1								5
Surgery	6	12	4	10	2	1		1	1	1				38

TABLE 44 contd

SCHOOL HEALTH SECTION

ANNUAL DIAGNOSIS AND ASSESSMENTS

COUNTRY

	YEAR (GRADE)													
CARDIOVASCULAR SYSTEM	P	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
Congenital heart disease														
Artrial septal defect		1												1
Ventricular septal defect	1	1								1				3
Aortic stenosis														
Pulmonary stenosis														
Patent ductus arteriosus														
Coarctation of the Aorta														
Rheumatic heart disease					1			1						2
Other	36	25	5	1		1					1			69
MUSCULOSKELETAL SYSTEM														
Muscular dystrophies														
Scoliosis	2	1	3	2		3	2	3	4	8	7	2		37
Feet (Pes planus, etc)	2				1	1				1				5
Perthes disease "Irritable Hip" etc														
Genu Valgum	3													3
Fractures and trauma			2	1	8			1	6	5	1			24
Other	1	3	1	3	1			1	1	6	4			21
DISORDERS OF GROWTH & NUTRITION														
Under Nutrition	1				1									2
Obesity	4	1		1	2	3		2	2	2				17
Growth Retardation	3	3		1	1					1				9
Dwarfism														
Malabsorption			1	2	1	1	1	1						7
Nutritional Anaemia	14	20	19	17	8	8	9	6	8	8	4	1		122
Thyrotoxicosis														
Hypothryoidism														
Other	1		1											2

TABLE 44 contd

SCHOOL HEALTH SECTION

ANNUAL DIAGNOSIS AND ASSESSMENTS

COUNTRY

	YEAR (GRADE)													
GENITO-URINARY SYSTEM	P	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
Bilateral undescended testes	4	2	2											8
Unilateral undescended testes	9	1	2	3		1								16
Hydrocoele	4	3		2										9
Inguinal Hernia	1	1		3	1									6
Enuresis	3	3		1	2	1	1		1					12
Other	4	1				1								6
CENTRAL NERVOUS SYSTEM														
Cerebral Palsy	1													1
Congenital Tremor	1								1					2
"Clumsy child" syndrome	1	1				2								4
Epilepsy					2	2	1	2						7
Migraine & recurrent headache					1				2					3
Cerebral Neoplasm														
Congenital Hypotonia														
Craniostenosis														
Other	2		2			1		1						6
PSYCHOSOCIAL & DEVELOPMENT DISORDERS														
Speech disorders (req therapy)	56	22	10	5	4	4	2	1	2					106
Developmental delay	18	1	1	1	2	1								24
Behaviour problems (Referral other agencies)	9		1	2	1			1	3					17
Behaviour problems (Managed within the service)	6	2	1	4	1	2	2			1				19
Learning difficulties	3	4		3	4	4	3	2						23
Mental retardation	1	1												2
Encopresis	2	3		1										6
Other	2	1		1										4

TABLE 45

CLASSIFICATION OF CONFIRMED DISABILITIES AND HANDICAPS

UNDER SYSTEMS 1979

OPHTHALMOLOGISTS' ASSESSMENTS

Refractive Errors	1590
Infections	54
Trachoma	143
Strabismus	238
Foreign Bodies	6
Congenital Nystagmus	10
Retinal Scarring	8
Amblyopia	81
Other	147
TOTAL POSITIVE FINDINGS	2277
Spectacles Prescribed	1232
Surgery Undertaken	35
Normal Vision	249

HEARING ASSESSMENTS

Sensorineural Deafness	121
Secretory Otitis Media	213
Chronic Suppurative Otitis Media	248
Perforations (Chronic)	156
Foreign Bodies	32
Otitis Externa	41
Transient Hearing Loss	181
Acute Otitis Media	80
Cerumen (wax)	75
Other	38
TOTAL POSITIVE FINDINGS	1185
Hearing Aid Supplied	12
Surgery	132
Normal Hearing	46

CARDIOVASCULAR SYSTEM

Congenital Heart Disease	2
Atrial Septal Defect	1
Ventricular Septal Defect	9
Aortic Stenosis	-
Patent Ductus Arteriosis	1
Coarctation of the Aorta	1
Rheumatic Heart Disease	3
Other	74
TOTAL POSITIVE FINDINGS	91

TABLE 45 contd

MUSCULOSKELETAL SYSTEM

Muscular Dystrophies	2
Scoliosis	241
Perthe's Disease	-
Genu Valgum	14
Fractures and Trauma	55
Other	59
TOTAL POSITIVE FINDINGS	371

DISORDERS OF GROWTH AND NUTRITION

Undernutrition	12
Obesity	65
Growth Retardation	13
Nutritional Anaemia	122
Other	7
TOTAL POSITIVE FINDINGS	239

GENITO URINARY SYSTEM

Bilateral Undescended Testes	19
Unilateral Undescended Testes	60
Hydrocoele	30
Inguinal Hernia	13
Enuresis (management only)	42
Other	17
TOTAL POSITIVE FINDINGS	181

CENTRAL NERVOUS SYSTEM

Cerebral Palsy	1
"Clumsy Child" Syndrome	41
Epilepsy	16
Migraine	9
Cerebral Neoplasm	-
Other	16
TOTAL POSITIVE FINDINGS	83

PSYCHOSOCIAL AND DEVELOPMENTAL DISORDERS

Speech Disorders (requiring therapy)	477
Developmental Delay	59
Behaviour Problems (R.O.A.)	65
Behaviour Problems (M.W.T.S.)	83
Learning Difficulties	59
Mental Retardation	11
Encopresis	17
Other	22
TOTAL POSITIVE FINDINGS	793

TOTAL NUMBER OF DISABILITIES AND HANDICAPS	5200

CHILD DEVELOPMENT CENTRE

There has been a steady growth in the demands of the Services provided by the Child Development Centre during the year 1979 and this has been the first year in which all requested disciplines have been represented in the team.

The present team complement to the 31st December, 1979 is:

1 Paediatrician
3 Registrars
1 Senior Social Workers
1 Social Worker
1 Senior Speech Therapist
1 Speech Therapist
1 Nurse Coordinator
2 Child Health Nurses
1 Senior Occupational Therapist
1 Occupational Therapist
1 Senior Physiotherapist
3 Typists
1 Clerk Typist
1 Clerk

Part-time sessional staff:

3 Speech Therapists
1 Psychiatrist
1 Occupational Therapist
1 Developmental Psychologist
1 Clinical Psychologist
1 Educational Psychologist

It is noted that the contribution of part-time professionals continues to be of great value and many of the services of the Child Development Centre would not be possible without their continued availability.

Full-time professionals of the team have involvements in other areas such as Willetton Special School for Handicapped Children, Koondoola Special School for Handicapped Children, Princess Margaret Hospital for Children, King Edward Maternity Hospital, Ngal-a, and other facilities of the Community and Child Health Services.

1. CLINICAL WORK

Referrals for the year January-December 1979 have doubled compared with the preceding year.

TABLE 46 REFERRAL PATTERN

1977	261
1978	595
1979	1,119

Of the numbers referred in this year, 1,171 were actually seen during the year, some needing to be carried over into the ensuing year because of the inevitable waiting list and scheduling difficulties. Other relevant statistics of the clinical commitments of the team are contained in Table 47.

TABLE 47 CLINICAL COMMITMENTS

Review Appointments	1,087
Ongoing Treatment	2,106
Telephone Follow-up	3,178
Patients Seen Elsewhere	2,517

Sources of referral have shown a change over the last few years and are summarised in Table 48. It is noted that of the referrals within the Community and Child Health Services, 28% are from Child Health Nurses though the overall referral from within the Service has fallen. This would reflect the better utilisation of other Community and Child Health Services Centres. There has been a fall in family practitioners direct referrals and a rise in referrals from the Education Department.

TABLE 48 SOURCES OF REFERRAL

Community and Child Health Services	45.7%
Education Department	15.4%
Internal Referrals	12.6%
Direct Parent Referrals	7.8%
Family Practitioners	7.7%
Other Medical Specialists	3.5%
Dental Health	2.3%
Community Welfare	1.0%
Other	4.0%

A detailed analysis of referrals and management problems was undertaken for the seven month period between June 1 and December 31, 1979.

TABLE 49 REFERRAL PROBLEMS

PROBLEM REFERRED	NEW CASES	REVIEWS	TOTAL
Developmental	25.4%	31.2%	28.4%
Speech and Language	16.6%	22.9%	19.8%
Behavioural	18.4%	17.6%	18.0%
Physical	15.8%	10.0%	12.9%
Educational	16.4%	10.8%	13.5%
Social	5.4%	5.5%	5.5%
Sensory	1.8%	1.5%	1.7%
Unknown	0	0.5%	0.2%

As previously seen, the ratio of males to females was 2:1 and the age of children when first seen is contained in Table 50. It is noted that 66.4% of the children were of pre-school age and 97.5% were younger than 12 years.

TABLE 50 AGE OF CHILDREN WHEN FIRST SEEN

AGE	NEW CASES	REVIEWS	TOTAL
0 - 1	9.6%	8.5%	9.0%
1 - 2	14.1%	18.3%	16.3%
2 - 3	8.6%	8.8%	8.7%
3 - 4	10.0%	12.9%	11.5%
4 - 5	7.2%	12.0%	9.7%
5 - 6	12.0%	10.4%	11.2%
6 -12	34.7%	27.8%	31.1%
12	3.8%	1.3%	2.5%
Unknown	0	0	0

Although the Child Development Centre offers a multi-disciplinary team, every effort is made to streamline procedures for families and Table 16 indicates the number of professionals seen by both new and review patients.

TABLE 51 PROFESSIONAL DISTRIBUTION

NUMBER OF PROFESSIONALS SEEN	NEW CASES	REVIEWS	TOTAL
1	67.4%	37.5%	51.8%
2	26.1%	31.9%	29.1%
3	6.5%	23.7%	15.5%
4	0	6.9%	3.6%

The Centre is providing a definite paediatric and medical service as can be seen by the following table which summarises the workload of each professional group as far as new and review appointments are concerned.

TABLE 52 SUMMARY OF WORKLOAD OF EACH PROFESSION

PROFESSION	NEW CASES	REVIEWS	TOTAL
Paediatricians	74.6%	74.4%	74.5%
Psychologists	18.2%	33.4%	26.2%
Speech Pathologists	13.4%	35.3%	24.8%
Social Workers	10.0%	17.7%	14.0%
Occupational Therapists	8.2%	16.7%	12.7%
Physiotherapists	12.7%	18.9%	16.0%

These figures include the speech pathology waiting list which at the end of 1979 comprised 65 and approximately four months before speech therapy assessment could be offered. It should also be noted that these figures do not reflect the work load of a number of the other professionals who have been much more involved in ongoing management programmes. This is particularly so for occupational therapy, physiotherapy and speech therapy.

The Centre is also contributing to reassurance of concerned families as is seen in Table 53 which indicates the percentage of children assessed as free of problems.

TABLE 53 SUMMARY OF NUMBERS OF NORMALS

	NEW CASES	REVIEWS	TOTAL
NO Problem detected	22.0%	11.7%	16.6%
SOME Problem detected	78.0%	88.3%	83.4%

The Centre is functioning increasingly as a specialist referral Centre predominantly for pre-school children with a range of developmental problems and in a significant number of cases, reassurance of normality has been possible.

2. MANAGEMENT PROGRAMMES

A range of different management programmes have been offered for families attending the Child Development Centre.

1. There were four combined therapy programmes for mothers and young pre-school children run by a Speech Pathologist, an Occupational Therapist and a Social Worker. This was particularly to provide additional assessment information concerning children with suspected problems and to give initial management advice.

2. Social Work Section provided four programmes on common behavioural and parenting problems.

3. Another Parent Effectiveness Training Course was held.

4. Mobility and everyday activity were considered in two groups run by Physiotherapists and Occupational Therapists for developmentally diabled children.

A new initiative was the commencement of the Play and Information Mobile Services (PIMS). This comprises a van (funded by the Schools Commission) and staffed by an Occupational Therapist and two Nurses. It provides an information service to parents in disadvantaged circumstances concerning play, play ideas and play material resources as a way of improving the parent/child relationships. This programme was officially opened by the Hon. Minister for Health, Mr. R. Young on November 23, 1979.

3. EDUCATIONAL PROGRAMMES

Three Paediatric Registrars in Advanced Training were attached to the Child Development Centre and successfully completed the requirements for the Royal Australian College of Physicians.

For the third year, a full time Course in Developmental Paediatrics was held from October 1 to November 3, 1980 for five weeks, 13 Medical Officers attending, 4 of whom were from other States of Australia. A sixth week from November 5 to 9, 1979 invited opportunity for training in the Griffiths Developmental Scales for Children. The short Griffiths Course had also been conducted in February, 1979.

A number of undergraduate and postgraduate students from speech pathology, psychology, social work, occupational therapy and physiotherapy disciplines attended the Child Development Centre from time to time as have medical students.

Members of the Child Development Centre continue to participate in educational activities, both within and beyond the Community and Child Health Services and 157 lectures were given throughout the year. There has been an involvement in Parent Education and as an initiative during the International Year of the Child, a number of video programmes were made for showing on commercial television. Members of the staff have also participated in a number of television and radio talk-back programmes.

The Senior Speech Pathologist attended a Conference on "The Neurological and Linguistic Aspects of Aphasia in Children and Adults" in Melbourne in February 1979, representing the Department. The Developmental Paediatrician represented the Department at the Second International Congress on Child Neurology in Sydney in November 1979. A Physiotherapist attended a Paediatric Physiotherapy Conference in Sydney in February 1979.

Appendix VI

COMMUNITY HEALTH PROGRAMME

Lawson J. Holman
J.P., M.B.B.S., F.R.C.S.E., D.P.H., F.A.C.M.A.
Director General of Public Health

Funding for the 1979/80 Community Health Program was on the same basis as for the previous financial year. Commonwealth and State Governments both contributed on a 50/50 arrangement for both operating and capital costs in relation to the general block grant.

The Commonwealth Government made an initial allocation of $4,444,000 for general projects, which was subsequently increased by $328,000 to meet the cost of maintaining approved projects at existing levels of activity.

Several minor, but urgent, capital works needed to be carried out to meet expansion requirements at Karratha and Busselton Community Health Centres, Southwell, Koondoola and Queens Park Pre-Primary Child Health Clinics. Funds were also needed urgently to establish the Manning Community Health Centre which had been approved in principle previously and to construct the new Dalwallinu Community Health Centre, a project not previously approved by Commonwealth Authorities. In order to provide funding for these minor expansions it was necessary to reduce allocations to the following existing projects:-

W 1	Home Care Services
W13	Child Development Centre
W15	Alcohol and Drug Authority
W23a	Health Education - Perth
W51	Hearing Conservation-in-Industry
W58	Nullagine Community Health Centre

Despite severe financial restrictions and limits on expansion of staff, the Community Health Program continued to develop during 1979. There has been an increased usage of group therapy techniques and programmes. The continued restrictions on staff numbers is making it increasingly difficult to treat all clients on an individual basis. Appropriate group work may eventually assist in restricting the numbers of people who require individual counselling or treatment. A list of the group activities and special programmes conducted at the Community Health Centres is shown in Table 1.

The following new projects were recommended for funding in the 1979/80 financial year. They are listed in order of priority. Those marked with an asterisk are in the Mental Health Sector:-

1. Neuropsychology Unit*
2. Dalwallinu Community Health Centre
3. Migrant Field Services
4. Communication for Isolated Areas
5. Record Systems for Community Health Centres
6. Augusta/Margaret River Community Health Centre
7. Samaritans*

8. Mirrabooka Community Health Centre
9. Uniting Church Community Activities Centre
10. Chrystal Halliday Homes Day Care Centre
11. West Kimberley Community Health Centre
12. Independent Living Centre
13. Beverley Rural Therapy Unit*
14. Joondalup Community Health Centre
15. Waroona Community Health Centre
16. Esperance Community Health Centre
17. Collie Day Care Centre
18. Northampton Community Health Centre
19. Social Worker - Huntington's Disease
20. Toodyay Community Health Centre
21. Upper Great Southern Community Health Centre
22. Ravensthorpe Pre-School and Child Care Centre
23. Muscular Dystrophy - Public Health Field Nurse
24. Preliminary Planning for High Priority New Submissions
25. WA Mental Health Association*
26. Merredin Community Health Centre
27. Rocky Gully Community Health Centre
28. Temporary Community Health Centre Accommodation
29. Carnarvon Community Health Centre
30. Quairading Community Health Centre
31. Kalgoorlie Community Health Centre
32. Coolgardie Community Health Centre
33. Shire of Belmont Women's Refuges

Only one new project received Community Health Program funding in the 1979/80 budget allocations:-

The Dalwallinu Community Health Centre

On-going projects received funding in the 1979/80 budget allocations as follows:-

		MEDICAL SECTOR	TOTAL ALLOCATION $
73W	1	Home Care Services in Country Areas	473,600
73W	2	Statewide Social Work - Geriatric Services	19,000
		PUBLIC HEALTH SECTOR	
73W	3	Mandurah Community Health Centre	286,000
		Health Education - Mandurah	9,000
73W	4	Busselton Community Health Centre	209,000
		Health Education - Busselton	12,000
74W	11	Geraldton Community Health Centre	195,000
74W	12	South Hedland Community Health Centre	243,000
74W	13	Child Development Centre	419,000
74W	15	Alcohol and Drug Authority	1,074,000
74W	16	Women's Health Care House	145,000
74W	17	Claremont Community Health Centre	167,000
		Health Education - Claremont	16,000
74W	23A	Health Education Resource Centre - Perth	142,000
77W	23B	Health Education Resource Centre - Midland	34,000
77W	23C	Health Education Resource Centre - Armadale	34,000
74W	24	Lockridge Community Health Centre	213,000
75W	26	Arthritis Community Service	86,000

75W 27	Community Health Sisters	739,400
75W 28	Respiratory Diseases Programme	156,600
75W 29	Community Health Program Secretariat	104,000
75W 30	Health Student Attachments	13,000
75W 31	Karratha Community Health Centre	290,000
75W 32	Manning Community Health Centre	32,000
75W 38	Lake Varley Community Health Centre	31,000
75W 40	Southwell Child Health Services Centre	117,000
75W 41	Koondoola Child Health Services Centre	-
75W 42	Queens Park Child Health Services Centre	-
75W 44	Health Education - Fremantle	43,000
75W 48	Cervantes Community Health Centre	33,000
77W 49	Kwinana Community Health Centre	200,000
	Health Education - Kwinana	20,000
77W 50	Mobile Chiropody Services	71,000
77W 51	Hearing Conservation-in-Industry	97,000
77W 52	Asthma Foundation, Medical Social Worker	19,000
77W 53	Health Education Resource Centre - Port Hedland	20,000
77W 54	Health Education Resource Centre - Geraldton	20,000
77W 55	Pre-School Health Team - Perth	137,000
77W 57	WA Deaf Society Welfare Officer Interpreter	15,000
77W 58	Nullagine Community Health Centre	2,000
77W 59	Statewide Maximisation of Resources	11,000
77W 60	Lake King Community Health Centre	1,000
77W 61	Central Resource Pool	83,000
77W 71	Bremer Bay Community Health Centre	110,000
	Dalwallinu Community Health Centre	58,000
	TOTAL	6,405,000

An Ethnic Health Service Block Grant of $16,000 was also allocated, on 100% Commonwealth terms for the first financial year of its operation.

MENTAL HEALTH SECTOR

73W 5	Community Psychiatric Division	166,800
73W 6	DIH Domiciliary Service	349,700
73W 7	Clinical Engineering	3,300
73W 8	DIH Clinical Teams	25,000
73W 9	DIH Irrabeena Clinic	56,000
73W 10	Pyrton Day Activity Centre	11,000
73W 14	Community Development Centre	15,700
74W 21	Havelock Clinic	16,000
74W 22	Fremantle Clinic	24,600
75W 35	Co-ordinator in Training Community Psychology	9,600
75W 36	Research Psychologist	12,000
73W101	Bentley Clinic	53,400
73W102	Brighton - Hove	319,600
73W111	Armadale Clinic	92,000
73W112	Swan Clinic	93,400
73W113	Graduate Welfare Officers	25,000
73W114	Graduate Assistant	6,500
73MVW116	Recovery/GROW	26,000
		1,306,000

Detailed six monthly progress reports were provided by the Administrators of each project to outline new initiatives, provide a description of staff activities and relevant statistics.

The following projects were initiated in 1979 and their operation will be described.

MANDURAH DAY CARE CENTRE

The Day Care Centre was officially opened on 19 July 1979. It is available three days a week for clients. The other two days a week are devoted to home visits, office work and hospital visits undertaken by volunteers and the full-time sister employed at the Centre. As at December 1979, there were 16 volunteer helpers and drivers. Also the Meals on Wheels Service continued to supply the midday meal throughout the year despite the increase in clients. (The number of regular clients attending the Centre increased from 11 in July to 33 in December).

The Centre appears to be operating successfully with reports of client satisfaction and enthusiastic involvement. Examples of the type of activities conducted are ceramics, copper work, knitting, crochet, carpet bowls, bingo, macrame and darts. Other activities undertaken were a visit by the clients of the Collie Day Care Centre for a musical luncheon, a Melbourne Cup Luncheon at Collie and a visit to a weekly concert with a local pensioners' group.

CLAREMONT COMMUNITY HEALTH CENTRE

The Centre was officially opened by the Minister for Health on 30 August 1979. Staff based at the Centre include:-

One Social Worker
Two Community Health Sisters
One Health Education Officer
One Secretary Co-Ordinator
One Typist/Receptionist
One Gardener/Handyman

The University of Western Australia's Department of Community Practice operates from the Centre and provides a teaching programme for fifth and sixth year medical students including attachments to general practices in metropolitan and country areas. These two features of the Centre are unique in Australia.

The following services also commenced operation at the Centre:-

Physiotherapy (a private physiotherapist leases facilities),
Silver Chain,
GROW group meetings

Several workshops wer held, such as one conducted by the Social Worker on Human Relationships and Communication Skills which was attended by Community Health Services' Nurses; a Personal Skills Workshop conducted by the Health Education Officer for a local Community Youth Support Scheme Group and a one-day seminar for Women's Refuge representatives conducted by an officer from the Secretariat of Community Health Program.

CERVANTES COMMUNITY HEALTH CENTRE

Although the Centre was officially opened in June 1979 staff have been employed since November 1978 to provide a seven-day a week health cover to the community. One full-time and one part-time sister provide the service. A medical practitioner is available for telephone consultation (at all times) and visits the Centre once a month. Immunisation clinics, child health services, ante-natal classes, play groups, weight-watchers and first-aid classes have been conducted.

KWINANA COMMUNITY HEALTH CENTRE

The following services have been developed at the Centre:-

Physiotherapy (one full-time physiotherapist)
Community and Child Health Services (One full-time Sister and 1 field assistant)
Occupational Health (One full-time Sister)
Social Work (One full-time Social Worker)
Child Health (One Sister sessionally one day a week at the Centre)
Health Education (One full-time officer)
Silver Chain (three full-time sisters)
School Health (One full-time sister)
Occupational Therapist (One full-time sister)
Bus Service

Other activities include yoga, macrame, sewing, crochet, Al-Anon, pottery, guitar lessons and a slimmers' class. A public meeting was held in September in order to introduce leisure time activities at the centre where local people became involved in teaching skills to other members of the community.

This centre is the only major Community Health Centre in Western Australia which does not provide accommodation on a leasing basis for private medical practitioners.

WOMEN'S REFUGE PROGRAMME

The joint funding of women's refuges in Western Australia remained unchanged for 1979, the arrangements being as follows:-

(a) For those run by voluntary organisations -

CAPITAL	Commonwealth 50%	State 25 %	Voluntary Organisation 25 %
OPERATING	Commonwealth 75%	State 12½%	Voluntary Organisation 12½%

(b) For those run by Local Authority -

CAPITAL	Commonwealth 50%	Local Authority 50%
OPERATING	Commonwealth 75%	Local Authority 25%

As at 31 December 1979 twelve refuges are included in the programme, ten run by voluntary organisations and two by Local Authorities. The aims of a women's refuge are to provide emergency accommodation, supportive and counselling services as well as practical assistance for women and their

children who are in a crisis situation which necessitates them leaving their homes. Information is provided on resources available and the options open to the woman. Assistance is given with the making of appointments at various Government agencies, eg. State Housing Commission, Department for Community Welfare, Legal Aid, Social Security, etc. The objective is to enable the woman, together with her children, to re-establish herself within the community in whichever way she chooses.

EVALUATION

Two refuges, Mary Smith and Warrawee, were evaluated during October using a slightly modified form of the "CHESS" system. Although the evaluation showed that both refuges were operating in a satisfactory manner, the differences between a refuge run by a voluntary organisation (MARY SMITH) and one administrated by a local Government body (WARRAWEE) were quite evident. These differences are noted in the evaluation reports.
The "CHESS" system of evaluation is not considered satisfactory and it is intended that steps will be taken to either improve it, or design a new method. No other evaluation has been scheduled at this stage. Some comments regarding "CHESS" were presented to the Commonwealth/State (WA) Standing Committee on Health Expenditure (CHP) meeting on 22 November 1979.

NEW DEVELOPMENT

A direct grant from the Department of Social Security, specifically for child-care in women's refuges, became effective as of 1 July 1979. It consisted of $10,000 for a salary and $2,000 for equipment, etc. for each refuge. As at 31 December 1979 all have applied for this grant, though as yet, not all are receiving it. Those refuges who have received the grant, state that it is proving to be a tremendous asset to them and is of great benefit, especially to the children involved.

NEW ACTIVITIES

1. The Women's Refuge Group of Western Australia organised a Law Course for refuge workers. This consisted of six sessions dealing with various aspects of family law, and was held at the Community Education Centre, Fremantle.

2. A one-day workshop organised by the Project Appraisal Team for refuge staff, was held at the Claremont Community Health Centre in October. This was well-attended by representatives from most of the refuges.

3. A special meeting between representatives of the Western Australia Women's Refuge Group and the major metropolitan hospitals and Mental Health Services was held at Curtin House early in December. The purpose of this meeting was to discuss the problem of inappropriate referrals to the refuges which have occurred on occasions.

HOUSING

Most refuges feel that this continues to be one of the major problems affecting the running of refuges. A large percentage of women need rehousing and a great many of them cannot afford private rental rates. The State Housing Commission is still unable to meet the demand for low rental housing.

Flats are relatively easy to obtain, but as most women have several children, they are not considered to provide suitable accommodation. As a consequence, many women, especially when they are Aboriginal, are forced to stay in refuges much longer than necessary. During the period March 1979 to January 1980, 118 Aboriginal families were accommodated in women's refuges. This represents 13% of the total number of women accommodated and it is interesting to note that Aborigines form only 2 to 3% of the metropolitan census population. It is recognised that families may have moved from one refuge to another or returned several times to one refuge. It appears that women in hospital who have no home to be discharged to, cannot be placed on the emergency housing list. Hence they are at time discharged direct to a women's refuge so that they can then go on the emergency list. This is not as a general rule, a satisfactory arrangement. The woman may be well enough to be discharged from hospital, but they are seldom well enough to face the conditions at the refuge.

Refuges funded under the Community Health Program and inital budget allocations for 1979/80 were:-

		$
1.	ACRAH	51,500
2.	AVE MARIA	39,400
3.	BYANDA	21,500
4.	EMMAUS - refunded 1 November 1979	36,000
5.	GOLDFIELDS - Finlayson House funded from August 1979	32,200
6.	JESUS PEOPLE - Funded from June 1979	23,500
7.	LUCY SAW	38,000
8.	MARY SMITH	32,900
9.	NARDINE	109,400
10.	NORTHAM SHARE AND CARE - Funded from April 1979	33,100
11.	STIRLING - Opened 9 July 1979	81,600
12.	WARRAWEE	73,700
		$572,800

SENIOR CITIZEN'S CENTRES

During 1979 twelve Senior Citizens' Centre projects were completed. Eleven of these involved extensions and improvements to existing Centres and a new Centre was established at Pingelly. Six of the projects related to Senior Citizens' Centres located within the City of Stirling area. Total cost of the projects was $216,754.49. Details of cost sharing arrangements are shown on the table hereunder:-

Centre	Local Authority Contribution	State Govt. Contribution	Commonwealth Contribution	Total Cost
Bayswater	7,800	7,800	31,300	46,900
Bassendean	700	700	2,800	4,200
Belmont	500	500	2,000	3,000
Claremont	3,000	3,000	120,000	18,000
Northam	300	Nil	700	1,000
Pingelly	5,500	5,500	22,000	33,000
City of Stirling (Six Centres)	18,400	18,400	73,800	110,600
TOTAL	36,200	35,900	144,600	216,700

Seven projects were approved for funding in the 1979/80 financial year. Four of these projects have been completed, and are therefore included in the above table. Total cost of the seven projects is $442,725.19. Cost sharing arrangements are shown in the table hereunder.

Centre	Local Authority Contribution	State Govt. Contribution	Commonwealth Contribution	Total Cost
Bassendean	700	700	2,800	4,200
Bayswater	7,800	7,800	31,300	46,900
Belmont	500	500	2,000	3,000
Harvey	36,300	20,000	112,600	168,900
Northam	300	Nil	700	1,000
Osborne Park	2,800	2,800	11,100	16,700
Wanneroo	47,300	20,000	134,700	202,000
TOTAL	95,700	51,800	295,200	442,700

WELFARE OFFICERS

There are now seventeen Welfare Officer positions approved under the States Grants (Home Care) Act. The Commonwealth Government subsidy was reduced to 50% as from 1 July 1978. The sixteen positions now occupied by Welfare Officers are employed by the following:-

City of Belmont
City of Canning
City of Gosnells
City of Stirling (3)
City of Subiaco (2)
Council of the Ageing
Merredin Senior Centre
Senior Citizens' Welfare Association Inc. Victoria Park
Shire of Bayswater
Shire of Kalamunda
Shire of Wanneroo (2) (2nd position vacant until 1980/81)

Swan Cottage Homes Inc.
Town of Bassendean

HOME CARE SERVICES

The number of Home Care "Services" still remains at four. The subsidy payable under the States Grants (Home Care) Act has been reduced to 50%. The following is the list of approved Home Care Services that receive a grant from the State Treasury, indicating the amounts paid in the 1978/79 financial year:-

Geraldton Home Help Service Inc.	$ 2,000
League of Home Help for Sick and Aged Inc.	10,000
Perth Emergency Housekeeper Service Inc.	60,000
Volunteer Task Force	12,000
	$84,000

AGED PERSONS HOMES - STATE FURNISHING SUBSIDY

Twenty-seven organisations were paid an amount totalling $247,100 in subsidy payments. These were in respect of loose furnishings and equipment in aged persons accommodation approved under the Aged or Disabled Persons Homes Act or the Aged Persons Hostels Act.

TABLE 1.

SERVICES AND ACTIVITIES AT COMMUNITY HEALTH CENTRES

AS AT 30TH JUNE 1979

SERVICE/ACTIVITY	MANDURAH	BUSSELTON	GERALDTON	LOCKRIDGE	KARRATHA	SOUTH HEDLAND
Private Doctors	+	+	+	+	+	+
Opthalmologist	+	+	+			
Silver Chain	+	+	+	+		
Home Help Extended Care	+					+
Community Health Sister	+	+	+	+	+	+
Child Health	+	+	+	+		+
Physiotherapy	+	+			+	+
Mental Health Services	+	+	+			
Chiropody	+	+	+	+		
Social Worker	+	+	+	+	+	+
Occupational Therapy	+		+	+		
Immunisation Clinic	+	+	+	+	+	+
Health Education	+	+	+	+	+	+
Alcohol & Drug Liaison	+		+		+	
Alcoholics Anonymous	+	+	+	+	+	
Meals on Wheels	+	+		+		
Community Welfare	+	+				
Childrens Panel	+	+				
Pathology	+					
Ante-Natal Classes	+	+			+	+
Muscular Dystrophy Group	+	+				
Arthritis & Rheumatism Grop	+	+	+			
Weight Watchers	+	+	+	+	+	+
Playgroup	+	+		+		+
"G.R.O.W."	+	+	+		+	
DR/Staff Meetings	+	+	+	+		+
Staff Contact Meetings	+	+		+	+	+
Sculpture and Pottery	+			+	+	

TABLE 1 - Continued

SERVICES AND ACTIVITIES AT COMMUNITY HEALTH CENTRES

AS AT 30TH JUNE 1979

SERVICE/ACTIVITY	MANDURAH	BUSSELTON	GERALDTON	LOCKRIDGE	KARRATHA	SOUTH HEDLAND
Dressmaking	+	+		+		
Maj Jong	+					
Advisory Committee Meetings	+	+	+	+	+	+
Community Development Council	+					
Community Youth Support Scheme	+	+			+	
Bus Service	+	+	+		+	+
Psychologist		+				
Yoga		+			+	+
Speech Therapy		+			+	
Keep Fit				+	+	+
Medical Community Service				+		+
Breast Feeding Mothers						+
Relaxation Classes	+			+		+
Migrant English Classes			+	+		
Drop in Coffee Shop				+		
School Holiday Program				+	+	
Nurse, Students and Physiotherapy Students		+		+	+	+
Health Centre Play Area	+			+		+
High School Student Partic.	+	+		+	+	+
Craft Sessions	+			+	+	
Fund Raising Meetings					+	
Paediatrician					+	
Fitness & Dance Group					+	+
Films					+	+

TABLE 1 - Continued

SERVICES AND ACTIVITIES AT COMMUNITY HEALTH CENTRES

AS AT 30TH JUNE 1979

SERVICE/ACTIVITY	MANDURAH	BUSSELTON	GERALDTON	LOCKRIDGE	KARRATHA	SOUTH HEDLAND
Orthopaedic Surgeon		+				
Surgeon		+	+			
School Nurse	+	+	+			
Bridge	+	+				
Camera Club		+				
Dental Practice		+	+			+
Dermatologist			+			
Obstetrician and Gynaecologist			+			
Ear, Nose and Throat			+			
Urologist			+			
Diabetic Clinic	+	+	+			
Blood Bank			+			+
Flying Doctor			+			
Planned Parenthood	+		+			
Nursing Mothers Association			+			+
Samaritans			+			
Fitness Assessment Centre			+			+
Al-Anon	+	+	+			+
Tai-Chi-Chuam (Yoga)	+					
Macrame	+					
Shopping-On-Wheels	+					
Heads of Department Meetings	+					
O.P.S.M. Spectacle Makers		+				
Womens' Learning Group		+				

TABLE 1 - Continued

SERVICES AND ACTIVITIES AT COMMUNITY HEALTH CENTRES

AS AT 30TH JUNE 1979

SERVICE/ACTIVITY	MANDURAH	BUSSELTON	GERALDTON	LOCKRIDGE	KARRATHA	SOUTH HEDLAND
Social Security		+	+			
Senior Citizens		+				
Busselton Population Group		+				
Dietician		+				
Psychiatrist	+			+		
Periodontist			+			
China Painting			+			
Al-Ateen			+			
Outlying Area Day Centre			+			
Asthma Care Group			+			
Nat. Acoustic Labs.			+			
Diabetic Association			+			
Rosella Half Way House Committee			+			
Cocos Island Socialisation Group			+			
Caravan Park Prog.					+	
X-Ray Services	+					+
Orthoptist			+			
Cardio-Vascular Clinic	+					
Post & Pre-Operation Clinic	+					

Appendix VII

PHARMACEUTICAL SERVICES BRANCH

W.M. Griffiths, B. Pharm., F.P.S. (G.B.), M.P.S.
Principal Pharmacist

The Pharmaceutical Services Branch continued to administer the Poisons Act, Poisons Act Regulations, Pesticides Regulations, Pharmaceutical Services to hospitals and liaise with private persons, companies and other government departments during the year, and to provide the secretariat and back-up work for the Poisons Advisory Committee, the Pesticides Advisory Committee and the Pest Control Operators Committee.

Close liaison was well maintained with the Alcohol and Drug Authority. Mr. L. Rappeport, pharmacist at Mount Henry Hospital, acted as relieving pharmacist at the Branch office for some months and subsequently became the pharmacist at the William Street Clinic of the Alcohol and Drug Authority.

Mrs. Chin transferred to Mount Henry Hospital vice Mr. Rappeport as the hospital pharmacist there.

To fill the two vacancies, we were fortunate in securing the services of Mr. M. Cousins, the Level 3 pharmacist of Royal Perth Hospital, and also Mr. S. Hu from a community pharmacy. Another vacancy was created in the branch on the clerical side by the well deserved promotion of the Senior Clerical Officer, Mr. Philip Moody, to relieving duties in higher positions in the Department. Miss M. Peacock was promoted to an acting position in the vacancy created.

Mr. Foley, the Deputy Principal Pharmacist, and other branch members continued positions as representatives on the Inter-hospital Pharmacists Advisory and Liaison Committee, the Tender Board Advisory Committee for Drugs, the Technical Committee on Agricultural Chemicals, the Poison Schedule Standing Committee of the National Health and Medical Research Council, and National Therapeutic Goods Committee.

Close liaison was maintained with the Registrar of the Pharmaceutical Council, Mr. E. Walsh, and the Deputy Registrar, Mr. R. Poole.

Pharmaceutical Services

The Royal Flying Doctor Service (W.A. Branch) is now supplied with pharmaceutical requirements from Mt. Henry Hospital under the direction of Mrs. Chin, the hospital pharmacist.

Mr. Foley and Mr. W. Stenhouse, Poisons Inspector, made inspections of First Aid Posts, hospitals, chemist shops and stores in the Pilbara and the South West in relation to stocks of pharmaceuticals, drugs of addiction and poisons.

Mr. M. Cousins attended a meeting of the National Therapeutic Goods Committee where, amongst other items, the Uniform Drug Recall Procedure was overhauled and updated into a new document incorporating medical vices for

the first time in addition to drugs and medicines.

Poisons Act and Regulations

There were five meetings of the Poisons Advisory Committee during the year. Its recommendations which were implemented included special legislation to control over-the-counter sales of analgesics, re-drafting of the Prohibited Substances List to include specific hallucinogens and a revision of fees for poisons licences.

A new consolidated Appendix of Poisons Schedule was gazetted in June 1979; two series of amendments were gazetted to this in October and December, occasioned by the manufacture of new drugs and new pesticides and new formulations of existing poisons.

A new list of poisons and hazardous substances required to be labelled with first aid measures was issued. New statements were prepared for labels of dangerous substances to assist in warning users of the nature of hazards in their use and advise of simple corrective measures to avoid the hazards.

Pesticides

Nine meetings of the Pesticides Advisory Committee were held. Representation was provided at two meetings of the National Technical Committee on Agricultural Chemicals. At the 31st December, 1979, there were 1128 current registrations of various brands and formulae of pesticides. During 1979, 159 applications were received for registration of new formulations and labels were received; 83 of these were registered; the remainder are still under consideration.

79 applications for clearance of chemicals were examined in conjunction with the clearance scheme under the aegis of the National Technical Committee on Agricultural Chemicals. Eleven of these were for new chemicals and 68 were for extensions or modifications of uses of existing chemicals.

Appendix VIII

DENTAL HEALTH SERVICE

J.L. Prichard, Dip. D.S., B.D.Sc., F.I.C.D.
Director

This report covers the activities of the Dental Health Service for the year ending 31 December 1979.

1. CLINIC SERVICE

1.1 RURAL AND REMOTE AREAS

1.1.1 Kimberley Region

Regular clinics are maintained at Whyndham, Derby and Broome with visiting services to Kununurra, Halls Creek, Koolan Island and Missions at Kalumburu, Lombadina, Beagle Bay, La Grange, One Arm Point, Ombulgarri and the Derby Leprosarium. Major stations, Sturt Creek, Gordon Downs and Nicholson are visited annually.

1.1.2 North West Regions

Regular clinics are maintained at Port Hedland, Wickham, Exmouth, Paraburdoo and Tom Price. These clinics provide visiting services to Goldsworthy, Shay Gap, Marble Bar, Telfer, Yandi Yarra, Strelley, Onslow, Wittenoom.

1.1.3 Southern Region

A regular clinic is maintained at Ongerup with visiting services to Jerramungup and Gnowangerup.

In addition to the above services, mobile road clinics provided services to the North East Goldfields, Trans Line, Murchison and Gascoyne Regions, South Agricultural areas, and Jurien Bay, Lancelin areas.

An aerodontal service provided dental treatment for the Eyre Highway, Trans Line, and Nullabor Stations, Gascoyne Region and remote areas including Giles Weather Station and Warburton Ranges Mission.

Two visits were also made to the Cocos Islands to provide dental care.

1.2 SCHOOL DENTAL THERAPY CLINICS

1.2.1 At 31 December 1979, 415 primary schools were serviced by 105 Dental Therapy clinics and training schools.

A total of 123,000 primary children were eligible for dental care. This represents 72% of the total enrolled primary

school child population. A further 9,200 pre-school children were enrolled, representing 21% of the 4 to 5 year old age group in this State.

The geographical distribution of clinics:

North West Region	-	15
South West Region	-	27
Metropolitan Region	-	63

1.1.2 School of Dental Therapy

Children from 18 schools in the vicinity of Mt Henry training school and from 13 schools in the vicinity of Warwick training school attended for preventive dental services.

Enrolments for treatment were:

Mt Henry	3,489
Warwick	4,569

2. TRAINING COURSE FOR SCHOOL DENTAL THERAPIST

2.1 First Year

31 trainees commenced their first year in February 1979.
28 trainees satisfactorily completed the first year.
1 having resigned while 1 failed the course.
1 was required to sit supplementary examinations.

2.2 Second Year

44 trainees successfully completed second year and will officially graduate on 1 February 1980.
2 trainees are requested to sit supplementary examinations.
1 trainee has failed the course.
7 trainees require extra tuition and should complete the course during the first term, 1980.

2.3 Acknowledgements

a) Principal Psychologist, Mental Health Service, Mr. R. Smith for assisting in arranging Psychology and the Human Relations Course. Clinical Psychologist, Mr. G. Van Ierland conducted Psychology and Human Relations lectures to first and second year trainees.

b) Dr. V. Blackman, Head of Division of Microbiology, State Health Laboratories Service, for assisting in arranging the Microbiology practical classes. Mr. M. Elliott assisted in conducting these classes.

c) The Health Education Council for providing lectures on health education and topical social issues.

The assistance of these persons and organisations is appreciated.

3. DENTAL HEALTH EDUCATION

3.1 Consultation and resources were provided for the field service, and lectures for public groups and various educational agencies as required.

A total of 84 talks were given, mostly to Parent and Citizens Associations, Schools of Nursing, Student teachers, and other training courses for a wide variety of health professionals.

3.2 Pre-school Dental Inspections

5,270 children were screened and 1,248 (24%) were referred for treatment. 122 pre-school centres were visited and a discussion on dental care for children was conducted with the mothers on each occasion.

3.3 Workshop on Dental Health Education

A weekend workshop was held in August, to formulate Guidelines for Dental Health Education in the Field Service. This was attended by 45 volunteers and the resultant guidelines will be implemented in the field service during 1980.

3.4 School Canteens

A survey showed that 25% of canteens at primary schools which receive school dental services were still selling sweets. Of the remainder, about half sold other items with high sugar content which encouraged dental caries. It is clear that a continuing effort is required to reduce this health risk in primary schools.

3.5 Fluoridation

1979 saw an upsurge in antifluoridation activity in Australia, due mainly to media reporting of antifluoride submissions to the Victorian Enquiry into Fluoridation. This resulted in increased requests for talks on fluoridation from parents, teachers etc. and every effort was made to allay apprehension regarding this very beneficial public health measure.

3.6 Public Promotion

Displays to promote oral health were mounted at the Royal Show and several other country shows during the year, and dental care for children was promoted on several occasions in newspapers and television in association with International year of the Child.

4. BUILDING PROGRAMME

4.1 Building Construction

Construction of 20 fixed and mobile Dental Therapy Clinics commenced in 1979. Three clinics have been completed and it is anticipated that the remaining 17 will be completed early 1980.

4.2 Planning 1980

Finance for the construction of 14 fixed and mobile dental therapy clinics was approved in the State budget.

5 clinics have been allocated to the metropolitan and outer metropolitan area and 9 allocated to country areas.

5. SUBSIDISED DENTAL CARE

Assistance towards the cost of dental care is provided for children, pensioners and other adults. Income and the number of dependants are the principal criteria in establishing eligibility.

3,456 people were granted subsidies amounting to $407,451.93 representing a subsidy of 92.17% of fees.

6. STAFF

Appointments made during the year resulted in a staff total of 576. Distribution of Staff at 31 December 1979 was as follows:

6.1 Administration

Dental Officers (6)
Therapists (6)
Clerical and General (21)
Wages (9)
DCA's (4)
Dental Cadets (17)

6.2 Clinic Service

6.2.1 Metropolitan Region

Dental Officers (12)
Dental Therapists (133)
Dental Nurses/Assistants (59)

6.2.2 Country Region (South West)

Dental Officers (10)
Dental Therapists (46)
Dental Nurses/Assistants (31)
Wages (2)

6.2.3 Rural and Remote Region (North West)

Dental Officers (15)
Dental Therapists (19)
Dental Nurses/Assistants (32)
Wages (3)

6.3 Dental Therapy Training School

Dental Officers (9)
Dental Therapists (7)
Dental Nurses/Assistants (31)
Dental Technicians (2)
Trainee Therapists (80)
Clerical and General (42)
Wages (5)

Appendix IX

NURSING SECTION

Miss E.L. Bohan, F.C.N.A., D.N.A.,
Principal Director of Nursing

1. NURSING SERVICE.

In a State as large and diverse in character as Western Australia, it is not surprising that patterns of staffing and stability of staff in the various hospitals, are not uniform. Demographic, social, geographic, and climatic factors all affect recruitment and movement of staff, either separately or together.

In the mining towns of the Pilbara where the nursing staff of the hospitals are mostly married and their husbands employed locally, there is minimal turnover of staff. On the other hand at Derby and Port Hedland, the majority of the nursing staff are single girls. Opportunities for leisure-time activities are limited and the climate for about half the year is very hot and oppressive. The turnover of nursing staff at six-monthly intervals is at least 50% and often considerably more in these towns.

Fortunately recruitment is steady and is supplemented as necessary by the Emergency Nursing Service, which continues as an essential back-up for the Nursing Service. Nurses of this Service have also filled the gaps in Community Health Nursing Posts, and for the A.I.M. at Halls Creek and Fitzroy Crossing.

1.1 EMERGENCY NURSING SERVICE

Appointments.

12 months service	31 (2 did not finish)	
6 months service	16	47
Number employed at 31/12/79		49

1.2 STAFF

Retirements.

Miss M.R. Clarke on 1/3/80 as Matron, Devonleigh Hospital. She has given notable service in country and metropolitan hospitals, plus 5½ years in the Australian Army Nursing Service during the World War 1939-45.

Mrs. Carmel Kenneally, Deputy Director of Nursing, Mt. Henry Hospital after 17 years at that hospital.

Mrs. M.K. Stephenson on 25/8/79 as Matron Augusta Hospital for the past nine years. Previously she had been Matron, Warren District Hospital, Manjimup for a total of 12 years.

Miss D. Daly on 30/5/79 as Director of Nursing, Osborne Park Hospital for the past 12 years. Previously she was Matron Collie District Hospital, 1962-67, to which position she came, after some years as Sister-in-Charge, Casualty Department, Fremantle Hospital.

Honours.

Included in the Queen's Birthday Honour list were -

Miss Olive Galliers (Matron, Armadale/Kelmscott Hospital), British Empire Medal (B.E.M.).

Mrs. R.M. Waugh (formerly Clinical Instructor, Warren District Hospital, Manjimup) British Empire Medal (B.E.M.).

Miss E.L. Bohan (Principal Director of Nursing) Companion of the Imperial Service Order (I.S.O.).

As well Miss E.E. Harler (formerly Organiser of the Government School of Nursing) was awarded the Florence Nightingale Medal by the International Committee of the Red Cross.

Appointments.

Miss C.J. MacDonald, F.C.N.A. Director of Nursing, Kalgoorlie Regional Hospital on 25/6/79.

Mr. David Owen, F.C.N.A. Director of Nursing, Swan District Hospital on 2/7/79.

Miss E.A. Lambert, Matron, Broome Hospital on 30/7/79.

Miss Nan Farmer, Director of Nursing, Osborne Park Hospital on 30/5/79.

2. NURSE EDUCATION.

2.1 Scholarships for post-basic courses in 1980-81 were awarded as follows:-

(i) Department of Nursing, W.A.I.T.
(Bachelor of Applied Science Nursing)

Nursing Administration/Clinical.

Mr. R. Ebsworthy (Royal Perth Hospital)
Miss M. Heys (Community Health Services)
Miss J.D. Hicks (Community Health Services)
Mrs. R. Keenan (King Edward Memorial Hospital)
Mr. V. Yip (Fremantle Hospital).

Nursing Education/Clinical

Miss L.C. Barrett (W.A.S.O.N.)
Miss H.G. Chitty (Sir Charles Gairdner Hospital)
Mrs. S. Chow (W.A.S.O.N.)
Miss E. Kershaw (W.A.S.O.N.)

Mrs. C. Print
Mr. D. Roberts (Sir Charles Gairdner Hospital)
Mrs. A.E. Willey (Sir Charles Gairdner Hospital)
Mrs. J. Thompson (King Edward Memorial Hospital)

Community Health/Clinical

Mrs. P.J. McLachlan
Miss M. Pawle (Royal Perth Hospital)
Miss G.H. Soon (Royal Perth Hospital)
Mrs. L.A. Lamont

Bachelor Applied Science (Social Science)

Mrs. S.J. Perry (Royal Perth Hospital)

(ii) Royal College of Nursing, London
Nursing Administration

Miss M.A. Ernst (Royal Perth Rehabilitation Hospital)

(iii) University of Western Australia
Diploma of Education

Mrs. J.J. Pincombe

(iv) Lincoln Institute of Health Sciences, Melbourne
Nursing Administration

Mrs. H. Watts (Moora)
Miss J. Ballard (Carnarvon Regional Hospital)

2.2. The Helen Bailey Scholarship was awarded to Miss June Wishart, of Community Health Services, to undertake a course at St. Luke's Nursing Home, Sheffield, England, on the "Care of the Dying and the Family", in 1980.

2.3 Margaret E. Beard Memorial Project.

To promote continuing education of Nurses practising throughout Western Australia, approval was obtained to utilise part of the Nursing Scholarships' allocation to promote seminars and workshops for this purpose. The project was named in honour of Miss Margaret E. Beard, A.M., F.C.N.A., former Principal Director of Nursing, 1970-1977, who died on 2nd August 1979.

3. HOSPITAL INSPECTIONS.

Departmental	58
Country Board	54
Private Nursing Homes	233
	345

3.1 Nursing Homes

Two closed this year - Guildford (22 beds) & R.S.L. War Veterans

(12 beds) which changed to frail-aged accommodation. Five new licences were granted:-

Howard Solomon, Lynwood	45 beds
Lucy Creeth (new building)	56 beds
Narrogin Nursing Home	40 beds
Geraldton Nursing Home	40 beds

Additional beds were added to existing Nursing Homes as follows:-

Niola	14 to 23 beds
St. Joseph's, South Perth	12 to 13 beds
Hillview	75 to 80 beds
Nonareena	19 to 21 beds
Martindale	28 to 30 beds
Bunbury Nursing Home	19 to 75 beds
Braille	83 to 84 beds
Kaleeya (general hospital)	46 to 82 beds

4. DOMICILIARY MIDWIFERY.

76 visits were made to private homes. 72 mothers delivered at home. Four transferred to hospital and returned home within 24 hours of parturition.

Of the total number there were three resident at Bunbury, one at each of Kalgoorlie, Gingin, and Albany. The majority were in the metropolitan area.

Twelve midwives practised domiciliary midwifery during this year. The continuing increase of home births is indicated by the following figures:-

1973	2	1977	17
1974	1	1978	39
1975	5	1979	72
1976	14		

5. COMMUNITY HEALTH NURSING.

See report attached from Miss Reid, Director Community Nursing.

CONCLUSION.

Once more I wish to record warm appreciation of the high professional standards maintained by Nurses practising in hospital and health agencies in Western Australia, and of the ready co-operation extended them by other health services personnel.

COMMUNITY NURSING SERVICES REPORT

STAFFING	31st December, 1979
Child Health Nurses	141
Chest & Tuberculosis Nurses - Visiting Nurses	14
Community Health - Field Nurses	176
Community Health - Nurse Aides	11
Community Health - Field Assistants	76
Occupational Health Nurses	3
Special Treatment Clinic	7
School Health Nurses	128
School Health Nurse Aides	4
Miscellaneous Nurses	3

The quantity and diversity of the work undertaken by the various community nurses during 1979, the Year of the Child is reflected in the following summary of their activities.

99,090 children 0-5 years were checked for developmental, hearing and visual problems (70.8% were under 1 year of age). 1,019 referrals resulted from this (i.e. 215 hearing, 189 speech, 615 visual defects).

Vigilant surveillance and control of Leprosy and Tuberculosis was continued during 1979. 12 active cases of Leprosy and 184 cases of Tuberculosis were detected. Over 7,000 Kimberley residents were screened for Leprosy by the Leprosy Nurse. The metropolitan area also employs a Nurse to deal specifically with Leprosy although no mass screening is undertaken.

Visiting Nurses from the Chest and Tuberculosis Services gave vaccinations (B.C.G.'s) to 17,716 high school students to protect them from tuberculosis. A further 1,993 B.C.G. Vaccinations were given by Field Nurses and Visiting Nurses to a variety of other people.

The following immunisations were given by Community Health's Field Nurses working in remote localities.

	0-5	6-14	15-19	20-49	50-64	65+	Unknown Age	Total	%
T.A.	1,739	0	0	0	0	0	3,694	5,433	22.8
CDT/ADT	1,023	1,181	25	81	8	6	1,543	3,867	16.3
Tetanus	19	741	211	796	101	31	294	2,193	9.2
Sabin	2,526	486	63	329	46	14	4,884	8,345	35.1
Measles	526	112	3	17	0	4	929	1,591	6.7
Rubella	0	557	18	23	0	0	1	599	2.5
Mantoux	81	149	60	129	43	36	104	602	2.5
B.C.G.	235*	128	53	142	93	131	139	921	39
Influenza	6	12	0	35	3	3	11	70	.3
Other	24	18	4	37	2	51	22	158	.7
	6,179	3,384	437	1,589	296	276	11,621	23,782	
%	26.0	14.2	1.8	6.7	1.2	1.2	48.9	100%	

*Included in earlier figures.

School Health Nurses notified the parents of 22,267 school children regarding the need to update immunisations (mainly in the metropolitan and South West Regions).

Child Health Nurses held 1,113 individual parenthood classes for expectant parents. Post natal classes were introduced during 1979 and proved popular. The drop out rate from these classes was less than 1%.

The basic course on preparation for parenthood for high school children continued and a total of 10,110 children attended. In association with this 136 teachers attended special 'intensive' classes run by the Child Health Nurses to enable them to undertake and/or better support this educational programme.

During the year Child Health Nurses conducted 289,180 consultations in Child Health Centres: 36,862 consultations in homes: 62,703 consultations by telephone: 21,327 consultations in hospitals.

In addition to this 1,465 pre-school children attending Day Care Centres were given a full health appraisal which resulted in 336 being referred for specialist services.

The 60 High School Nurses conducted a total of 147,546 consultations. Visual problems continue to be the largest group of conditions identified in school children. A total of 1,590 refractive errors were found among school children in 1979 and after appropriate referral, spectacles were prescribed for 1,232 children. Among the pre-school children 205 were found to have refractive errors and 72 to have strabismus, 150 of these children had spectacles prescribed.

Detection of hearing, speech and language problems by School Nurses resulted in 12 children being fitted with hearing aids and 477 being referred for speech therapy.

Child Health Section continued with the 'Play at Home Programme' commenced in 1978. 14 Child Health Nurses were involved and accordingly made remedial visits to those families in their district where there was a child with a known behavioural problem.

In a complementary vein, the Play and Information Mobile Service (PIMS) was established during 1979 with the aim of improving child-parent relationships with particular emphasis on play for the 0-12 year age group. A mobile van fully equipped with a variety of play materials and staffed by Child Health Nurses, visits by invitation, Child Health Centres, Play Groups, private homes or any other interested group. Schools may also avail themselves of this service.

The Visiting Nurses from Chest and Tuberculosis Services, commenced offering B.C.G. vaccination to all Aboriginal and Vietnamese babies born in K.E.M.H. Another new initiative by these Nurses was the introduction of Anti-Smoking Clinics. Respiratory function tests and Chest X-Ray facilities are readily available to the participants. The public have showed a great deal of interest in this programme. Each course consists of six sessions, and six courses were conducted during 1979.

The visiting Asthma Nurse has continued to provide an effective and much appreciated service in helping families to a better understanding, and consequently better management, of Asthma in the domestic setting. She has achieved this through home visits in a non-crisis situation, by participating in camps, country swimming programmes and relaxation groups organised by the Asthma Foundation. In addition to this, talks were given on request,

to various professional and service bodies which, hopefully, will increase the general understanding and knowledge about asthma in the community.

The Multiple Sclerosis Nurse assisted 125 patients and their families to gain a better understanding of Multiple Sclerosis in order to minimise the difficulties associated with this particular disease, and to help them to deal with the practical aspects of its domestic management.

The Muscular Dystrophy Nurse has continued to work in close association with the Muscular Dystrophy team at R.P.H. In addition to participating in the various research projects she has also been involved in follow-up and/or genetic counselling of affected families.

Refugees from Vietnam have continued to swell the workload of the Community Health and Chest and Tuberculosis Nurses. The Field Nurse at Graylands, aided by two Vietnamese Health Assistants, co-ordinates the comprehensive physical examination given to all new arrivals. The findings of the medical officers, dentists, laboratories, radiographers etc. are then followed through by this same small team. When the refugees leave Graylands their follow-up is done either by the Chest and Tuberculosis Nurses or by Community Health's Field Nurses.

Most of the follow-up work with these refugees is of a long term nature. Consequently the Nurses' responsibilities are ever increasing and concern is felt as to how this important work can be maintained at an acceptable level without jeopardising other programmes and responsibilities.

Aboriginal Health. The policy of employing Aboriginal Nurse Aides, Field Assistants and Camp Nurses to work under the guidance of a Field Nurse had been in existence for a decade in 1979. During that time the morbidity and mortality rates for Aboriginal people in this State has dramatically decreased although there is no room for complacency.

That this great improvement has occurred despite the devastating impact of drinking rights, and in some places the tragic consequences that equal pay has indirectly had on the health and lives of the Aboriginal people, makes it an even greater achievement. This change could not have occurred if the Field Nurses and the Aboriginal people had not developed a bond of mutual respect and trust, and a two way learning situation. While this is the key to the whole programme the importance of having Medical Officers with the wisdom and intelligence to heed what the Aborigines and the Nurses were telling them and who could be relied on to give compassionate support is the other basic necessity.

Community Health Field Nurses are continuing to deliver and develop programmes that will improve the ante-natal and post-natal care of mothers and babes. Linked with this are the numerous and well established programmes such as ear health, eye health, infectious diseases, family planning and general health measures relevant to the Aboriginal community as a whole.

Constant cross-cultural work is always demanding if staff are endeavouring to understand things from both culture's points of view. From time to time however, various pressure groups with vested interests make life very difficult for either the Nurses or the Aboriginal Health Workers or both. It is unfortunate that there does not seem to be any lawful way of preventing these tiresome people from making a nuisance of themselves and wasting the staff's valuable time and human effort.

A Day Care Centre was opened mid-year within the precincts of the Mandurah Community Health Centre. The benefits to the patrons of this Centre, most of whom are quite elderly, have been dramatic. Credit should go to Sister Harris who has effectively rekindled and maintained a joie de vivre among all persons associated with the centre. The happiness, contentment and comfort this has brought to these elderly people and their families is impossible to measure even though they go to great lengths to express their appreciation.

Problems still exist in regard to providing suitable pre-service and in-service education. All nurses who have undertaken their basic nursing education in Australia lack the essential concepts and skills necessary to function effectively as community nurses. Until very recently these could only be acquired by post basic studies. Although all W.A. Schools of Nursing have made a concerted effort to rectify this situation the benefits of these efforts have not as yet filtered through to the public. Consequently, expensive and extensive pre-service and inservice education has continued to be necessary in order to provide a worthwhile service to the community.

Occupational Health Nurses not employed by this Department are even more disadvantaged because they not only have the same problem of a non-scientific base to their basic nursing education but they have the added problem of having different employers, which makes it difficult to organise any kind of educational programme. At the beginning of 1979 a six month, one day per month work release course was arranged by Occupational Health at W.A.I.T. The lectures were designed to increase the expertise of nurses currently engaged in Occupational Health Nursing - relevant assignments were set to complement the lectures to be undertaken between the study days in the nurses own time. 26 Nurses enrolled in the programme, 22 completed it. Participants in the programme thought they gained considerable professional benefit from this programme.

CONCLUSION

Nurses have a unique contribution to make to the promotion and nurturing of health in our society. Their work places them in an ideal situation to disseminate responsible information to the public so that the latter can make informed decisions in relation to their health. This report has emphasised the nurses practical tasks which are reasonably easy to understand, to measure and to justify. However, other aspects of the nurses' work are not as easily measured, for example developing a mother's self confidence; establishing rapport and trust with a household where there is a disease they do not want to know about, such as Leprosy or Tuberculosis. Being sufficiently approachable and professional for a desparate teenager to turn to when contemplating suicide. Being able to gain and retain the trust and respect from patients and clients from the various politicial, ethnic, religious and social walks of life.

Considering the potentially threatening and personal nature of much of the Nurses' work, and the fact that most of their work is carried out on the client's or a third party's premises, it is encouraging to note how few problems and complaints result from the myriad activities of the Community Nurses around the State.

Previous reports have expressed gratitude to our Commissioner, Dr. McNulty; Deputy Commissioner, Dr. Holman and Principal Director of Nursing, Miss Bohan for their support and guidance, and this assistance continued during

1979. Something which we may appear to take for granted, but which we appreciate and should mention, is the added benefits that staff and service gain by being secure in the knowledge that kindness and a deep concern for people is invariably an integral part of the support given by these three respected officers.

Appendix X

DIVISION OF OCCUPATIONAL HEALTH, CLEAN AIR AND NOISE ABATEMENT.

Dr. F. Heyworth, MB.BCL, MRCP.
Director

OCCUPATIONAL HEALTH SECTION

GENERAL.

Intensification of public interest and anxiety on occupational health matters continues and much effort is directed towards dealing with specific enquiries or complaints. The policy of prevention of problems wherever possible continues as exemplified by the routine dust monitoring of mines for the Ventilation Board, and its plans to include monitoring of toxic gases in its future programme. A noise planning document has been prepared which will assist in minimising noise problems by dint of their consideration in the planning stage. Proposed amendments to the Noise Abatement Act have been prepared to further facilitate preventive aspects. Participation in the Kwinana Air Modelling Study continues, and emphasis on prevention of air pollution in the planning stage is propagated. Proposed amendments to the Clean Air Act are expected to improve its effectiveness.

Staff Changes

Dr. A.G. Cumpston, Director from 1975 to 1979 retired in August 1979.
Dr. F. Heyworth was appointed Director in August 1979.
Dr. P. Psaila Savona took up the position of District Medical Officer to the Police Department in December 1978 and
Dr. K.C. Wan replaced him at the W.A. Meat Commission abattoirs, Robb Jetty in August 1979.
Mr. C. Roberts was appointed as Scientific Officer in Noise Control in March 1979.
Mr. J.E. Sanders was appointed as Occupational, Hygienist in April 1979.
Sister A. Callagher was appointed as Occupational Health Nurse to Kwinana Industrial area in March 1979.

Talks and demonstrations were provided for many groups during the year. Two publications were devised: "Who to contact when you need help" and "Lifting".

Throughout the year the Occupational Health Section dealt with at least 4300 requests for information, of which 832 are known to have been investigated.

MEDICAL EXAMINATION OF MINERS AND WORKERS IN DUSTY TRADES.

In accordance with practice in previous years radiological surveys have been conducted in co-operation with the Perth Chest Clinic.

As required by the Mines Regulation Act, 1964-74, 3,655 men who entered the mining industry during 1979 were examined and, as required by the Mine Workers' Relief Act, 1932-40, 3,712 miners were re-examined.

In the examinations under the Mine Workers Relief Act 197 miners were found to be suffering from silicosis, 2 from asbestosis and 4 from silico-asbestosis. Ten were new cases of silicosis and this number expressed as a rate per 10,000 examinations, is consistent with the lower incidence rates observed in recent years (Fig.1). No new cases of asbestosis or silico-asbestosis were found.

For the sixth successive year there were no newly diagnosed cases of tuberculosis in miners.

FIGURE 1.

Year	Total No. of examinations	Cases of Silicosis	Incidence of new cases of silicosis	Rate per 10 000 examinations (silicosis)
1925-29	13,800	-	847	614
1930-34	19,600	-	380	194
1935-39	34,100	-	111	33
1940-44	29,000	-	238	82
1945-49	26,000	-	293	113
1950-54	29,400	-	274	93
1955-59	30,300	-	259	85
1960-64	36,377	-	409	112
1965-69	36,477	-	196	53
1970-74	24,122	1,704	119	49
1975	8,696	302	35	40
1976	5,788	291	20	35
1977	7,414	242	18	24
1978	3,789	197	17	44
1979	3,712	197	10	27

Asbestosis and silicosis registers have been initiated, in addition to the existing mesothelioma register. It is realised that these registers may be incomplete in that they can only include known cases but are, nevertheless, useful indicators of the annual position.

REGISTERS

Year of Diagnosis	Mesothelioma	Asbestosis	Silicosis
Unknown	6	-	-
Pre 1973	14	78	-
1974	3		-
1975	9		-
1976	5		-
1977	8		-
1978	11	11	29
1979	4	8	24
Total	60	97	53

37 cases of mesothelioma and 86 of asbestosis are known to have been associated with prior occupational exposure to blue asbestos at Wittenoom. The occupational history of 9 cases of mesothelioma and 11 cases of asbestosis is not recorded. Asbestos regulations under the Factories and Shops Act came into force on January 1st 1979.

POLICE OCCUPATIONAL HEALTH.

Statistics

During the year, the following medical examinations were carried out:

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Medical Consultations:	-	431	462	449	497	456	519	668	513	638	498	439
Pre-Employment	-	67	21	-	2	24	63	13	18	84	49	30
Periodic	-	8	14	10	25	14	16	27	14	4	23	15

(No statistics are available for January).

Other medical examinations:

At the request of the Road Traffic Authority, 142 persons were examined in connection with applications for, or renewals of, special licences, eg. bus dirvers and driving instructors.

Examination of police doing diving duties has been initiated. All new applicants as well as those already engaged in such duties are now required to fill in a medical questionnaire, are fully examined and investigated. It is hoped that the information so obtained will help to provide base line data for future reference.

A field survey on exposure of Traffic Officers to environmental lead was undertaken. The findings showed that these officers, although slightly more exposed to environmental lead than controls, did not have any significant increase in lead absorption. Results were well within acceptable occupational levels.

Assessment of Fitness to Drive:

Assessment of fitness to drive of persons with medical conditions which may inpair their ability to drive safely: 129 persons were so examined and appropriate recommendations were made to the Road Traffic Authority.

A new procedure for such assessments and a new form "Medical Assessment of Fitness to Drive" have been approved by the Commissioner of Public Health following a recommendation by the Committee Appointed to Consider Medical Fitness in relation to the Driving of Motor Vehicles. The new procedure will be introduced at the beginning of 1980 and it is hoped that this will help to standardise such assessments. A Designated Medical Officer (the District Medical Officer) has been appointed to co-ordinate the system and make the appropriate recommendations to the Road Traffic Authority.

As recommended by that Committee, a permanent Medical Advisory Committee on Road Traffic Injuries was established under the chairmanship of Dr. K.J.M. Carruthers, Assistant Commissioner of Public Health. This Committee met on a regular basis.

ABATTOIR OCCUPATIONAL HEALTH.

The Western Australian Meat Commission (WAMC) operates an abattoir in Robb Jetty and has another abattoir in Midland which ceased operations in May, 1979. Between 450 to 700 workers are employed in the Robb Jetty Abattoir which is engaged in the slaughter of sheep, goats and cattle, processing of meat products and operation of cold stores.

The in-plant medical facilities at the Robb Jetty abattoir established in January 1979 are managed by a full time Occupational Health Nursing Sister, and a Occupational Health Physician in the mornings, since August 1979.

In 1979 there were 2,981 injuries, of which 421 were workers' compensation cases, comprising 14%. Of the 421 workers' compensation cases, time lost from work occurred in 390 or 93% of the cases. The most common injuries were to the hands and fingers which accounted for 2,127 or 71% of injuries.

There were 12,658 attendances for first aid, and medical attention, during the year. Medical examinations were carried out on 165 workers for health certification according to regulations for export of meat to West Germany. Promotive and preventive activities being developed included health surveillance for occupational and zoonotic diseases, hearing conservation, eye protection measures, monitoring of heat stress, health education and accident prevention.

A Safety Committee is to be formed in 1980 to co-ordinate these activities.

OCCUPATIONAL HEALTH NURSING

Staff comprises three trained nurses, two stationed at 57 Murray Street and one at Kwinana Community Health Centre. Surveys of occupational groups in dusty trades have included lung function tests and blood examinations where appropriate. Problems of dermatitis are investigated.

At the beginning of 1979 a six-month, one day per month release course, was arranged at the W.A. Institute of Technology. The instruction was in the form of lectures designed to increase the expertise of nurses currently engaged in Occupational Health Nursing. In addition to attending lectures, assignments had to be undertaken in the nurses' own time.

The course was completed in July 1979 and a letter of attendance was presented to participants completing the prescribed requirements.

Twenty-six nurses enrolled and finally twenty-two completed the course. Many nurses are now looking forward to a comprehensive Occupational Health Nurses Certificate course. In the meantime they are considering further studies in the Health Sciences courses which are available. Many of the twenty-six student nurses who visited the Occupational Health Branch showed great interest in this field.

PESTICIDES.

During the year 171 companies were either registered for the first time or re-registered as commercial pest control firms. Seven companies were re-registered as commercial fumigators and another 11 organisations submitted men for fumigation licences to carry out their own fumigation work. In the pest control industry 410 operators were licenced to carry out pest control work and, in addition, 113 operators were licensed to perform fumigation work.

Blood tests were carried out on selected operators and sometimes when required by employers. These tests were virtually confined to those exposed to organochlorine, organophosphorous compounds and the fumigant methyl bromide. Tests which indicated excessive absorption of chemical were followed up by an investigation of working conditions, advice and repeat tests until results were normal. Many soil and water tests for pesticide levels were carried out with a view to checking work by licenced operators.

During the year seminars on the safe use of pesticides were held at a number of centres. These were Kwinana, Wanneroo, Spearwood, Armadale, Bunbury, Donnybrook, Geraldton and Carnarvon. Talks were also given to Muresk Agricultural College students, Main Roads weed control employees, the Weed Society, Horticultural classes at Mt. Lawley Technical College and at an inter-state convention for aerial sprayers.

Assistance was given to the Technical Extension Service in running two part-time courses for pest control operators at the Mt. Lawley Technical College. Much time is spent handling queries from the public relating to the use of pesticides around homes and in assisting the Poisons Information Centre with information.

OCCUPATIONAL HYGIENE.

Studies

A study was completed to evaluate the exposures of Road Traffic Authority officers to lead in air. Other studies included the measurement of the exposures of insulation workers to fibrous glass and an evaluation of suitable means for monitoring gaseous contaminants in the mines.

Investigations and Inspections

A wide range of occupations and industries were evaluated for various potential health hazards. Some of these were fumes in welding; silica in abrasive cleaning; solvents in laundries, print shops and laboratories; isocyanates in foundries and plastics industries; acids in plating; P.C.Bs. in transformers and many others.

Complaints and Enquiries:

Asbestos proved to be the main source of public queries and employee concern. Special asbestos testing was done at Westrail and at the U.S. Navy Base in Exmouth. Many tests were done to monitor airborne asbestos dust.

Other:

Many lectures and seminars were given to inform employee groups, management and the public of Occupational Health concerns.

KINETICS/ERGONOMICS.

Analysis of "The Patient Handling Problems" in the hospitals belonging to the Church of Christ was undertaken. Appropriate action was recommended and undertaken.

A twelve session course in "Strain Reduction" was organised for Bradfords Insulation.

A new container for market garden produce was evaluated.

Methods of reducing back strain in Mine-Site drivers were presented for Alcoa.

Working postures were assessed and appropriate advice given to various individuals and organisations.

NOISE ABATEMENT SECTION.

Community Noise.

There has been a large increase in enquiries and complaints concerning community noise problems. Continuing assistance and technical advice has been provided to local authorities. The majority of the complaints have been resolved locally by the Local Authority council but a significant number remain unresolved due to hesitation by some Local Authorities in applying the provisions of the Noise Abatement Act. The need for an amended Act providing stricter control measures to reduce community noise has become obvious. Community noise investigations have included: omnibus noise, quarry operations, airconditioners, speedway activities, amplified music and others.

Off-road Vehicles

The proposed bill entitled "Off Road Vehicle Act, 1978" originally included very little reference to noise control. Following discussions between officers from the Department of Local Government and the Noise Abatement Section, regulations to govern noise emission of off-road vehicles were drawn up the Scientific Officer (Noise Abatement) and incorporated into the Control of Vehicles (Off-Road Areas) Act, 1978. Possible methods of enforcing noise regulations for off-road vehicles and criteria for assessing noise impact on residential areas and buffer zones were submitted to the Departments of Local Government and Conservation and Environment.

Traffic Noise

The Noise Section carried out a traffic noise survey at thirteen residential sites in the Perth metropolitan area. The survey information will be used in conjunction with other data as a reference base for future surveys and to provide a general picture of the noise environment in those areas.

The Minister convened an Interdepartmental Committee on Traffic Noise to prepare a report. Two sections of this report have been finalised:

(a) Practical approach to Traffic Noise Control and
(b) Existing legislation and its suitability and success in the alleviation of the traffic noise problem.

Railway Systems

An investigation was carried out of railway noise at Toodyay to assist in the location of an Aged Persons' Home. A comprehensive survey was made over a long period of time as a result of a complaint of excessively noisy railroad operations in the Cockburn area. Following a request from the Town Planning Department for guidance in setting noise buffer zones adjacent railroads in the Kwinana town site area, a comprehensive series of measurements have been planned to determine the noise impact of freight trains.

Waterway Vessels

Noise levels were measured on board the "Owen Leach" speedboat for the Water Police. An investigation has commenced into setting realistic emission limits for pleasure motor boats based on measurements from a "full-throttle" drive past test. An "acoustically-acceptable" site for these measurements should be planned in conjunction with a motor vehicle inspection site.

Meetings of the Environmental Noise Control Committee.

The second meeting of the E.N.C.C. was held in Perth on 14th and 15th June 1979 the third in Melbourne on 13th and 14th December 1979. The latter was attended by the Scientific Officer (Noise Abatement). Topics discussed included the Victoria EPA draft policy on industrial and commercial noise, noise controls for machines and equipment at point of sale, guidelines for helipad siting and operation, and control of noise from domestic lawnmowers.

Environmental noise impact statements.

These were submitted for the Dampier - Perth Natural Gas pipeline and the Teutonic Bore project.

NOISE ABATEMENT - SPECIFIC INVESTIGATIONS

Sound Insulation:

A detailed study of the internal sound transmission was made in the new Irrabeena building.

Draft Australian Standards.

Comments were submitted on Draft Australian Standard DR 79158 - Noise control on construction and demolition sites, and on the Draft proposal for the measurement of noise emitted by railbound vehicles.

Audiometric booths

Octave band sound pressure level attenuation measurements were done before and after modifications had been carried out to a "Norsound" audiometric

booth to determine the improved sound insulation.

Industrial noise control.

Noise level measurements were carried out in the Carpentry and Joinery sections of Leederville Technical College. Levels at the operator positions were hazardous and the instructors position required blanking off, or relocation of the instruction class.

NOISE ABATEMENT - LABORATORY CALIBRATION SERVICES

The noise laboratory has continued its calibration service. A total of sixteen audiometers and sound level meters have been calibrated. A more automated calibration technique for audiometers is currently being developed and improved methods for sound level meter calibration are being considered.

Other laboratory activities have included: frequency and statistical analyses of noise dosemeters and maintenance and calibration of other noise laboratory equipment.

Attempts are being made to improve the existing facilities of the laboratory as well as the service provided to outside organisations and authorities with the aim to seek laboratory accreditation of vibration and acoustic measurement services from the National Association of Testing Authorities, Australia (N.A.T.A.)

NOISE ABATEMENT - EDUCATION.

An assessment course was held for qualified Health Surveyors employed by local authorities to determine their suitability to be appointed as noise inspectors, and three officers employed in the Noise Abatement section were appointed as State Inspectors under the Act and regulations. Lectures on various aspects of noise pollution, engineering noise control and hearing conservation were presented at various seminars and courses attended by health surveyors, safety officers and engineering graduates.

Where local authorities do not possess trained personnel or equipment to measure, evaluate and control community noise, the Noise Abatement Section has provided instruction designed to assist practising Health Surveyors in fulfilling their obligations under the Act.

NOISE ABATEMENT - STATUTORY DUTIES

The Noise Abatement (Neighbourhood Annoyance) draft regulations are presently before the Minister of Health for his approval before being forwarded to Cabinet. A current project is the drafting of a Code of Practice for the measurement of noise, which will be a supplement to the Noise Abatement (Neighbourhood Annoyance) Regulations.

The "Noise Planning and Development" document has been approved by the Noise and Vibration Control Council and is to be recommended to the Minister of Health for his presentation to interested parties dealing with planning, local government and the environment.

Amendments to the Noise Abatement Act have been drafted which will accommodate the Hearing Conservation Proposed Regulations.

NOISE ABATEMENT - HEARING CONSERVATION.

The Hearing Conservation Team, established in late 1978, is partially funded by a Commonwealth Community Health Grant. Its aim is to promote hearing conservation in industry by measuring, evaluating and controlling noise, motivating management and employees to conduct hearing conservation programmes and collecting information on the effects of noise upon the health of the workforce.

The full team, assembled by the end of January 1979, consists of a Scientific Officer, who carried out noise measurement surveys; an Audiologist, who is responsible for audiometric testing; a Field Officer (Instructor), who runs educational sessions and a Field Officer (Clerk/driver) who handles clerical matters and assists with audiometry.

The first six months of the year were devoted to gaining background information on the work previously done on Hearing Conservation in this State, obtaining and testing the necessary measurement equipment, preparing educational material, planning the field programme and establishing contacts who could help in the promotion of Hearing Conservation in industry.

It was decided that the Team's resources could be most effectively used by limiting its practical services to companies which employ 50 or less people. In Western Australia 97% of factories are in this category according to 1977 figures from the Department of Labour and Industry.

Advice is given to the larger companies on either training their own people to carry out noise surveys, audiometry and education, or obtaining the services of consultants.

During the second half of the year the team's audiometry van was stationed in Carlisle and approaches were made by the Instructor to small companies in the surrounding area. Nine preliminary noise surveys and six full noise exposure investigations were carried out. In response to enquiries from companies outside this area, a further 16 preliminary noise surveys and 19 full surveys were carried out. A total of 207 audiograms were taken. The team members also participated in lectures and talks to audiometry and noise control students at W.A.I.T., safety officers at I.F.A.P., A.M.W.S.U. unionists, factory inspectors, Department of Transport employees, the Acoustics Society of W.A., the Architectural Aluminium Fabricators Association and the Deafness Awareness Seminar and ANSEARCH conference participants.

It its educational role the team is developing new approaches. Rather than relying on the use of personal hearing protection, stress is placed on seeking ways to eliminate the noise at its source. As well as presenting these ideas to workers and management at factories in the field, approaches have been made to the various Apprentice Training Boards suggesting that sessions on Hearing Conservation and Quieter Techniques be included in their syllabi. In connection with this, contact with the Technical Education Division has been made and noise surveys of two Technical Schools have been carried out to provide illustrative data for lectures to technical staff during 1980.

CLEAN AIR SECTION.

The activities of the Section are described under the following headings:

A. MONITORING OF AIR POLLUTANTS.
B. SPECIAL INVESTIGATIONS AND TESTING.
C. ADVISING ON AIR POLLUTION CONTROL AND EDUCATION.
D. COMPLAINTS AND STATUTORY DUTIES.

A. MONITORING OF AIR POLLUTANTS.

1. Dust Monitoring.

The Central Electricity Research Laboratories directional dust gauge (CERL gauge) and the standard New South Wales glass funnel deposit gauge are used in W.A.

Perth Area.

At the end of 1979 21 CERL gauges were cited in the metropolitan area as follows:

City Beach	Welshpool	Naval Base
East Perth	Kewdale	Hazelmere
Lathlain Park	Maddington (2)	Gosnells (2)
Rivervale	Kwinana (4)	
Perth Airport	Munster (4)	

For results see Appendix A.

The results for deposit gauges situated at City Beach, East Perth, Perth Airport and Welshpool are shown in Appendix B.

Port Hedland.

Six gauges were maintained in Port Hedland during 1979 and were located as follows:

Gauge No.	Location
1	Anderson St., Port Hedland
2	Howe St., near Hospital
3	Spinifex Hill, near Shire Office
4	Cooke Point
5	Leslie Salt, Redhill
6	Stanley Street, South Hedland

The dust samples from each gauge were collected by officers of the Shire of Port Hedland and processed in the Sections laboratory in Perth. For results see Appendix C.

Cape Lambert/Dampier/Karratha.

Eight CERL gauges were maintained in the area during 1979 and located as follows:

Gauge No.	Location
1	Port area, Port Sampson
2	Immediately south of Cape
3	North of Wickham
4	South of Wickham
5	Parker Point, Dampier
6	Bowling Club, Dampier
7	Karratha Airport
8	Fire Station, Karratha

The Health Surveyor of the Shire of Roebourne has continued to collect the dust samples and maintain the gauges in the area and forward the samples to Perth for processing. For results see Appendix D.

Kalgoorlie.

Twenty-three dust gauges are sited in Kalgoorlie, three Section gauges for the Mines Department near an ore crushing plant and twenty gauges processed for the Goldfields Dust Abatement Committee. The gauges are located as follows:

Gauge No.	Location
1	Trafalgar townsite
2	Lionel St.
3	Mafeking St.
5	Lane St.
6	Chesapeake St.
7	Burt St.
9	Maritana St.
11	Kallarney St.
12	Piccadilly St.
14	Gt. Eastern Highway
15	Boulder Rifle Range
16	Kambalda Road
18	Brown Hill
19	Bulong Road
20	West Kalgoorlie
21	Cheetham St.
22	Brownhill Road
23	Brookman St.

The results for the year are shown in Appendix E.

High Volume sampling, Bunbury.

A high volume sampler was maintained at the Bunbury Port Authority near the harbour and serviced by Health Surveyors of the City of Bunbury. For results see Appendix F.

High Volume sampling, Port Hedland.

The Health Surveyor of the Shire of Port Hedland maintained the samplers during 1979. The samplers are sited in locations as follows:

99806—14

Sampler No.	Location
1	Howe St., near Hospital
2	Swimming pool, nr. Shire Offices
3	Stanley St., South Hedland

For results see Appendix G.

High Volume sampling, Perth City.

Two samplers are sited in the city, one in the inner City on the corner of William Street, and Murray Street, and the other in the outer city at the Bureau of Meteorology. The collected particulates are analysed for lead and benz-x-pyrene at the Government Chemical Laboratories.

For results see Appendix H.

2. Sulphur Dioxide and Smoke Monitoring.

Perth Area.

Monitoring of sulphur dioxide and smoke has continued, but only with the help of residents in the many suburbs who have continued to assist the Clean Air Section by accommodating and operating these samplers in their homes. The Health Department wishes to thank them all for their most valuable help.

For results see Appendices I and J.

Kwinana.

Two continuous sulphur dioxide monitors were maintained in the Kwinana area for the Kwinana Air Modelling Study and located at Tomislav Way, Wattleup and Wells Park, Rockingham.

For results see Appendix K.

Kalgoorlie.

Western Mining Corporation staff have continued to maintain the Section's monitors in the Kalgoorlie and Boulder area.

For results see Appendix L.

Pinjarra.

Alcoa of Australia staff at Pinjarra continued to maintain and operate the sulphur dioxide monitor in the Pinjarra townsite.

For results see Appendix M.

3. Oxides of Nitrogen Monitoring.

The sampling sites at 57 Murray Street, Perth and Queenslea Drive Claremont have continued to be operated on a 24 hour basis during 1979.

For results see Appendix N.

4. Motor Vehicle Emissions.

Monitoring for carbon monoxide was continued at 57 Murray Street, and on the corner of William and Murray Streets, Perth.

For results see Appendices O and P.

Oxidants were monitored at 57 Murray Street, and results shown in Appendix Q.

Lead was determined at 57 Murray Street on a regular daily basis.

For results see Appendix R.

See also Appendix H for high volume sampling results showing lead measured in the air in the inner and outer city area every sixth day.

Twenty five high volume filters collected in Munster at a market garden during 1977-78 were analysed for lead content to estimate background levels. The lead content in air ranged from 0.02 to 0.27 micrograms per cubic metre of air, approximately one tenth of the concentrations measured in Perth City.

B. SPECIAL INVESTIGATIONS AND TESTING

1. Fluorides.

Superphosphate Works

Five superphosphate manufacturing plants were tested during the year, the Bassendean works did not operate during the year.

For results see Appendix S.

Vineyard monitoring.

Following renewed complaints of damage to grap vine leaves near a brickworks, an intensive monitoring programme was again initiated in mid-November 1978, and continued into April 1979, during the grape vine growing season. Leaf damage during this period was considered the worst on record and indicated that the scrubbing system in operation at the brickworks was not reducing fluoride emissions to that compatible with normal healthy plant growth. A frequency of concentrations of fluoride measured in the air during November 1978 till April 1979 is shown in Appendix T.

The highest hourly average fluoride concentrations are shown in Appendix U.

The cumulative fluoride uptake associated with static monitoring with limed filter papers is illustrated in Figure 1. The assistance given by the officers of the Department of Agriculture for leaf sampling and the analysis of the leaves by the Government Chemical

Laboratories is gratefully acknowledged. The resultant uptake of fluorides in the leaves collected in the vineyard is shown graphically in Figure 2. The results indicate that an intensive investigation and further monitoring will be necessary during the 1979/80 growing season.

Fluoride emissions were measured from several brickworks to evaluate scrubber efficiencies. For results see Appendix V.

2. Kwinana Air Modelling Study.

The Clean Air Section continued to support the technical aspects of the study by maintaining the base stations at Wattleup and Kwinana and supplying computer facilities.

3. 2, 4-D Monitoring - Geraldton.

Officers of the Section developed samplers and assisted Agriculture Department officers in measuring airborne weedicide concentrations.

4. Miscellaneous

The Clean Air Section continued to support other Government Departments, Local Authorities and private companies when called on during the year.

C. ADVISING ON AIR POLLUTION CONTROL AND EDUCATION.

During the year numerous enquiries were received by the Clean Air Section from students and the public for information on air pollution. Lectures were given to various professional organisations and tertiary educational institutions.

D. COMPLAINTS AND STATUTORY DUTIES.

During the year 406 complaints were received from the public of dust, odours and fumes from a wide range of industries and commercial premises.

Routine inspections and special inspections of industrial premises were carried out by the Section's officers as required by the Scientific Advisory Committee and the Air Pollution Control Council.

All meetings of the Scientific Advisory Committee and Air Pollution Control Council, or special sub-committee meetings, were attended by the Senior Engineer or senior officers of the Section.

Appendix A

DUST TESTING PROGRAMME - PERTH METROPOLITAN AREA 1979

Mean total dirtiness for the 12 months period January - December 1979.

GAUGE	TOTAL DIRTINESS
City Beach	1.1
East Perth	1.5
Lathlain Park	2.2
Rivervale	2.5
Perth Airport	1.6
Kewdale 1	2.9
Maddington 1	7.4
Gosnells 2	1.6
Gosnells 3	4.6
Hazelmere	1.8
Welshpool 2	3.3
Kwinana 2	3.9
Kwinana 3	2.2
Kwinana 4	2.2
Kwinana 5	2.4
Munster 1	3.1
Munster 2	2.2
Naval Base	3.4
Munster 3	4.4
Munster 4	2.9

Appendix B

DEPOSIT GAUGES 1979

Deposition (milligrams per square metre per day)

SAMPLING POINT	TOTAL INSOLUBLES	TOTAL INORGANIC
Belmont	27	13
City Beach	21	10
East Perth	44	25
Welshpool	36	24

Appendix C

DUST TESTING PROGRAMME - PORT HEDLAND 1979

Mean total dirtiness and mean per cent iron ore in total dust from dust gauges for the twelve month's period January - December 1979

GAUGE NO	LOCATION	TOTAL DIRTINESS	% IRON ORE
1	Anderson Street, Port Hedland	24.2	50
2	Howe Street, nr. Hospital, Port Hedland	17.6	50
3	Spinifex Hill	4.9	19
4	Cooke Point, Port Hedland	3.3	14
5	Leslie Salt Redhill	5.6	19
6	Stanley Street, South Hedland	2.9	7

Appendix D

DUST TESTING PROGRAMME - CAPE LAMBERT/DAMPIER/KARRATHA

Mean total dirtiness and mean per cent iron ore in total dust from dust guage for the twelve month's period January - December 1979

GAUGE NO	LOCATION	TOTAL DIRTINESS	% IRON ORE
1	Port Area, Pt Sampson	2.3	
2	Immediately S of Port Area	2.3	
3	North of Wickham Town Site	1.6	
4	South of Wickham Town Site	1.6	
5	Parkey Pt, Dampier	5.6	17
6	Bowling Club, Dampier	5.6	35
7	Karratha Airport	7.7	6
8	Fire Station, Karratha	3.8	11

Appendix E

DUST TESTING PROGRAMME, GOLDFIELDS DUST ABATEMENT, KALGOORLIE DISTRICT

Mean total dirtiness from dust gauge for the twelve months' period January - December, 1979

GAUGE NO	TOTAL DIRTINESS
1	12.9
2	5.0
3	11.9
5	3.3
6	3.2
7	2.6
9	2.8
11	2.1
12	4.6
14	6.3
15	4.8
16	3.1
18	8.5
19	7.2
20	3.6
21	4.6
22	3.1
23	3.4

Appendix F

HIGH VOLUME SAMPLING, BUNBURY

(All results in microgrammes per cubic metre)

1979	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Monthly Average	66	-	66	46	24	-	75	31	38	-	68	46
Maximum Daily Concentration	95	-	105	58	42	-	102	50	61	-	105	89

Annual Arithmetic Mean: 53
Annual Geometric Mean: 46

Appendix G

HIGH VOLUME SAMPLING, PORT HEDLAND

Howe Street Near Hospital)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Monthly Average	63	28	-	81	28	137	90	-	-	178	140	101
Maximum Daily Concentration	92	48	-	114	32	198	189	-	-	346	264	230

Annual Arithmetic Mean: 94
Annual Geometric Mean: 72

Swimming Pool (Near Shire Offices)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Monthly Average	49	32	-	44	27	24	45	-	-	67	75	45
Maximum Daily Concentration	65	54	-	78	28	32	81	-	-	123	94	63

Annual Arithmetic Mean: 46
Annual Geometric Mean: 36

Stanley Street (Near P.W.D. Pressure Tank)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Monthly Average	40	60	34	34	38	31	38	46	38	56	43	38
Maximum Daily Concentration	55	124	52	49	49	38	42	-	63	110	52	56

Annual Arithmetic Mean: 40
Annual Geometric Mean: 40

Appendix H

HIGH VOLUME SAMPLING IN PERTH CITY JULY TILL DECEMBER 1979

24 hour samples every sixth day

(Reported as $\mu g/m^3$ for particulates & lead)

(Reported as ng/m^3 for benz-x-pyrene)

SITE	MET. BUREAU			QUEENS BLDGS.		
	Partics.	Lead	BxP	Partics.	Lead	BxP
Highest Day	86	2.2	5.7	117	5.8	3.4
Lowest Day	16	0.4	0.1	24	1.0	0.0
Average	45	1.1	0.7	65	3.0	1.0

Appendix I

METROPOLITAN SULPHUR DIOXIDE CONCENTRATIONS 1979

(All results expresed in micrograms per cubic metre)

SITE	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	Seven highest 24 hour values for year							Annual Average
Perth	15	18	16	14	20	12	13	18	17	12	17	26	104	75	68	65	58	57	57	17
Banganup	14	11	11	8	5	5	4	8	11	15	17	41	149	140	107	107	101	88	88	13
Bentley	10	8	5	5	9	15	18	22	36	30	3	29	171	112	112	108	94	83	81	16
Claremont	-	2	8	0	4	3	3	4	-	3	0	-	88	46	31	24	22	20	19	3
Hillman	0	5	1	1	14	9	12	19	21	22	36	4	235	171	107	74	68	65	62	12
Inglewood	2	2	1	1	3	2	2	3	4	3	7	22	103	77	58	50	35	33	28	4
Lynwood	-	-	-	27	14	6	7	11	12	15	24	36	197	114	94	85	84	67	64	17
Medina	0	0	6	1	3	1	0	4	3	2	4	1	32	30	25	23	23	21	21	2
Orelia	3	4	1	1	4	2	1	4	4	16	15	5	114	78	68	54	54	43	39	5
Rockingham	0	0	5	1	8	9	13	15	18	8	8	4	49	46	45	44	41	38	38	7
Wembley Downs	3	4	4	1	1	0	1	2	4	1	1	0	58	25	24	23	16	16	16	2

WORLD HEALTH ORGANISATION RECOMMENDED LONG TERM GOALS

Sulfur Oxides - British Standard Procedure Annual mean 60 $\mu g/m^3$

98% of observations below 200 $\mu g/m^3$

Appendix J

METROPOLITAN SMOKE READINGS 1979

SITE	ANNUAL AVERAGE
Perth	3
Bentley	3
Banganup	2
Claremont	4
Hillman	2
Inglewood	3
Medina	2
Orelia	1
Rockingham	1
Wembley Downs	2
Lynwood	2

Appendix K

KWINANA AIR MODELLING STUDY - SULPHUR DIOXIDE CONCENTRATIONS, 1979

(All results expressed in micrograms per cubic metre)

	SITE	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	Seven highest 24 hour values for data collected							Highest 3 hour average	Average of all data collected
1.	Tomislav Way	125	65	57	39	31	18	18	19	36	31	55	77	306	280	257	252	240	235	226	1718	47
	Wattleup	31	24	26	30	31	30	31	31	30	30	30	31									
2.	Wells Park,	14	14	17	17	-	20	26	20	20	20	20	-	46	43	40	40	34	31	31	300	19
	Kwinana*	27	28	28	21	0	28	23	31	30	31	22	0									

*The second line indicates the number of days that month that the monitor was operational.

Appendix L

BOULDER SULPHUR DIOXIDE CONCENTRATIONS 1979

SITE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Seven highest 24 hour values for year							Annual Average
Boulder	2	7	2	8	0	1	0	0	1	1	0	2	94	29	29	29	27	27	22	2
Unit 1	0	1	6	3	0	1	0	1	1	3	3	4	68	60	44	34	33	32	29	2
Unit 2	0	2	5	16	0	2	0	0	1	2	0	2	110	85	56	37	37	37	37	3

Appendix M

PINJARRA SULPHUR DIOXIDE CONCENTRATIONS 1979

All results in micrograms per cubic metre

SITE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Seven highest 24 hour values for year							Annual Average
Pinjarra Townsite	0	0	1	2	2	7	0	0	1	1	0	1	25	17	17	17	16	16	15	1

Appendix N

METROPOLITAN OXIDES OF NITROGEN CONCENTRATIONS 1979

All results expressed in micrograms per cubic metre

SITE	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	Highest 24 hour average	Lowest 24 hour average	Annual Average
Perth 57 Murray Street	74	92	103	106	79	67	83	88	86	66	80	92	284	1	79
Claremont, Cnr. Queens-lea Avenue and Stirling Highway	-	49	54	65	57	102	48	32	-	38	-	-	253	0	56

Appendix O

CARBON MONOXIDE AT 57 MURRAY STREET, PERTH

Results in parts per million

1979	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Monthly Average	0.4	0.5	0.7	0.8	0.9	1.0	0.3	0.7	0.8	0.6	0.7	0.8
Highest 1 hour Average	3.5	2.5	4.1	6.3	9.7	9.5	3.5	4.9	8.0	3.3	3.6	3.3
Highest 8 hour Average	2.5	1.8	1.7	3.1	5.9	3.9	1.7	2.3	4.4	1.7	2.1	2.1

Yearly Average: 0.7

Appendix P

CARBON MONOXIDE NEAR CORNER OF MURRAY & WILLIAM STREETS, PERTH

Results in parts per million

1979	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Monthly Average	2.0	1.7	2.2	1.4	0.7	0.6	1.3	3.3	4.1	3.4	4.2	3.5
Highest 1 hour Average	10.9	8.9	10.4	8.0	7.4	5.3	13.1	19.2	25.6	15.2	15.0	12.4
Highest 8 hour Average	7.2	5.7	7.4	4.8	3.3	2.8	6.4	13.9	17.7	9.5	10.2	9.3

Yearly Average: 2.4

Appendix Q

OZONE AT 57 MURRAY STREET, PERTH

Results in parts per hundred million

197º	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Monthly Average	1.1	0.9	1.0	0.7	0.6	0.4	0.6	1.2	1.5	2.7	2.2	2.4
Highest 1 hour Average	5	8.1	4.4	3.5	3.2	2.5	3.6	4.8	4.6	11.4	7.9	13.7
Highest 8 hour Average	3.2	4.7	3.2	2.2	1.9	1.6	2.9	3.9	3.5	8.0	4.9	8.0

Yearly Average: 1.3

Appendix R

LEAD RESULTS FOR YEAR 1979

24 hour readings

(Reported as $\mu g/m^3$)

	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Highest Day	1.4	2.4	2.6	1.9	8.0	2.9	2.5	3.1	2.0	1.9	2.4	1.3
Lowest Day	0.2	0.4	0.3	0.5	0.3	0.2	0.5	0.4	0.7	0.4	0.5	0.2
Monthly Average	0.6	0.7	1.1	1.2	1.3	1.0	1.2	1.2	1.1	0.9	1.0	0.5

Highest Day : 8.0
Lowest Day : 0.2
Yearly Average: 1.0

Appendix S

FLUORIDE EMISSIONS FROM SUPERPHOSPHATE WORKS

LOCATION	KILOGRAMS/HR. OF FLUORIDE
Albany	0.03
Bunbury	1.04
Esperance	0.14
Geraldton	0.06
Kwinana	0.55

Appendix T

FREQUENCY OF 24 HOUR CONCENTRATIONS OF FLUORIDE IN THE AIR MEASURED AT A VINEYARD NEAR A BRICKWORKS

FLUORIDE (AS HF) PARTS PER BILLION	NUMBER OF DAYS
0 - 0.2	44
0.2 - 0.4	68
0.4 - 0.6	25
0.6 - 0.8	9
0.8 - 1.0	8
1.0 - 1.2	3
1.2 - 1.4	1
1.4 - 1.6	0
1.6 - 1.8	1
1.8 - 2.0	1

Appendix U

HIGHEST HOURLY AVERAGE FLUORIDE CONCENTRATIONS AS HYDROGEN FLUORIDE, MEASURED AT THE VINEYARD NEAR THE BRICKWORKS

	Fluoride (as HF) (Parts per billion)
November 1978	2.9
December	3.4
January 1979	1.3
February	1.6
March	2.6
April	0.8

Average hourly fluoride concentration for the 1978/79 growing season was 0.35 parts per billion.

Appendix V

EFFICIENCY TESTS ON BRICKWORKS KILN FLUORIDE SCRUBBERS

Brickworks in Midland area, Kiln 7

NTH SCRUBBER BANK	SCRUBBER EFFICIENCY (PER CENT.)
N/W Cyclone Exhaust	98.2
M/W Cyclone Exhaust	92.9
STH SCRUBBER BANK	
S/W Cyclone Exhaust	94.4
S/E Cyclone Exhaust	97.1

Brickworks in Armadale area, Kiln 4

MONTH	NTH SCRUBBER	MIDDLE SCRUBBER	STH SCRUBBER
July 1979	99.6	93.2	96.8
August 1979	88.2	91.7	91.9
September 1979	71.6	73.4	96.7
October 1979	39.1	88.1	98.6
December 1979	3.2	14.0	80.8

Appendix XI

STATE X-RAY LABORATORY

B.E. King, M.Sc., B.Sc.
Physicist in Charge

INTRODUCTION

The Physics Division of the State X-Ray Laboratory is the section of the Public Health & Medical Services which provides a comprehensive radiation protection service for Western Australia. The Division provides the necessary administrative and technical services to enable the Radiological Council, the authority appointed under the Radiation Safety Act 1975, to carry out its functions prescribed in the legislation. The work of the Radiological Council is described in a separate report to the Minister for Health. The activities of the State X-Ray Laboratory are set out in this report.

The Division has three primary objectives. The first is to ensure that the use of radiation does not result in exposure of the general public to levels of radiation that are not acceptable. The second is to ensure that the necessary application of radiation to patients for diagnostic or treatment purposes is carried out with minimum exposure to radiation of the patient. The third is to ensure that the maximum permissible levels of radiation set out in the Regulations are not exceeded for persons working with radiation and that the actual levels of exposure are as low as can reasonably be achieved. The radiations to which these objectives are directed divide into ionising and non-ionising radiations. The first includes x-rays and the radiations from radioactive substances which have been known to be hazardous since the beginning of the century. The second consist of mainly electro-magnetic radiations such as microwaves, ultra-violet, visible and infra-red radiation which can now be produced in controlled modes and intensities which are known to be hazardous. The various activities of the Division will be discussed below under separate headings.

FILM BADGE MONITORING SERVICE

The use of film badges as a means of monitoring exposure to ionising radiation remains one of the simplest and most effective means of surveillance of persons working with the ionising radiations. Knowledge of radiation doses received has an important educational influence in making radiation workers aware of their exposure to radiation and ecouraging them to improve their working procedures. In most organisations, the monitoring film is worn for a four week period before returning to the Division for processing and assessment. However, because of the very low levels of radiation exposure in dental practices the period of monitoring has been extended to three months and in most cases a single area monitoring badge is utilised rather than a personal badge. All radiation dose information is retained on microfilm by the Division permitting long term storage without giving rise to a space problem. 2536 persons were monitored in 1979 compared with 2230 in 1978. The number of monitoring films processed and doses evaluated rose from 21,811 in 1978 to 22,896 in 1979.

Thermoluminescent Dosimetry equipment was installed in 1979 and will be gradually be brought into service in 1980 for those areas of personal and environmental monitoring for which it is more suitable than film badges.

DIAGNOSTIC USES OF IONISING RADIATION

The diagnostic use of x-rays is the largest source of man made radiation exposure of human beings. Much of the effort of the staff of the Division is devoted to surveillance of and measures for minimising radiation exposure from medical radiographic procedures. All medical x-ray equipment throughout the State is inspected from time to time for compliance with the recommendations of the International Commission on Radiological Protection and particular emphasis is placed on those aspects of the equipment which have a direct bearing on the dose delivered to the patient. It is recognised that incorrect processing of the x-ray film is a major factor resulting in excessive doses of radiation to the patient, and special attention is given to the processing facilities and resultes achieved during the regular inspections.

NON-IONISING RADIATION

The Division is equipped with a range of measuring devices for carrying out safety tests on microwave ovens, lasers, and electronic products which emit ultra-violet light. An increasing number of requests are being received from industry, education and private individuals to test these devices. Most microwave oven repair services and a number of local authorities have obtained microwave measuring devices for monitoring microwave ovens. Equipment is being provided by the Division for testing these monitoring instruments and it is hoped that it will be operational during 1980. The current severe financial restrictions have prevented the Division acquiring facilities for analysis of radiofrequency radiation or for measurements other than in the microwave frequency range. These are considered to be essential equipment to enable the Division to effectively monitor the radio-frequency part of the electro-magnetic spectrum.

FIELD WORK

Visits to the premises of radiation users are an essential part of a radiation protection service. The Division has a regular programme of visiting major medical, research and industrial installations throughout the State. The frequency of visits in general relate to the level of potential radiation exposure presented by the equipment concerned. These visits serve not only to determine that the equipment and premises are in a safe condition, but also that safe working procedures are being followed. Over 300 visits were made to premises throughout the State during the year. Country trips covered most areas of the State where significant radiation equipment is in use.

RADIOACTIVITY COUNTING FACILITIES: RADIATION MONITORING EQUIPMENT

The Division is equipped with a range of monitoring equipment to measure many of the radiations covered by the Radiation Safety Act. There are also facilities to measure and analyse radioactive substances. Low background counting assemblies utilising sodium iodide and semi-conductor detectors permit the measurement and identification of samples of radioactive materials.

A sub-standard x-ray dosemeter calibrated against the Australian Primary Standard is used for the calibration of monitoring instruments and of superficial therapy x-ray apparatus. A range of standard radioactive sources is available for the checking of gamma ray monitoring instruments and the latter are called in from industrial, medical and research users for testing at regular intervals. 40 of these were checked during 1979.

RADIATION PROTECTION PLANNING

The Division provides advice on planning of radiation protection for x-ray, radioisotope and other radiation facilities. It is important that radiation protection requirements are discussed in the planning stages of new facilities so that unnecessary expense can be avoided after the completion of construction. Early discussion can often result in more economic means of achieving the necessary level of protection.

PUBLIC INFORMATION

The Division receives a number of equiries on radiation protection matters each week. These frequently relate to items such as microwave ovens and environmental radiation which are often featured in the news media.

MINING AND MILLING OF RADIOACTIVE ORES

Western Australia is one of the world's largest producers of monazite which contains the radioactive element thorium. As production has increased, it has been necessary for the officers of the Division to give more attention to radiation safety aspects of the processing of the ore and the handling of monazite, regular visits being made to the facilities of the mineral sands mining companies. Officers of the Division represent the State on a Commonwealth/State Consultative Committee and on working groups producing codes of practice on various aspects of safety in the mining and milling of radioactive ores. Senior Physicist, Dr. B.M. Hartley who was awarded an N.H. & M.R.C. Travelling Fellowship for the purpose, spent three months in 1979 visiting radiation protection authorities and uranium mining and milling operations in other countries to gain up to date information on current safety procedures.

EDUCATION

Education of users of radiation continues to absorb a significant proportion of the time of the Division's staff. The time and effort devoted to dissemination of knowledge of radiation safety is considered to be very well spent, in particular where it contributes towards a high standard of radiation safety among users of radiation. The following courses were given in 1979.

Basic Radiography for Country Hospitals (4 one week courses; 43 students)
Basic Radiography for G.P's staff (2 four day courses; 14 students)
Basic Radiography for Australian Inland Mission Nursing Staff (6 students in one day course)
Radiation Safety in the Use of Radiation Gauges in Industry (3 three day courses; 47 students)
Radiation for Health Surveyors (Two day course: 12 students)
Workshop on Radiation Safety in Monazite Mining (1 day workshop; 10 participants)
Lectures on radiation safety and related topics were given to groups from

the W.A. Institute of Technology, Perth Dental Hospital, Industrial Foundation for Accident Prevention, Council of Australian Government Employee Organisations, Australian Institute for Non-Destructive Testing, Australasian Institute of Radiography and the Police Scientific Bureau.

RADIATION PROTECTION OFFICE, QUEEN ELIZABETH II MEDICAL CENTRE

The Division provides the staff and facilities for the Radiation Protection Office which serves most users of radiation on the site of the Queen Elizabeth II Medical Centre. The office serves the Sir Charles Gairdner Hospital, The Medical School of the University of W.A. and the nearby main campus of the University, the State Health Laboratory services, and the State X-Ray Laboratory. The University assists by funding the salary of one member of the staff of the office.

STAFF OF THE DIVISION

The staff of the Division consists of the following:-

4 Physicists
3 Radiation Officers
2 Technicians
4 Office Staff

Despite a continually increasing workload, the numbers of professional and technical staff listed above have remained static for over five years. The staff of the Radiation Protection Office consists of two physicists who are not included in the above figures. It is a pleasure to pay tribute to the enthusiastic and conscientious manner in which all staff perform their duties.

Appendix XII

LIBRARY

Barbara Proud B.Sc.Agr., Dip. Lib, M.B.A.,
Librarian-in-Charge

In 1979 the position of Technical Information Officer was brought within the library system, in order to allow better administrative control of its functions. Due to the time required for reclassification the position was vacant from July. This has resulted in difficulties in maintaining the services.

A major achievement in 1979 was the establishment of library collections in 5 North-West Hospitals. A librarian travelled to Wyndham, Derby, Broome, Port Hedland and Carnarvon in September to deliver the initial book stock and card catalogues and supervise the establishment of controls.

Hospitals have had book collections for many years but this is the first time that an attempt has been made to ensure that these books are controlled to enable access by all hospital staff members and that up-to-date collections are maintained. I must thank the administration of the Medical Department for their co-operation in allocating funds for this important project.

The staffing of the Community-Child Health Services branch library was upgraded by the transfer of a library assistant from head office to replace the clerical assistant.

A video playback unit was acquired by the library and videotapes purchased as the first step in establishing a collection of videotapes which are available for loan. Several country hospitals have video equipment and the demand for tapes is quite heavy.

Two senior librarians from the National Library of Australia visited Perth in November to demonstrate MEDLINE and other data bases. Approximately thirty members of this Department attended the demonstrations. The library has ordered a computer terminal and expects to be able to provide computerized literature searching early in 1980.

In November the decision was made to change the classification scheme used by the library. For approximately twenty years the Barnard Classification had been used. However, although it was an excellent scheme when it was devised, it is now inadequate and out-of-date.

The new classification scheme chosen brings this library into line with most other medical libraries and also makes us compatible with the computerized catalogue data base (CATLINE) available from the National Library of Australia. Most books are classified using the National Library of Medicine (USA) Classification Scheme. Those books which fall outside of the subject area of NLM are classified using the Library of Congress Classification Scheme. These two schemes are compatible.

The changeover to a new system of classification is time consuming and it will be some years before all books can be reclassified. Therefore 2 separate areas of shelving will need to be maintained.

The books stored at State X-Ray Laboratory and Occupational Health branch libraries will continue to be classified using the U.D.C. Scheme as this is the only suitable classification available for these subject areas.

It should be noted that the tables do not represent the full workload of the library system. More comprehensive statistics which demonstrate the activities of the branch libraries will be available in 1980. For example, in 1979 the Community-Child Health Services branch library had more than 4000 book loans. This is nearly twice as many as head office.

The demand placed on this library by other libraries throughout Australia (see Tables 2 & 3) shows the quality and importance of our collections.

TABLE 1.

BOOKS ACCESSIONED IN 1979

Head Office	1345
Community-Child Health Services	514
State Health Laboratory Services	209
State X-Ray Laboratories	294
Dental Health Services	296
Occupational Health, Clean Air, Noise Abatement Division	202
Community Health Centres	31
Hospitals	541
TOTAL	3468

NOTE:

1. The method of counting the items in this table has been altered in 1979. In order to account for the total number of items processed it has been decided to count number accessioned rather than use the previous method of counting items on new books lists which did not include additional copies, recatalogued items and so on, and therefore did not truly reflect the work done.

2. Head Office figures include books stored at various locations, other than established branches, in the metropolitan area.

TABLE 2.

INTERSTATE AND OVERSEAS LOANS

	1975	1976	1977	1978	1979
Australia	287	165	155	471	707
Overseas	10	14	4	13	13
Total	297	179	159	484	720

TABLE 3.

INTERSTATE LOANS

	1975	1976	1977	1978	1979
Courier Service	758	608	758	826	1057
Others	146	192	370	646	657
Total	904	800	1128	1472	1714

TABLE 4.

BOOK LOANS

	HEAD OFFICE
1978	2147
1979	2657

TABLE 5.

EXTERNAL BORROWINGS

	1975	1976	1977	1978	1979
Overseas/Interstate	462	628	696	436	529
	COURIER				
	457	713	1185	1564	1434
Interstate	OTHER				
	155	280	355	350	412
Totals	1074	1621	2236	2350	2375

TABLE 6.

COURIER SYSTEM ANALYSIS

	Items Lent By D.H.M.S.	Items Borrowed By D.H.M.S.
Agriculture Department	72	13
W.A.I.T.	40	340
W.A.I.T. Therapy	63	22
Murdoch University	139	130
Fremantle Hospital	132	57
Royal Perth Hospital	104	52
Mental Health Services	93	16
King Edward Memorial Hospital	46	136
Princess Margaret Hospital	111	62
Medical Library	118	555
University of W.A.	139	51

TABLE 7.

STAFFING

	Level	HMS	CCHS	SHLS	DHS	OH/SXRL	Total
Librarian	6	1					1
Librarian	4	1					1
Librarian	2/3	1	1	1			3
Librarian	2				1	1	2
Library Assistant	1	1	1				2
Typist	CV	1					1
Clerical Assistant	CVI	3					3
Total		8	2	1	1	1	13

NEW JOURNALS : 53

ANNUAL REPORTS RECEIVED : 152

MONTHLY AVERAGE OF PHOTOCOPIES SUPPLIED : 3236
(Head Office Only)

Appendix XIII

HEALTH SURVEYING BRANCH

J.F. Slattery, M.R.S.H., F.A.I.H.S.
Chief Health Surveyor

1. INTRODUCTION

The Health Surveying Branch is responsible to the Commissioner of Public Health to provide a State-wide environmental health supervisory service and to introduce thenecessary monitoring, surveillance and preventive measures as circumstances dictate, which involves the individual officer of the Branch in a wide range of activities.

The arrangements introduced in 1977, resulting in the Branch being reorganised into five sections, each with a clearly identifiable area of environmental health activity, has predictably resulted in enhanced efficiency and better service to the community. The arrangement allows for a high degree of specialisation in a specific area while still maintaining equal experience with all activities by rotation of officers throughout the various sections. Following the appointment of an Engineer (Waste Disposal) in 1979, the year under review, a sixth section specialising in community waste management was introduced and its value is already apparent.

Set out hereunder is a summary of the activities of these sections for the year 1979.

CHEMICAL CLOSETS

During the year further sampling of fluids for use in chemical closets has been carried out to ascertain their suitability for use in Western Australia.

On the advice of officers of the Government Chemical Laboratories, British Standard 2893:1957 has been used as a basis for approval in the absence of an Australian Standard.

Consideration is being given to gazetting B.S.2893:1957 as the standard for Western Australia and amending the relevant section of the Bacteriolytic Treatment of Sewage and Disposal of Effluent and Liquid Waste Regulations to give more control over the sale and use of these products.

COMMUNITY WASTES

The Western Australian Waste Disposal Advisory Committee and its supporting Technical Committee met regularly throughout the year. Also, the five refuse disposal zone committees met on a regular basis.

The Committees examined various proposals for improved methods in solid waste management. These ranged from selective recycling schemes for tyres, solvents, waste oil, etc., to a total solid waste recycling facility. Approval was given for the establishment of a recycling plant, for community wastes, at Rockingham, a baling plant and balefill site for the City of Stirling and a special waste incinerator to dispose of toxic and hazardous wastes.

Sanitary landfill still remains the most economical method of waste disposal. Several new sites were considered for the metropolitan area, however, only one site has been approved. Since the introduction of the policy statement on improved landfill practice, a general improvement in the operation of landfill sites has occurred.

As an update to the 1974 Departmental Report on Community Wastes a "Position Paper on Community Waste Management in Perth Metropolitan Area" was prepared and tabled in the second session of Parliament.

A waste exchange system, under the control of the Department, was introduced. It provides the opportunity for unwanted wastes from one industry to be exchanged and utilised by another industry.

The collection and disposal of liquid wastes is a priority matter. Investigation of possible sites and treatment methods are under consideration.

ENCEPHALITIS RESEARCH PROGRAMME

The research programme initiated in 1978 was continued and in fact was expanded during the 1979 period.

This surveillance programme, which is being made conjointly with the Western Australian University Department of Microbiology, was first confined to the Kimberley Districts but has now been extended to the Pilbara and Gascoyne.

In a number of districts the services of Local Health Surveyors have been enlisted to aid in the monthly collection of mosquitoes and sera samples from sentinel chicken flocks.

Altogether three field trips were made during the year by Departmental Officers and University personnel. The expansion of the field trips and the monitoring programme have been aided by the acquisition of a special vehicle and sundry collection laboratory and transport equipment which it has been possible to purchase through Federal/State grant funds.

Arrangements were made during the year for an additional Departmental Officer to receive special training at the National Mosquito Control Course at Mildura. Although similar training facilities were made available to Local Government Officers, the response to the offer was not taken advantage of.

ENTERIC DISEASE SURVEILLANCE

Apart from the major outbreak of Salmonella Muenchen mentioned in another section of this report, the occurrence of a number of minor outbreaks of Salmonellosis were investigated during the year.

Aditionally a number of investigations were made into sporadic outbreaks of enteric diseases, including hepatitis and dysentery.

A number of investigations were also made on behalf of the Commonwealth Health Authority regarding Typhoid case contacts arriving in this State from overseas.

1. FOOD AND LIQUOR

During the period under review there was a continuing vigilance maintained in respect to food and food production standards. The changing patterns in consumer requirements and sophistication in handling and production measures adopted by industry has necessitated a great deal of research and introduction of changes into the surveillance service also. The resulting changes in monitoring patterns have not interfered with the normal routine activities involving the examination of various foodstuffs for compliance with prescribed standards and microbiological requirements.

During 1979 the Branch had a major involvement in a Salmonella Muenchen outbreak. This was first brought to the Department's notice when a number of people became ill after attending a wedding reception. Subsequent investigations resulted in infected chickens being suspected as the prime source of infection and further investigation confirmed a widespread incidence of infection from retail outlets handling chickens, the processing plant and food handlers.

In the period 9th January to 7th February 123 laboratory confirmed cases had been diagnosed in Perth, compared with only one case for the corresponding period for 1978. Investigations of all sources of poultry supplied were made and a large metropolitan processing works was closed for necessary cleansing and sanitising.

A policy of monitoring of all major poultry processing premises has continued.

In addition to the incidence of Salmonellae munchen, a number of minor outbreaks of Salmonellosis were investigated and confined. Other activities with which the Branch was involved during the year include the planning of food handling facilities for the Scouts Jamboree, the introduction of an updated pilot plant for oyster depuration and investigation into the transport, processing, packaging and retailing of pet meats and in particular kangaroo meat.

Major projects with which officers were involved in the planning stages include the food handling facilities at His Majesty's Theatre and the Canning Vale Prison.

2. HEALTH EDUCATION

A continuing service was maintained in respect to lecture situations for various food handling groups and associated bodies.

3. IMPORTED FOODS

Examination of imported food carried out at Fremantle Wharf, Guildford Airport and Kewdale:-

Bacteriological	643
Chemical	726
	1369

FREMANTLE WHARF

A total of 3,751,074 kg. of frozen fish was examined, with inspection fees amounting to $6,280.09.

Food examined and determined as unfit for human consumption, condemned and destroyed under supervision, as follows:-

Canned foodstuffs - 2,499.44 kg.	- Damaged, rusty, deteriorated.
Oysters - 450 cartons 260 cartons 24 bags	- Bacteriologically unsound and chemically contamined.
Frozen fish - 287.63 kg.	- Exposure, contamination, freezer burns, deterioration.
Confectionary - 19.5 kg.	- Contaminated.
Frozen vegetables - 6.25 kg.	- Exposure and contamination.
Cheese - 13.74 kg.	- Damaged and contaminated.

TOTAL CONDEMNED 1979 = 2,826.56 kg
710 cartons
24 bags

The continuing use of freezer containers is requiring an increased use of staff for necessary inspection.

4. LIQUOR

INSPECTIONS 1979	METROPOLITAN	COUNTRY
Hotels	8	111
Limited Hotels		4
Taverns	10	36
Restaurants	3	10
Cabarets	28	
Clubs	4	44
Canteens		1
Theatres	2	
Winehouses	3	
Licensed Stores	5	
Service Establishments		1
Royal Agricultural Society	10	
	73	207

Summary of Spirits Inspected

	IMPORTED	AUSTRALIA
Whiskey	583	59
Brandy	12	261
Rum	230	193
Gin	90	120
Vodka	14	198
Sundry	43	18

5. FOOD GENERAL

A total of 323 complaints relating to food were received during 1979. Details are as follows:-

Complaints Received

Asparagus	1
Beer	5
Bread	15
Cakes, pastries, puddings (including mixes & icings)	8
Cereals	10
Cheese and cheese spreads	8
Chinese food	4
Coffee	1
Coin operated child's ride	1
Confectionary	8
Cool drinks	4
Cough medicine	1
Eggs	1
Fish	24
Flour	1
Food Poisoning	25
Food premises	31

Foods (various)	12
Fruit (canned)	5
Fruit (dried)	7
Fruit (fresh)	1
Fruit juice	4
Gravy powder	1
Hamburgers	1
Honey	1
Infant food	5
Jam	1
Kettle	1
Laxatives	1
Liquor	1
Meat	21
Milk and milk products	25
Mushrooms	1
Pies, pasties and sausage rolls	14
Popcorn	2
Poultry	26
Rice	1
Salt	1
Sandwiches and rolls	8
Sauce	2
Shellfish	10
Soup	2
Sunflower oil	1
Tomato juice	1
Tomato paste	2
Vegetables	12
Wine	4
TOTAL	322

1,892 samples of food were submitted for examination, with the details as follows:-

Bacteriological Samples

Cheese cake	30
Confectionary	72
Desiccated coconut	53
Dry mix dressings	40
Eggs	1
Fish	137
Fruit (canned)	3
Fruit drinks	15
Fruit (fresh)	2
Infant food	15
Meat and meat products	202
Milk and milk products	279
Pate	30
Poultry	104
Sandwich fills	30

Sauce	1
Savouries	40
Shellfish	268
Spices	70
Sugar	1
Take-away Asian food	34
Vegetables	2
Water	8
TOTAL	1437

Mycology

Coconut	1
Baby food	1
Walnuts	1
TOTAL	3

Chemical Samples

Beer	6
Bread	1
Cereal	8
Cofee	1
Confectionary	25
Cool drinks	3
Desiccated coconut	62
Eggs	2
Fish	51
Fruit	5
Fruit drinks	17
Honey and jams	11
Meat and meat products	70
Milk and milk products	4
Shellfish	48
Spices	1
Sugar	1
Sunflower oil	1
Vegetables	29
Walnuts	1
Water	2
Wine	3
TOTAL	352

FISHING INDUSTRY REGULATIONS

During 1979 regulations in draft form were written as a basis for discussion with industry.

It is intended that the regulations be in four parts.

1. Transport of fish.
2. Fish handling.
3. Fish processing premises.
4. Standards for catching and processing vessels.

The first three items are in draft form, with the fourth being left in abeyance until further discussion with industry.

The Australian Fishing Industry Council (W.A. Branch) has elected a subcommittee of four to discuss and advise on the proposed regulations.

HEALTH SUPERVISION - NORTH WEST AND EASTERN GOLDFIELDS AREA

A continuing surveillance of environmental health standards in the Kimberley Regions was maintained throughout the year.

The regular quarterly Departmental visits to the Eastern Goldfields Shire were continued and when necessary additional visits were made in the event of outbreaks of enteric disease.

INTERDEPARTMENTAL INVESTIGATION INTO DEPARTMENT OF CORRECTIONS INSTITUTIONS IN WESTERN AUSTRALIA

In 1978 Cabinet approved a proposal for a combined inspection of Department of Corrections institutions.

The aim of the committee was to formulate a master plan of priorities on the upgrading and replacement of some institutions, to enable the Government to consider what action to take on the institutions.

An inspection of all institutions in the State was made by the Interdepartmental Committee during 1979, however the final conclusions of this Committee are not yet available.

LAND APPRAISALS

Requests from the Town Planning Board for land appraisal for subdivision purposes are as follows:-

Metropolitan	480
Country	166

Country figures include proposals for major subdivisions in Donnybrook, Manjimup, Denmark, Geraldton, Yunderup and Furnissdale.

In most cased the land in question has been physically appraised and Town Planning Board advised of the findings. Additionally, advice has been

given to local authorities, developers, surveyors and members of the public on subdivision matters which concern this Department. Again, this has necessitated appraisal of the land in question.

Investigations have also been carried out on appeals to the Honourable Minister for Town Planning and the Honourable Minister for Local Government in order to advise on matters which come within the jurisdiction of this Department.

MEAT INDUSTRY (GENERAL)

With no relief from drought conditions again in 1979, there was a further depletion in the number of stock available for slaughter throughout Western Australia. The five years of adverse conditions resulted in the closure of a number of meat works for varying periods. The works involved being those committed to the export trade. Departmentally the main area of concern was the closure of Midland Abattoir in January and the necessary deployment of meat inspection staff into other areas.

Midland Abattoir has been placed on a care and maintenance basis and present indications are that it will not re-open in the immediate future.

All boning rooms have ceased to operate at Midland Abattoir and have continued their operations in alternative premises throughout the metropolitan area. Surveillance of these premises is continuing.

The number of meat works operating throughout the State remained constant during 1979. The closure of the Midland Abattoir and the abattoir at Brunswick Junction was offset by the opening of a new works at Australind and the reopening of Carnarvon Abattoir.

It was necessary to issue work schedules to all abattoirs subsequent to Departmental visits. This resulted in the closure of five works for varying periods to enable major works programmes to be completed.

Meat inspection at country works has been increased so that now only eight small works remain without a meat inspection service.

In 1976 there were 22 works without meat inspection.

In 1977 there were 16 works without meat inspection.

In 1978 there were 11 works without meat inspection.

In 1979 there were 8 works without meat inspection.

The Western Australian Meat Industry Authority has permitted the construction of two new abattoirs and a new pig slaughtering facility to an existing abattoir. Although permission has been given by the W.A.M.I.A., mandatory approval must be obtained from the regulating authorities before construction can begin.

Karnet Rehabilitation Centre Meat Works has completed 12 months operations and a steady increase in production was noted. Extra freezing facilities have been approved and are now under construction.

MEAT INSPECTION - TRAINING

Inservice training for practising country meat inspectors continued throughout 1979, using an experienced Departmental Officer for this purpose. The improvement in the standards of meat inspection is pleasing.

MEAT INSPECTION INQUIRY

An inquiry into meat inspection throughout Australia was conducted during 1979 by a committee formed at the request of the Prime Minister. Although many options were put to the various authorities concerned with meat inspection, either directly or indirectly, and an interim report issued, the final report of the committee's findings and recommendations will not be available until the end of January 1980.

MEAT TRANSPORT

Reinspection of all refrigerated food transport vehicles continued throughout 1979 as a result of liaison between the Transport Commission and the Public Health Department.

All transport vehicles, whether refrigerated or otherwise, that convey food will not be registered by the Transport Commission unless they are certified by officers of the Public Health Department.

ILLEGAL SLAUGHTERING

Illegal slaughtering continued to be encountered during 1979 and Departmental investigations resulted in apprehensions being made throughout the State.

Of the 40 complaints received regarding incidents of illegal slaughter, 17 prosecutions against offenders were instituted, of which 16 were successful.

There is some concern that the fines imposed were not acting as a deterrent as second offenders have since been proceeded against. In the pursuit of illegal slaughtering practices it has been revealed that in some areas farmers are equipping themselves with chilling and boning room facilities and are processing and storing meat for neighbouring farmers. It was found that reasonably large businesses are being evolved, including the actual slaughtering operations.

In all cases the slaughtering and breaking up operations and the equipment and facilities provided were not of a high standard and do not conform with the requirements necessary for the safe handling of meat and meat products.

ZOONOSIS

There was a marked decrease in the number of lesions notified of Cysticercus bovis and Hydatids during 1979. It is hoped that it is a result of a better awareness by the rural industry of the importance of eradication of these conditions and are taking the necessary steps to achieve this.

Locations of animals found with:-

Hydatid Lesions	-	Gelorup	1
		Wychcliffe	1
		Brookton	1
		South Perth	1
		Moora	1
		Boyup Brook	1
		Keys Brook	1
		Broomehill	1
		Kojonup	1
		Carnarvon	1
		Gardiner River	1
		Wiluna	1
		Northam	1
			13
Cysticercus Bovis	-	Busselton	1
		Muchea	1
			2

MEAT INPORTS FROM INTERSTATE - 1979

POULTRY	20,135	Cartons
	26,979	Whole Birds
	16.60	Tonnes
BEEF	27,087	Cartons
	224	Carcasses
	114	Argies
LAMB	27,087	Carcasses
	10,646	Cartons
	21	Tonnes
PORK	626	Cartons
	1,429	Cuts
	7,432	Middles
VEAL	717	Carcasses
	1,103	Cartons
MUTTON	5	Cartons
SMALLGOODS	845	Cartons
RABBIT	300	Cartons
PET MEAT	1,052	Carcasses Kangaroo
	406.5	Tonnes Kangaroo
	40	Cartons Buffalo
BUFFALO	4,706	

MEAT SAMPLING

Laboratory testing was carried out in all facets of the meat industry during 1979. These included personnel, meat, meat products, meat works and effluents.

BACTERIOLOGICAL

MEAT AND MEAT PRODUCTS

Beef	26
Buffalo	90
Sausages	12
Sheep	2
Pork	5
Sausage Casings	2
Goat	4
Prepared Meats	58
Chicken	3
Mince	2
Tallow	8
Meat Meal	10
Bone Stock	4

Swabbing of Animals - Bacteriological

(Alive and Slaughtered)

Anchorage and Watsons	1392
Personnel (Meat Workers)	
Hand Swabbing	142
Faecal	220
Meat Works -	
Swabs	89
Effluents	153
Bore Water Samples -	
Anchorage	22
Seawater Samples -	
Cockburn Sound	4
Bacteriological Total	2,248
Chemical Sampling (ph)	
Tripe	52

MINING LEASE TOWNS

Departmental Officers continued to be involved in the development of the township of Leinster and Teutonic Bore.

Regular visits to other mining towns in the State have been maintained and a continued emphasis has been given to the monitoring of water supply standards and sewage effluent disposal systems.

PEST CONTROL

The activities of the section continued to expand in respect to the number of insecticidal treatments carried out on government and semi-government buildings. This was particularly noticeable in the area of treatment in schools for the control of redback spiders.

In addition to the normal fly control activities (see details Appendix "B"), the section carried out a number of experimental bush fly baiting campaigns during the latter part of 1979. However this experimental work was not conclusive as the incidence of bush flies was of a very limited nature, due possible to inhibiting seasonal influences.

The section was also responsible for fly control measures at a number of special outdoor functions during the year. The main events being the Royal Tour of the Beverley Research Station, the cricket test match and the Scout Jamboree held at Perry Lakes.

The pest control training programmes evolved some years ago for hospital employees, Local Government fly control officers and trainee Health Surveyors was continued throughout the period.

Details of specific pest control activities are as follows:-

Total number of fly control inspections	403
Total number of insecticidal treatments	1,190
Total number of rodent inspections and bait placements	191

DETAILS OF INSECT PESTS, RODENT AND ANIMAL ERADICATION

288	-	COCKROACH	35	-	FLEA
10	-	CRICKET	6	-	WASP
3	-	MOSQUITO	56	-	BEE
6	-	WEEVIL	1	-	DRUGSTORE BEETLE
128	-	TERMITE	1	-	POSSUM
22	-	FLY	2	-	TICK
10	-	CAT	3	-	BED BUG
27	-	PIDGEON MITE	41	-	PIDGEON
72	-	ANT	1	-	CATERPILLAR
41	-	SILVER FISH	2	-	MOTH
191	-	RODENT	2	-	SLATER
241	-	REDBACK SPIDER	1	-	CARPET BEETLE

APPENDIX A

MEAT INSPECTION FOR THE YEAR ENDED 31ST DECEMBER 1979

Abattoir and Type of Stock Slaughtered	Stock Slaughtered	Carcases Condemned										Part Carcases Condemned						Organs Condemned						
		Tuberculosis	Actinomycosis	Emaciation	Piroplasmosis	Pleuro-pneumonia	Caseous Lymph-Adenitis	Para-typhoid	Traumatic and Septic	Other Abnormalities	Total	Actinomycosis	Caseous Lymph-Adenitis	Tuberculosis	Arthritis	Other Abnormalities	Total	Actinomycosis	Echinococcus Granulosis	C. Ovis	Hydatids	Tuberculosis	Other Abnormalities	Total
MIDLAND -																								
Cattle and Calves	9689								12	1	13				1		1	495					1331	1826
Sheep and Lambs																								
Pigs	28771	3							30	79	112												9868	9868
ROBBS JETTY -																								
Cattle and Calves	88206	40	8						149	97	294	1348			93	6981	8422	5152	2				25875	31029
Sheep and Lambs	821915						4338		578	3540	8456												73497	73497
Goats	69560									628	628												4326	4326
WATSONS -																								
Pigs	185300	18						4	44	916	982				2127	32626	34753						33564	33564
ANCHORAGE -																								
Cattle and Calves	9920	6				1			168	5	180													
Sheep and Lambs	74368					498	3647		2417	1526	8088													
Goats	3745					10	7		134	92	243													
KARNET -																								
Cattle and Calves	769																							
Sheep and Lambs	3560													2			2						74	74
Pigs	1125								1		1												302	302
																							866	866
COUNTRY DISTRICTS* -																								
Cattle and Calves	18326	11	1	4					75	56	147	1	1		123	416	541	137			11		3779	3927
Sheep and Lambs	596158		1	408			140	12	256	390	1207	1	271		1425	188	1885	137		6519	701		23345	30702
Pigs	53865							1	26	24	51			8	172	110	290	1					8805	8806
Goats	2544																							
TOTAL STATE -																								
Cattle and Calves	126910	57	9	4		1			404	159	634	1349	1	2	217	7397	8966	5784	2		11		31059	36856
Sheep and Lambs	149001		1	408		498	8125	12	3251	5456	17751	1	271		1425	188	1885	137		6519	701		97144	104501
Pigs	269061	21						5	101	1019	1146			8	2299	32736	35043	1					53103	53104
Goats	76974					10	7		134	720	871												4326	4326

NOTE: Country abattoirs included -

*Albany, Boulder, Bridgetown/Greenbrushes, Bunbury, Busselton, Dardanup/Capel, *Denmark, Esperance, Gingin, Greenough, Harvey, Katanning, Kojonup, Manjimup, Merridin, *Moora, Narrogin, Northam, Plantagenet, Tammin, Wagin, Waroona, Wongan-Ballidu, Woodanilling, Toodyay, Carnarvon, Goomalling.

*Only figures for stock slaughtered, no condemnation figures received.

Appendix B

METROPOLITAN FLY CONTROL PLANNING COMMITTEE

Summary of 1979/80 Campaign

Report of Fly Control Officers Employed and Premises Inspected during both Phases of the 1979/80 Campaign

Local Authorities Participating	14
Number of Persons Employed	27
Premises Visited	50,805
Premises Inspected	39,500
Premises Breeding Flies	1,480

BREEDING SITES

Rubbish Bins	30.8%
Buried Food Wastes	4.5%
Poultry Keeping	8.3%
Incinerators	1.2%
Mulch	5.2%
Compost Heaps	13.8%
Blood and Bone	0.5%
Animal Manure	2.8%
Poultry Manure	2.4%
Lawn Clippings	29.1%
Other	1.4%

COMPARATIVE FIGURES OF BREEDING

1961/62	22.3%	1971/72	6.7%
1962/63	23.5%	1972/73	5.0%
1963/64	10.0%	1973/74	6.0%
1964/65	10.0%	1974/75	4.5%
1965/66	9.4%	1975/76	4.8%
1966/67	7.9%	1976/77	5.0%
1967/68	6.7%	1977/78	5.3%
1968/69	9.0%	1978/79	4.1%
1969/70	8.1%	1979/80	3.7%
1970/71	7.9%		

FLY CONTROL CAMPAIGN (BOTH PHASES) 1979/80

Summary of Results

	NO. OF PERSONS EMPLOYED	TOTAL TIME OF EMPLOYMENT (IN WEEKS)	NO. OF PREMISES VISITED	NO. OF PREMISED INSPECTED	NO. OF PREMISES WHERE BREEDING FOUND	NO. OF BREEDING PLACES FOUND	RUBBISH BINS	BURRIED FOOD WASTES	POULTRY KEEPING	INCINERATORS	MULCH	COMPOST HEAPS	BLOOD AND BONE	ANIMAL MANURE	FOWL MANURE	LAWN CLIPPINGS	OTHER
CITY OF BELMONT	2	34	5278	2467	119	119	50	5	2	2	5	10	2	6	-	23	14
CITY OF CANNING	1	17	2214	1330	46	46	5	-	-	1	2	-	-	-	-	38	-
CITY OF FREMANTLE	2	12	5244	2984	116	116	48	7	54	-	1	2	-	3	1	-	-
CITY OF MELVILLE	5	45	6517	6205	305	316	65	23	1	4	28	60	-	10	1	124	-
CITY OF NEDLANDS	2	35	3687	3666	30	32	12	-	-	-	-	8	-	2	-	10	-
CITY OF SOUTH PERTH	2	16	1060	938	16	18	-	1	2	1	-	4	-	-	1	9	-
CITY OF SUBIACO	1	10	417	417	10	10	5	-	-	-	-	5	-	-	-	-	-
TOWN OF BASSENDEAN	1	8	3271	2737	25	52	-	-	6	-	20	-	-	-	10	15	1
TOWN OF COTTESLOE	1	6	2394	2334	55	55	4	21	3	1	4	8	4	4	5	1	0
TOWN OF EAST FREMANTLE	1	7	1939	1151	104	104	-	4	47	6	5	15	-	1	3	23	-
SHIRE OF BAYSWATER	2	26	4559	4340	343	361	112	6	9	1	6	74	-	12	8	133	-
SHIRE OF KALAMUNDA	2	12	3267	3170	19	19	7	-	2	1	-	4	1	-	-	4	-
SHIRE OF ROCKINGHAM	3	28	6268	5537	162	162	87	2	1	1	9	12	-	5	3	36	6
SHIRE OF WANNEROO	2	26	4690	2224	130	130	80	1	1	1	-	10	-	-	5	32	-
TOTALS	27	282	50805	39500	1480	1540	475	70	128	19	80	212	7	43	37	448	21

METROPOLITAN FLY CONTROL PLANNING COMMITTEE

Fly Campaign 1979/80

Comparison with 1978/79 - Both Phases

LOCAL AUTHORITY	NO. OF PREMISES INSPECTED		NO. OF PREMISES BREEDING FLIES		% OF PREMISES BREEDING FLIES	
	1978/79	1979/80	1978/79	1979/80	1978/79	1979/80
CITY OF BELMONT	2100	2467	79	119	3.7%	4.8%
CITY OF CANNING	1239	1330	91	46	7.3%	3.5%
CITY OF FREMANTLE	3832	2984	22	116	0.6%	3.9%
CITY OF MELVILLE	9688	6205	539	305	5.6%	4.9%
CITY OF NEDLANDS	1163	3666	12	30	1.0%	0.8%
CITY OF SOUTH PERTH	560	938	15	16	2.7%	1.7%
CITY OF SUBIACO	-	417	-	10	-	2.4%
TOWN OF BASSENDEAN	-	2737	-	25	-	0.9%
TOWN OF COTTESLOE	2028	2334	93	55	4.6%	2.4%
TOWN OF EAST FREMANTLE	1082	1151	116	104	10.7%	9.0%
SHIRE OF BAYSWATER	1900	4340	125	343	6.6%	7.9%
SHIRE OF KALAMUNDA	2337	3170	122	19	5.2%	0.6%
SHIRE OF ROCKINGHAM	4837	5537	204	162	4.2%	2.9%
SHIRE OF WANNEROO	4070	2224	95	130	2.3%	5.8%

STATISTICAL SUMMARY OF ANNUAL FLY CONTROL CAMPAIGN
1979/80

YEAR	NUMBER OF LOCAL AUTHORITIES		NO. OF VACANCIES	TOTAL NO. OF WEEKS	NO. OF PREMISES INSPECTED	NO. OF PREMISES VISITED	NO. OF PREMISES BREEDING FLIES	% OF PREMISES INSPECTED BREEDING FLIES	NO. OF BREEDING PLACES FOUND
	Metropolitan	Country							
Figures B/Fwd. From 1968/69									
1969/70	14	1	41	327	40,643	52,688	3,303	8.1%	3,481
1970/71	16	1	35	343	51,121	61,080	4,050	7.9%	4,539
1971/72	16	-	35	440	66,487	75,895	4,477	6.7%	4,737
1972/73	16	-	42	564	75,133	86,051	3,728	5.0%	4,066
1973/74	15	1	41	564	69,787	76,750	4,154	6.0%	4,369
1974/75	16	-	51	625	78,504	89,051	3,545	4.5%	3,818
1975/76	14	-	40	551	61,419	70,350	2,938	4.8%	3,140
1976/77	13	-	40	533	61,167	68,199	3,042	5.0%	3,278
1977/78	14	-	37	521	61,127	68,270	3,222	5.2%	3,519
1978/79	13	-	36	541	62,157	73,372	2,561	4.1%	3,069
1979/80	14	-	27	282	39,500	50,805	1,480	3.7%	1,540

PUBLIC BUILDINGS

The number of plans for public buildings examined by the Branch during the year under review amounted to a property value of approximately $50 million.

Some of the major projects include extensive additions to St. John of God Hospital, three country nursing homes, a city arcade with a four cinema complex and extensive renovations to His Majesty's Theatre. In addition to the formal examinations, staff have been heavily involved in discussion with the designing professions during preliminary stages to ensure that by the time working drawings are submitted they at least have given consideration to matters of safety and convenience in the basic design.

Many proposals to convert existing buildings of other classes to public usage, such as roller skating, ice skating, reception lodges, dancing studios and similar uses, have required inspection of the premises to assess feasibility of the proposed conversion.

A large proportion of these were found unsuitable owing to difficulties with fire separation and provision of suitable exits.

The advice given in these areas is of great value to the applicants as it prevents them wasting money on unsuitable designs or premises, but more importantly, it contributes to public safety.

One country hall was closed for structural deterioration. Subsequent to the earthquake which caused the destruction of Cadoux, a survey of public buildings in the area bounded by Dalwallinu, Narrogin, Tammin and Northam was completed by a Departmental Officer in the company of a Structural Engineer from the Public Works Department. This included hospitals, schools, halls, churches, meeting rooms, lodges, kindergartens, clubs, grandstands and similar in twenty eight towns throughout the area designated as zone 2, which is the most severe earthquake area.

In addition to this, when public building proposals in this zone are examined under Part VI of the Health Act by consultant engineers, consideration is now given to earthquakes and recommendations offered as necessary.

Several circuses and other temporary functions, the largest of which was the Scout Jamboree, were examined, particularly for safety of structures and electrical installation.

As during previous years, routine electrical inspections have been carried out at city and suburban cinemas, night clubs, hotels, live theatres, public halls, show grounds and circuses throughout 1979. The following is a brief report of those inspections.

Cinemas

Twenty three were inspected in March and again during September and October. Problems are still experienced with the maintenance of low voltage safety lighting systems. Exit signs, faulty and systems not operating under mains failure conditions were found at five theatres.

Live Theatres

Eleven theatres and halls used for live productions were checked and conditions were found satisfactory. A fire occurred in one theatre and caused considerable damage but no injuries. An investigation failed to disclose the cause.

Night Clubs

Thirty two night clubs and discos in the metropolitan area were inspected. New clubs, such as Eagle One, Hiltons, Julianes and Annabellas have been built with extensive lighting systems being installed. With the disco popularity the amount of electrical and sound equipment in most night clubs has increased out of all proportion.

Hotel

Hotels and taverns in the metropolitan area that provide entertainment were inspected during the year. As with night clubs, some hotels have increased the electrical systems.

These buildings are usually found to be well maintained.

Public Halls

Reception lodges were found to be well maintained. The replacement of the older type of exit signs was requested in a number of buildings.

As with previous years it was found that the lack of maintenance, misuse of equipment and the continual change of management of some buildings are major problems in ensuring safe electrical standards. Between two routine inspections, spaced seven months apart, a night club was completely re-arranged. Electrical wiring was found to be in a very dangerous condition, having been installed by unskilled and unauthorised workers.

This situation is common and it has become evident that routine inspections are necessary in maintaining a reasonable standard of safety in public buildings.

Public Swimming Pools

Although actual physical inspections of public swimming pools by Departmental Officers was restricted in comparison with other years, Branch Officers were continually involved in an advisory capacity for the training of pool managers. As there is a considerable change in pool management staff throughout a year, the vetting of qualifications and the experience of people employed in this capacity is likewise a continuing exercise.

REGIONAL HEALTH GROUPS

A number of investigations were made during the year regarding the composition and financial arrangements existing in Regional Health Groups.

The need for this arose from the fact that some groups were experiencing financial difficulties in the maintenance of the group system.

Most problems were resolved by a mutual agreement for reorganisation within

the groups.

ROTTNEST ISLAND

During Christmas 1978 and New Year holidays 1979, an officer was stationed full time on the Island to provide a health service.

The health standards on Rottnest have improved steadily over the years with the installation of a sewage treatment plant to service the old settlement area.

Comprehensive sampling of both domestic and ocean waters is carried out on a quarterly basis, with the drinking water supply being monitored at more regular intervals for chlorine levels during peak holiday periods.

ROYAL AGRICULTURAL SHOW

A full time inspection service was provided for a period of sixteen days during the extended show period of the 150th Anniversary Year.

All food premises were registered before opening, with continued surveillance of all food outlets, toilet facilities, refuse disposal and public building requirements.

SEPTIC TANKS AND SEWERAGE SCHEMES

The number of applications for installation of septic tanks during 1979 amounted to 6,419, which comprises 3,096 applications for the metropolitan area and 3,323 for rural areas. These figures were similar to those for the 1978 period.

During the year a number of country Local Authorities received approval for the extension of existing sewerage systems and new installations.

An investigation of country towns was made during 1979 in order to evolve a form of priority for the provision of sewerage as opposed to the generalised use of septic tanks in new housing developments. In addition, investigation work was commenced to examine ways and means of improving current septic tank and effluent disposal system performance.

This investigation will involve input by local authorities, Public Works Department and the C.S.I.R.O. A surveillance of quality control of septic tank and drainage segments manufacture was maintained during this period.

FIBREGLASS SEPTIC TANKS

Thirty three permits for the use of this type of apparatus were issued during the year and check inspections were made of the production factories in respect to quality standards.

A comprehensive report on the performance of these tanks in the controlled situation of a mining lease town was submitted by a Local Government Officer. The report highlighted the fact that due to structural deficiencies, their use has decided limitations.

EFFLUENT WATERING SCHEMES

A continuing surveillance was maintained on the quality of effluent being used in a number of country localities. The established Departmental policy for quality of effluent and standards for the use of this material was amended during the year to include new requirements recommended by the National Health and Medical Research Council.

TRANSPORTABLE BUILDINGS

There is a growing tendency for country local authority officers to request a departmental inspection of transportable buildings prior to despatch. Many such inspections have been carried out to ensure compliance with relevant legislation made under the Health Act.

99806—17

DETAILS OF OTHER ROUTINE AND SPECIAL INVESTIGATIONS CONDUCTED DURING THE YEAR

1. Investigations of statutory appeals and complaints made to the Commissioner of Public Health.

   154 Appeals 639 Complaints

2. Regular supervisory visits to country local authorities.

3. Regular inspections of all food handling premises under the control of State Government Authorities.

4. Regular inspection of traveller accommodation on the Eyre Highway.

5. Attendances of meetings and conferences on behalf of the Commissioner of Public Health, both locally and inter-state. Lecturing of Environmental Health students, nurses and various formal and informal groups.

6. Special investigations were made in relation to such matters as:-

   (a) Offensive trades.
   (b) Use of chemical closets.
   (c) Re-use of sewage effluents to sports oval reticulation.
   (d) Functions of septic tanks and effluent disposal fields.
   (e) Frozen food distribution - country centres.

7. Continuing activities commenced in previous years.

   (a) Regular sampling of community water supplies not under direct control of the Metropolitan Water Board and Country Water Supply.

   (b) Continual examination of all water sample results supplied by the Public Health Laboratory Service with trace back and remedial measures being instituted where necessary.

ROUTINE WATER SAMPLING ACTIVITIES INCLUDE:-

ROUTINE SAMPLES

Ocean Samples	(Coliforms) (Salmonella)	1,352
Lake Samples	(Coliforms) (Salmonella)	144
River Samples	(Coliforms) (Salmonella)	560

MISCELLANEOUS

Abattoir Samples	167
Domestic Water Supplies	147
Public Swimming Pools	55
	2,425

APPRECIATION

My appreciation is again extended to the dedicated and loyal staff who were responsible for the activities outlined in this report and to the Department's Food and Nutrition Officer, Mr. J. Edinger, for his continued professional advice and assistance.

Appendix XIV

FOOD AND NUTRITION SECTION

J.R. Edinger B.Sc. A.R.A.C.I.
Food and Nutrition Officer

1. GENERAL COMMENT:

1.1. Right throughout the year emphasis has been focussed on the completion of the Australian Uniform Food Act. A preliminary draft was finalised towards the end of the year ready for presentation to the Health Ministers' Conference in 1980.

Work was also commenced on a uniform set of Food Regulations which will be made under the new Act. Basic material from all over the world was assembled concerning a uniform Food Hygiene Regulation which will also be made under the Uniform Food Act.

As most of the States' food officers are participants in formulating and preparing the new food legislation there was not the usual input into Food Standards and amendments to existing Standards and Regulations.

1.2. The final regulatory drafts for date marking, ingredient labelling and lot identification were completed by the Parliamentary Counsel towards the end of the year and should be operative under the Food and Drug Regulations in 1980.

An amendment to the regulation for Beer established a Standard for "Reduced Calorie" Beer, or in effect beer with a lower alcoholic strength.

A new regulation was gazetted for a product named "Dairy Blend".

An amendment to the regulation for Oysters prescribed a type of label which must be affixed to each container of oysters giving details of place of harvesting etc.

A complete revision was made of the "Pesticides Residues in Food," Regulation and presented in a new enlarged format.

Work is still continuing on the establishment of microbiological standards for food in conjunction with other States and the National Health and Medical Research Council.

Meetings were attended in April and August in Melbourne and September in Canberra, in relation to the Uniform Food Act and the National Health and Medical Research Council Food Legislation Committee.

1.3. Two meetings in May and October of the National Therapeutics Goods Committee held in Canberra were attended.

Of particular interest was the consideration of "vitaminised foods" and in effect whether a product is a food or a therapeutic substance by definition and classification.

2. SAMPLING PROGRAMMES, INVESTIGATIONS AND ALLIED WORK

As previously, normal routine sampling of foods was carried out through the Inspection Branch. A total of 1892 samples of local foods as distinct from imported foods is set out in detail in the report of the Chief Health Surveyor under the Food and Liquor Section. Other items of particular interest are detailed hereunder.

2.1. PESTICIDES AND TOXIC SUBSTANCES RESIDUES IN FOOD SURVEYS

The usual "Market Basket Survey" was carried out in conjunction with the National Health and Medical Research Council.

Additionally, local surveys were done with the co-operation of Local Health Authorities for pesticide residues in fruit and vegetables. Resultes proved to be satisfactory.

2.2. ORANGE JUICE AND ORANGE FRUIT JUICE DRINKS

Sampling continued and an application was made to the National Health and Medical Research Council to have the method of analysis adopted into the Fruit Juice Regulation.

Some products of Eastern States origin were found to be sub-standard and the suppliers informed.

2.3. A detailed investigation was made into "High Protein" weight reducing diets, as if used as a sole source of food such products can proved to be a serious health hazard.

This view was upheld by the National Health and Medical Research Council and a warning labelling statement evolved.

2.4. Fish, crabs and mussels in Cockburn Sound were examined for heavy metal content.

2.5. White Lupin seed flour produced in W.A. was referred to the National Health and Medical Research Council for consideration and evolution of a possible standard.

3. FOOD REGULATIONS

3.1. Arising from the June meeting of the Food and Drug Advisory Committee the following matters were considered:-

Colourings in pharmaceutical formulae.
Labelling Claims.
Code of Practice for the Heat Sterlization of Low Acid Canned Foods.
Milk Standard.
Meat and Meat Products Standard.
Artificial Sweetners Standard.
Coffee Standard.

3.2. The following new and amended regulations were gazetted:-

Q.04 Beer
H.12 Dairy Blend
D.04 Oysters
A.07 Pesticides Residues in Food
Meat Branding Regulations.

3.3. The following regulations are at drafting stage with Parliamentary Counsel:-

H.07 Condensed Milks
O.06 Peanut Butter or Peanut Paste
G.07 Beverage Whitener
K.03 Cocoa
K.04 Chocolate & Liqueur Chocolate.

4. APPRECIATION

My thanks are tendered to the Chief Health Surveyor and all his staff who have so ably assisted me in sampling programmes and investigations. In particular, Mr. G. Kaiser has been of most practical assistance to me in the Food and Liquor field.

Appendix XV

STATISTICS BRANCH

Marlene M. Lugg, M.T. Sc.D., M.P.H., F.H.A., F.A.P.H.A., F.R.S.H.
Health Statistician

INTRODUCTION

For the first time since formation of the Statistics Branch in late 1967, this report will not contain the detailed tables of the hospital morbidity system. An analysis of data available from that system indicated the desirability of publishing more comprehensive and comparitive annual data. Beginning with the 1979 data, this will be published separately in a health statistics series. (The eight years data since the hospital morbidity system was implemented on a state-wide basis in 1971 will be available for comparison purposes.) This series is patterned on the U.S.A. Vital and Health Statistics publications, which have been widely used throughout the world. The following series will be available for Western Australian data by the end of 1980:

Series A : Hospital Morbidity Annual Tables

Series B : Hospital Morbidity Special Studies

Series F : Midwives Data Annual Tables

Series G : Midwives Data Special Studies

Series H : Medical Manpower

Series I : Nursing Manpower

Series P : Psychiatric Care Data Annual Tables

Series R : Cancer Annual Tables

Hopefully, as special studies are carried out for Series H-R, these too will be published in this format.

Midway through the year, a Data 100 key batch system was installed, replacing all but one of the key punch-card system machines. The ability to accumulate data on disk locally and transmit to the large HCS computer has improved ADP efficiency greatly.

HOSPITAL MORBIDITY SYSTEM

GENERAL

During this year, the special working party on the hospital morbidity system designed and pilot tested a revised data collection form. This form was implemented in all government and board hospitals in November, with intent to extend it to the private hospitals next year. Western Australia still has the most comprehensive and useful hospital discharge data collection system

in Australia.

On January 1, the 9th Revision of the World Health Organisation's International Classification of Diseases and Procedures in Medicine was implemented. The Australian Bureau of Statistics held training courses for hospital personnel, and the assistant health statistician conducted training for the Statistics Branch and Mental Health Services.

TOTAL DISCHARGES

The total number of discharges increased by less than one per to 291,719 (1978 total 291,662). This is the lowest percentage increase since the hospital morbidity system was begun on a state-wide basis in 1971. The hospitalization rate per 1,000 persons dropped slightly to 234.

Admissions during which at least one operation was performed decreased slightly (150,276 to 150,254). Again, this is the first decrease since the recording of data began in 1971.

HOSPITAL DISCHARGE RATES, W.A., 1971-79
(per 1,000 population)

Year	Residence of Patient		
	Perth	Rural	Total State
1971	167	273	203
1972	178	291	214
1973	178	300	218
1974	183	291	218
1975	191	296	225
1976	192	296	225
1977	196	299	228
1978	208	312	239
1979	N/A	N/A	234

LENGTH OF STAY

The Teaching hospitals continue to have the longest average stay at 8.0 days. Private hospitals have the shortest (6.4) days and other Government and Board hospitals are in between at 7.6 days. The mean length of stay for all hospitals has increased slightly to 7.2 days.

MEAN LENGTH OF STAY BY TYPE OF HOSPITAL W.A., 1971-79

Year	Mean Length of Stay (days)			
	Teaching	Govt. & Board	Private	All Hospitals
1971	10.6	8.1	7.4	8.7
1972	10.1	7.9	7.0	8.3
1973	9.6	7.7	7.0	8.1
1974	9.5	7.6	6.7	8.0
1975	9.1	7.2	6.7	7.6
1976	9.1	7.3	6.7	7.8
1977	8.5	7.0	6.6	7.4
1978	7.7	7.3	6.4	7.1
1979	8.0	7.6	6.4	7.2

The mean length of stay for operations continued to drop to 6.1 days in 1979 from 6.3 days in 1978.

TYPE OF HOSPITAL

The Teaching hospitals' proportion of total discharges increased slightly, with a corresponding drop in the Private hospitals' proportion. However, the change was less than 1% of the total.

DISTRIBUTION OF DISCHARGES BY TYPE OF HOSPITAL W.A., 1971-79

Year	Type of Hospital		
	Teaching	Govt. & Board	Private
	%	%	%
1971	29.5	47.7	22.8
1972	29.2	47.4	23.4
1973	29.9	46.9	23.2
1974	30.7	46.1	23.2
1975	31.7	46.4	21.9
1976	32.4	47.0	20.6
1977	31.2	49.2	19.6
1978	32.2	47.5	20.3
1979	32.4	47.6	20.0

SURGICAL OPERATIONS

Fifty-two per cent of all persons discharged had at least one surgical operation during their hospital stay, compared with 50% last year. The distribution by hospital type was 36% in Government and Board hospitals, 56.6% in Teaching, and 79.2% in Private.

CO-OPERATION WITH OTHER BRANCHES AND OUTSIDE ORGANIZATIONS

Mental Health Services

The Statistics Branch this year compiled and produced the first two annual Mental Health Statistics Reports [Health Statistics Series P, Numbers 2 (1977-78) and 3 (1978-79)]. The Mental Health Statistical Research Unit also changed over to Data 100 Key-to-disk equipment provided by the Statistics Branch. Data entry methods were refined. More detailed information on these activities is available in the Report of the Director of Mental Health Services.

Midwives Data Collection System

The new forms were further developed and tested this year for implementation on 1 January, 1980. This Branch is grateful to have the assistance of this system of Dr. Fiona Stanley, now of the N.H. & M.R.C. Special Unit in Epidemiology at the University of W.A. Dr. Stanley and her staff will be carrying out special studies using midwives data on our behalf.

Medical and Nursing Manpower

The Nurses' Survey and automatic computer addressing of the annual re-registration forms was carried out for the Nurses' Registration Board. The Health Statistician wrote a comprehensive paper on Western Australian Medical Manpower while at the University of Pittsburgh (USA) this year, which analyses the manpower supply from 1961 to the present and makes projections to 1996.

Alcohol and Drug Authority

In addition to general assistance to the ADA in research, a joint paper produced by Dr. S.S. Seow of the ADA and the Assistant Health Statistician titled "Extraneous Drug Abuse in Methadone Supported Patients Attending the ADA", was published in the Medical Journal of Australia.

State X-Ray Laboratories

The Statistics Branch ran the State X-Ray Laboratories data and computer system for the three months of Mr. Bruce Hartley's absence.

Occupational Health

Assistance with the sampling and analysis of audiology data was given to Dr. Ronald Hicks for his paper "Longitudinal Study of Noise Induced Hearing Loss in Industrial Workers", presented at the Annual Meeting of the Australian and New Zealand Society for Epidemiological Research and Community Health (ANZSERCH).

General

Numerous requests for assistance with data collection, analysis, etc., were received from hospitals, doctors and other organizations.

OTHER ITEMS OF INTEREST

The Branch and its staff continue to participate in the development of policy and information systems at National, State and Departmental level.

The Health Statistician continues to serve as Deputy Chairman of the National Committee on Health and Vital Statistics. During her absence overseas, the Assistant Health Statistician has been attending these meetings and presented the NCHVS Report to the Hospital and Allied Services Council Meeting in Perth during March.

The Health Statistician continues to serve on the State Statistical Requirements and Co-ordination Committee, which this year addressed the problem of recommended content of the 1981 Census, and the 1979 State Supplementary Survey. The Committee decided to include health services usage data (source of care, time of day, week, etc.) as part of the last quarterly survey for 1979. This data should be available from the Australian Bureau of Statistics by March of next year, and will be useful in accessing sources of "out-of-hours" medical and health care, which none of our data systems currently provide.

Assistance was given to students training for the health professions. The Acting Assistant Health Statistician supervised a W.A.I.T. Student's Masters Thesis Preparation (Mrs. J. Barker : "Occupational Therapy Manpower in W.A.") and lectured on "Submissions With Impact" to the R.A.N.F. The Acting Health Statistician lectured in the Department of Nursing (WAIT) and supervised several 5th Year Medical Students' research projects. She also was a member of a panel on "Privacy and Medical Records", with Professor R. Joskie and Dr. David Watson, at Royal Perth Hospital.

As noted in last year's report, the Health Statistician had received an N.H. & M.R.C. Travelling Fellowship to study health planning in several U.S.A. centres. During the first half of 1979, she worked at the University of Pittsburgh Graduate School of Public Health, the University of Connecticut Medical School, the Health Systems Agency of Southwestern Pennsylvania and Blue Cross of Southwestern Pennsylvania. During this time, Mrs. C.E. Chapman was Acting Health Statistician and Mr. M. Hartfield, Acting Assistant Health Statistician. While overseas, the Health Statistician presented several papers on the history of the Australian Health Insurance System and health care in australia to university and hospital personnel, and at a special meeting at the request of the Minister for Health of the State of Pennsylvania. After her return to Western Australia, she was a principal speaker at the "Womens Mid-Decade Conference in W.A.".

My sincere gratitude goes to Mrs. Chapman, Mr. Hartfield and all officers of the Statistics Branch who accepted greater responsibilities during my eight months absence overseas; in order to keep the evaluation of, and change of systems on schedule.

Appendix XVI

DERBY LEPROSARIUM:- ADMISSIONS AND DISCHARGES FOR 1979

Month	ADMISSIONS							DISCHARGES									Inmates Remaining in Lepros.		TOTAL MALE & FEMALE
	MALE			FEMALE			TOTAL MALE & FEMALE	MALE				FEMALE				TOTAL MALE & FEMALE			
	Admitted	Re-admitted	Total	Admitted	Re-admitted	Total		Discharged	Deceased	Absconded	Total	Discharged	Deceased	Absconded	Total		Male	Female	
JAN.		1	1	1	1	2	3										13	18	31
FEB.		2	2		1	1	3										15	19	34
MARCH		1	1				1	3			3					3	13	19	32
APRIL	1	1	2				2	3			3	1			1	4	12	18	30
MAY					1	1	1	3			3	1			1	4	9	18	27
JUNE				1	1	2	2					2			2	2	9	18	27
JULY								1			1	1			1	2	8	17	25
AUG.				1		1	1										8	18	26
SEP.	3		3	1		1	4										11	19	30
OCT.	2		2		1	1	3	1			1	1			1	2	12	19	31
NOV.				2		2	2	2			2	7			7	9	10	14	24
DEC.												2			2	2	10	12	22
TOTAL	6	5	11	6	5	11	22	13			13	15			15	28			

Appendix XVII

INCIDENCE AND MORTALITY OF NOTIFIABLE DISEASES

Diseases Notifiable	1976		1977		1978		1979	
	Cases Notified	Deaths	Cases Notified	Deaths	Cases Notified	Deaths	Cases Notified	Deaths
Amoebiasis	4	1	5	-	4	-	5	N/A
Ancylostomiasis	20	-	17	-	4	-	1	N/A
Anthrax	-	-	-	-	-	-	-	N/A
Bacillary Dysentery	134	-	113	-	122	-	163	N/A
Bilharziasis	-	-	-	-	-	-	-	N/A
Brucellosis	-	-	1	-	-	-	1	N/A
Cholera	-	-	-	-	1c.o.s.	-	-	N/A
Diphtheria	-	-	-	-	-	-	-	N/A
Encephalitis Lethargic	-	1	-	1*	3	-	3	N/A
Filariasis	-	-	-	-	-	-	-	N/A
Homologous Serum Jaundice	12	-	9	-	42	2	30	N/A
Hydatid	-	-	1	1	-	-	-	N/A
Infective Hepatitis	272	6	211	2	260	1	127	N/A
Leprosy	20	-	17	-	15	1	12	N/A
Leptospirosis	1	-	-	-	1	-	1	N/A
Malaria	14c.o.s.	-	24c.o.s.	-	32c.o.s.	-	35c.o.s.	N/A
Meningococcal Infection	12	1	3	-	1	5	1	N/A
Ornithosis	-	1	1	-	1	-	1	N/A
Paratyphoid	1	-	1	-	2	-	-	N/A
Plague	-	-	-	-	-	-	-	N/A
Poliomyelitis	-	-	-	1	-	-	-	N/A
Puerperal Fever	2	-	-	-	3	-	1	N/A
Relapsing Fever	-	-	-	-	-	-	-	N/A
Salmonella Infection (A)	166	-	247	-	194	1	451	N/A
Scarlet Fever	4	-	11	-	21	-	6	N/A
Small Pox	-	-	-	-	-	-	-	N/A
Tetanus	-	-	1	-	-	-	-	N/A
Tuberculosis	110	4	155	10	165	15	179	N/A
Typhus Fever	-	-	-	-	-	-	1	N/A
Typhoid Fever	-	-	-	-	3	-	4	N/A
Yellow Fever	-	-	-	-	-	-	-	N/A

c.o.s. - Contracted out of State
*Dawsons Encephalitis

(A) Other Salmonella infection

Appendix XVIII

DEPARTMENT OF HEALTH AND MEDICAL SERVICES
HEALTH DIVISION

EXPENDITURE FOR YEAR ENDED 31 DECEMBER 1979

		$	$
1.	SALARIES		
	Including Administration and other Health Services		3 685 615
2.	ADMINISTRATION EXPENSES		466 412
3.	PAYROLL TAX		1 175 958
4.	GOVERNMENT PRINTER		24 947
5.	CHILD HEALTH SERVICES		
	Salaries	3 563 223	
	Generally	382 237	3 945 460
6.	DENTAL HEALTH SERVICES		
	Salaries	5 453 438	
	Generally	599 819	
	Training Centres	168 263	
	Therapy Centres	849 454	
	Dental Clinics	252 907	7 323 881
7.	EPIDEMIOLOGY		
	Salaries	198 654	
	Generally	99 544	298 198
8.	COMMUNITY HEALTH SERVICES		
	Salaries	3 861 227	
	Generally	2 008 116	5 869 343
9.	COMMUNITY HEALTH PROGRAMME		
	Salaries	2 170 387	
	Generally	3 232 686	5 403 073
10.	LABORATORIES		
	Salaries	5 588 393	
	Generally	3 923 295	9 511 688
11.	OTHER HEALTH SERVICES		
	Health Services Centre	25 951	
	Pharmaceutical Services	18 827	
	Statistics	81 811	
	Health Surveyors and Inspection	116 137	
	Pest Control	11 108	
	Occupational Health	70 910	
	Clean Air	155 999	
	Abatement of Noise	72 112	

11.	OTHER HEALTH SERVICES (Cont'd.)		
	Radioactive Substances	600	
	Physics Division	104 242	
	V.D. Control	19 355	
	Library	77 781	
	Poliomyelitis	1 928	
	Miners X-Rays	33 623	
	Health Services Planning and Research	99 884	
	Poisons Information Centre	32 680	
	Chiropody Services	41 671	
	Guthrie Testing P.M.H.	22 632	
	Food and Nutrition	2 029	
	Ord River Ecological Research	86 087	
	East Pilbara Shire Council Subsidy Appt. Health Surveyor	10 338	
	Technical Information Service	85	1 085 790
12.	T.B. CONTROL		
	Salaries	532 298	
	Generally	211 094	743 392
	GRAND TOTAL:		$39 533 757

DEPARTMENT OF HEALTH AND MEDICAL SERVICES
HEALTH DIVISION

REVENUE FOR YEAR ENDED 31 DECEMBER 1979

	$	$
LICENCES		
Anatomy	264	
Fumigation	394	
Maternity Homes	126	
Poisons Act	20 152	
Radioactive Substances Act	1 833	
Optical Dispensers	25	
Private Hospitals	4 102	
Clean Air Act	16 806	43 702
FEES		
Fish Inspection	6 591	
Meat Inspection	455 466	
Building Inspection	4 870	
Perth Medical Officers	1 076	
Pest Control Collections	4 105	
Pesticide Registration	15 869	
Septic Tank Plans	38 518	526 495
MISCELLANEOUS		
Other	26 008	
Staff Rents	4 979	
Recoup of V.D. Costs	275 329	
Recoup of T.B. Costs	597 751	
Busselton Health Centre	6 131	
Mandurah Health Centre	5 338	
Karratha Health Centre	17 032	
South Hedland Health Centre	20 662	
Geraldton Health Centre	30 883	
Kwinana Health Centre	405	
Lockridge Health Centre	2 228	
Claremont Health Centre	655	
X-Ray Examinations	13 566	
Amalgam Waste	9 928	
W.A. Meat Commission	21 055	1 031 950
COMMONWEALTH GRANT		14 758 408
LABORATORIES		
Fees and Services		2 543 912
DENTAL		
Fees		282 957
GRAND TOTAL:		$19 187 424

99806/2/81—500—O

WILLIAM C. BROWN, Government Printer, Western Australia