Report of the Commissioner of Public Health / Western Australia.

PUBLIC HEALTH DEPARTMENT WESTERN AUSTRALIA

ANNUAL REPORT FOR THE YEAR ENDED DECEMBER 31 1982

REPORT OF THE COMMISSIONER OF PUBLIC HEALTH FOR THE YEAR 1982

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Commissioner

Presented to both Houses of Parliament

30073—1

THE HONOURABLE B.J. HODGE

MINISTER FOR HEALTH

Sir,

I have the honour to submit the Report of the Department of Public Health for the year 1982.

The Report includes individual reports by Heads of Branches and by certain statutory committees. There are a number of points which I would like to draw to your particular attention.

(a) Legislation. Perhaps the most important legislation introduced was the Human Tissue Transplant Act. There were amendments to Regulations under the Health Act to permit the sale of reduced calorie and reduced alcohol beer and wines and Carcinogenic Substances Regulations were gazetted under the Poisons Act.

(b) The Community Health Programme Report refers to the excellent effect of small dispersed skilled staff in health services, especially in the care of the aged.

(c) The Community and Child Health Services Report refers to the creation of Public Health Regions in the Kimberley and Eastern Goldfields and the individual reports of these Regions make interesting reading. The Youth Health Services was also commenced. The statistical information included with the report indicates continued, steady improvement in various health indices with particular reference to Aboriginal health.

(d) 95% of all primary school children now receive preventive treatment and education and dentistry at School Dental Therapy Clinics. During the year reallocation of resources permitted an expansion of itinerant dental services to provide clinical and preventive dental services to a number of remote communities not previously serviced.

(e) Regionalisation imposed additional strain on the nursing service, but the clarification of roles and responsibilities has been of obvious benefit.

(f) The Education Services Branch was created during the year comprising Audiovisual Services, Library and Technical Information Services, Health Education and the Staff Development Unit. This has permitted a co-ordinated and integrated education and health education thrust.

(g) An Inspection Services Branch was also created during the year and this has brought those sections of the Department involved in health surveying, food and nutrition, solid waste and liquid disposal under the directorship of Dr. R.S.W. Lugg.

(h) The Occupational Health, Clean Air and Noise Abatement Branch Report provides information and statistical data on a wide variety of environmental problems. The incidence of silicosis in the mining industry is now very low and there has been no case of active pulmonary tuberculosis for almost ten years. The passing of the scourge of miner's phthisis due to the control of dust and tuberculosis has gone unnoticed.

(i) State Health Laboratory Services report almost one million specimens received and the maintenance of a low cost per specimen received reflect great credit on effective administration and management. It is worth noting the laboratories assumed responsibility for the former Commonwealth Laboratory at Kalgoorlie and now provides a service to every non-teaching public hospital in Western Australia.

(j) There was a slight drop in the notification rate for venereal disease but, again, an increase in number of consultations which is encouraging.

(k) Increasing industrial use of radioactive sources and industrial radiography and the mining and milling of radioactive substances is placing a considerable burden on the staff of the State X-Ray Laboratory.

(l) Dr. Marlene Lugg, Director of the Statistics Branch resigned towards the end of the year to take up a position as Associate Professor at the University of California, Los Angeles. I pay a tribute here to Dr. Lugg. She joined the Department 19 years ago and very rapidly developed a data base and information system which was and is a pacesetter for the rest of Australia.

(m) Included in the Report are Reports from the Congenital Malformation Register, the Maternal Mortality Committee, the Perinatal and Infant Mortality Committee and the Anaesthetic Mortality Committee.

JAMES COLUMBA McNULTY,
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COMMISSIONER OF PUBLIC HEALTH

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Supplementary Reports—

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Appendix I

LEGISLATION

Legislation undertaken during the year was:

ANIMAL RESOURCES ACT

This Act was proclaimed on 2 July 1982. This is an Act to establish and incorporate an Authority to supply laboratory animals for teaching, research and diagnostic purposes and for incidental and other minor purposes.

CANCER COUNCIL OF WESTERN AUSTRALIA ACT

A special Act was made to repeal the Cancer Council of Western Australia Act and transfer all assets and liabilities of the Council to a newly incorporated body called the Cancer Foundation of Western Australia (Inc.).

This repealing Act was proclaimed on 21 December 1982 and came into operation on 3 January 1983.

HEALTH ACT

The Health Amendment Act 1982 was proclaimed on 30 July 1982. The amendments made were:

1. the specific full time appointment of a Deputy to the Commissioner. The previous provision required a separate appointment for each period of relief

2. minor metric conversions of distances specified

3. take-away food premises to be included in the provisions for eating houses

4. the Pesticides Advisory Committee to co-opt trade representatives as required for particular matters with power to vote on those matters

5. imposing a fee with an application to register a pesticide

6. revoking the power to dismiss a charge where the defendant could prove that he did not know the composition of a pesticide that he had used

7. permitting school medical officers to medically examine children in child care centres and also to permit authorised nurses to medically examine children in schools and child care centres

8. negating the inference that school dental therapists can only be

females

9. amending the name of an Australian medical college empowered to nominate members to committees

10. correcting a minor drafting error in a previous amendment.

HUMAN TISSUE AND TRANSPLANT ACT

This Act was enacted to make provision for and in relation to the removal of human tissues for transplantation and post mortem examination purposes. This Act also makes provision to repeal the Tissue Grafting and Processing Act, the Sale of Human Blood Act and Section 338A of the Health Act. Provision is made for it to come into operation on 1 March 1983.

MEDICAL ACT

A proclamation was made under Section 12 of the Act on 15 January 1982 proclaiming the Shire of Dumbleyung to be a region for regional registration of medical practitioners.

REGULATIONS

Amendments and additions made during the year were:

HEALTH ACT

FOOD AND DRUG REGULATIONS

Amendments made were:

On 2 April 1982

1. Regulation A.01 was amended to provide for the date marking of bread.

2. Regulation A.06 - a new sub-regulation A.06.017 to determine the maximum amount of aflatoxins in food other than nuts or nut products (except peanut oil).

3. Regulation G.02 in .008 providing the maximum limit of aflatoxins in Arachis oil.

4. Regulation 0.06 was retitled "Nuts and Nut Products" and provided the maximum limit for aflatoxins.

On 21 May 1982

1. Regulation Y.01.001 provided a new scale of fees to be charged for the analysis of food or drugs detailed in a schedule.

On 30 July 1982

1. Regulation J.02.008 now permits sliced processed cheese to contain sorbic acid to a stated limit.

2. Two new regulations under J.02.011 provide the definition and standards for content and labelling of reduced fat processed cheese and reduced fat cheese spread.

3. Amending the additives to wine in Q.01.002.

4. Providing definitions and amending the standards for alcohol in wines in Regulation Q.01.006 to allow for reduced alcohol wine.

5. Allowing for the marketing of reduced alcohol wine in a new sub-regulation Q.01.004 and for labelling amendments in Q.01.013.

6. Delete existing definition of cider and perry in Q.03 and replace with new definitions and new standards for content, additives and labelling.

7. Make provision in Regulation Q.04 for reduced calorie beer and reduced alcohol beer including alcoholic content and labelling requirements and prohibitions.

On 10 December 1982

1. Additional regulations exclude wine, cider, perry and beer bottled or packaged before 1 January 1983 from the related amendments, regarding content and labelling of these liquids, gazetted on 30 July 1982.

On 31 December 1982

1. Regulations A.06 and A.07 were extensively amended to specify the amount of chemical or pesticide permitted in food or food substances based on latest recommendations of the NHMRC.

FOOD HYGIENE REGULATIONS

Regulation 50 was amended in respect to exempting from the regulations the transport of meat not intended for human consumption under certain transporting and cleansing conditions. (Gazetted 23 April 1982).

HEALTH LABORATORY SERVICES (FEES) REGULATIONS

This amendment gazetted on 12 November 1982, provides for an increase in the fees charged for any pathological service provided by the State Health Laboratory Services.

HEALTH (LAUNDRIES AND BATHROOMS) REGULATIONS

The First Schedule was amended to incorporate Manjimup, the Second Schedule was also amended to include the Shire of Mandurah, the townsites of Manjimup, Northcliffe, Pemberton, Walpole and the Pemberton Millsite Lease No. 662/42. (Gazetted 4 June 1982).

HEALTH (MEAT INSPECTION AND BRANDING) REGULATIONS

1. Schedule C to the regulations was amended on 4 June 1982 by deleting the Shire of Goomalling from item (ii) and including it in item (iii).

2. Amendments gazetted on 23 July 1982 provide for seven new scales "A" to "G", of fees payable to Local Authorities for meat inspection and showing the scale applicable to each Local Authority. A minor correction was made to a rate on 27 August 1982.

3. Amendments gazetted 19 November 1982 amend Regulation 5 and Schedule A and B to include a brand and provision for the Shire of Three Springs and Schedule C was amended to include Shire of Three Springs and relocate Shire of Toodyay and the Town of Narrogin.

4. Schedule C to these regulations was amended on 31 December 1982 to relocate the Shires of Wongan-Ballidu, Carnamah and Goomalling to more appropriate scales of meat inspection fees.

HEALTH ACT (MIDWIFERY NURSES) REGULATIONS

These regulations repealed the previous Midwives Regulations 1976 and were gazetted on 24 December 1982.

The new regulations modernise the previous regulations relating to administration procedures, ante-natal care of patients, duties before confinement, anaesthetics, drugs, care during confinement, new notification forms in Schedule 1 and Factors of Risk in Schedule 2.

PESTICIDE REGULATIONS

1. Increases in fees payable for licensing of pesticide operators, firms and registration of pesticides was gazetted on 22 January, 1982.

2. An addition to Schedule B, gazetted on 29 January 1982 set the maximum permitted dioxin content of 2,4,5-T Acid, its salts etc. at 0.1mg per kg.

3. Amendments gazetted 16 July 1982 specified the limits of the use of pesticides as a cereal seed dressing, the use and handling of sodium fluoroacetate, the display of a commercial pesticide firm's name, registration number and date registered on the firm's vehicles. Schedule B to the regulations was also amended by deleting fluoracetic acid and including Trifluralin.

4. The addition to Schedule B for 2,4,5-T Acid was amended on 24 December 1982 to lower the maximum permitted dioxin content to 0.01 mg per kg.

HEALTH ACT (SWIMMING POOLS) REGULATIONS

This amendment was published on 22 October 1982 and authorises the regulations to have effect in every district within the State.

TOXIC AND HAZARDOUS SUBSTANCES REGULATIONS

These regulations were reprinted on 16 September 1982, to amalgamate all amendments. They stipulate the conditions, restrictions and limitations on the sale, supply, use and possession of toxic substances and items containing these substances.

HEALTH (VENEREAL DISEASES) REGULATIONS

The following regulations were added on 4 June 1982:

1. Regulation 2B prescribing the non-infectious stages of syphilis as conditions of health to which Part 1XA of the Act applies.

2. Regulation 2C requires that all medical practitioners will notify cases of venereal disease to the Commissioner who shall then pay $1 to the notifying medical practitioner.

3. The appendix being the notification advice form, was deleted and replaced.

HEALTH ACT NOTICE

An order was made on 8 October 1982 in which it was deemed necessary for the regulating and controlling of liquid waste disposal, what matters shall be observed and by whom and how, together with penalties, to be a purpose by which By-laws may be made under Section 134 (53) of the Act.

OTHER ACTS

CHIROPRACTORS REGISTRATION BOARD REGULATIONS

Appendix A to the Rules was amended on 1 July 1982 to increase the fees payable for initial registration and renewal of registration for chiropractors from $200 to $300.

CLEAN AIR (CONTROL OF DUST IN CONCRETE PLANTS) REGULATIONS

These regulations were published on 8 October 1982 and regulate more fully the control of dust in concrete batching plants and cement product manufacturing works. They repeal the previous (Control of Cement Dust) Regulations.

CLEAN AIR (SCHEDULED PREMISES) ORDER

This order was made on 8 October 1982 and replaces "concrete works" with "concrete batching plants" being a retitle of the industry.

CLEAN AIR (CONTROL OF FIBREGLASS FUMES AND DUST) REGULATIONS

New regulations were gazetted on 24 December 1982 and apply to premises within the classification "Fibreglass Works". The regulations specify the duties of the occupier of such works and provide for a penalty.

CLEAN AIR ORDER 1982

This order made on 26 March 1982 prohibits dry abrasive blasting (except in a grit chamber) in two prescribed areas - one in the Town of Kwinana and the Shire of Rockingham and the other in the City of Cockburn.

DENTAL BOARD RULES

1. Amendments to these rules, gazetted on 19 November 1982 regulate the advertising of services by dental practitioners and the conditions for erecting signs, plates or notices by dentists. The amended regulation on erecting signs etc. comes into operation six months after gazettal.

2. On 3 December 1982, Rule 35 was amended to impose an increased monthly penalty and maximum penalty for restoration of a name to the register and Schedule C was amended to impose an increase in registration and licence fees.

MEDICAL BOARD RULES

An amendment to Rule 9A was gazetted on 10 December 1982 and came into effect on 1 January 1983. This amendment increases the annual registration fees to $25.

NOISE ABATEMENT (APPOINTMENT OF INSPECTORS) REGULATIONS

1. The schedule to the regulations was amended on 22 January 1982. This schedule contains the certificate of appointment of Local Noise Inspectors and State Noise Inspectors.

2. On 4 June 1982 Regulation 5 was amended to allow inspectors to be appointed to more than one district.

NOISE ABATEMENT (NEIGHBOURHOOD ANNOYANCE) REGULATIONS

Parts of Regulations 2, 13, 15, 16 and Table 1 of The Schedule were deleted and replaced to more scientifically prescribe how the measurement of noise will be carried out. Gazetted 16 July 1982.

NOISE ABATEMENT (NOISE ABATEMENT DIRECTIONS) REGULATIONS

Schedule 1 to the regulations was amended on 30 July 1982 to amend the specification of persons and noises for the purposes of Section 33E of the Act and relate to the types of noise deemed to be offensive noise in residential and other premises and expressly to noise from music and from motor vehicles or vessels.

NOISE ABATEMENT ORDER

An order made 27 August 1982 exempts for 11 months the operations of sheet piling, trench sheeting and bearing piles from the provisions of the Act but subject to the conditions specified in the Order.

NOISE ABATEMENT EXEMPTION ORDERS

Three Orders were gazetted on 24 December 1982 to exempt the following from the provisions of the Act and its Regulations during the time specified in each Order:

1. Festival of Perth 1983, its concerts, dances, rehearsals and discharge of artillery pieces.

2. 1983 Hyde Park Festival.

3. 1983 St. John the Baptist Festival.

NURSES REGULATIONS

On 3 December 1982 Regulation 48 was amended to allow for an increase in registration fees etc. payable to the Board. Forms in Appendix 1 were also amended to delete a stated fee.

POISON REGULATIONS

Amendments published on 16 July 1982 add further poisons and hazardous substances to Appendix C and delete and replace various warning statements on labels in Appendix D.

A further amendment was gazetted on 24 December 1982 to limit the use of silver sulphadiazine to the treatment of burns, where full thickness skin loss has occurred and to limit the supply to specified persons.

POISONS SCHEDULE SUBSTANCES ORDER

The Schedules to the Poisons Act were amended on 16 July 1982. Various amendments were made to the Second, Fourth, Fifth and Sixth Schedules.

Another Order was published on 13 August 1982 and made amendments to the Fourth Schedule to the Poisons Act to include prostaglandins (for veterinary use) and silver sulphadiazine and to the Seventh Schedule to include various carcinogenic substances and to delete silver sulphadiazine.

POISONS ACT NOTICE

The notice issued under Section 24 on 7 March 1980 was cancelled and replaced with a notice imposing conditions, restrictions and limitations on the sale, supply, use and possession of poisons specified in the Seventh Schedule of Appendix "A" to the Act.

POISONS ACT CARCINOGENIC SUBSTANCES REGULATORY NOTICE

A notice imposing conditions, restrictions and limitations on the sale, supply, use and possession of carcinogenic substances as scheduled was made on 30 August 1982 to come into operation on 1 January 1983.

RADIATION (TRANSPORT OF RADIOACTIVE SUBSTANCES) REGULATIONS

New regulations were gazetted on 24 December 1982 and specify the use of the Code of Practice for the Safe Transport of Radioactive Substances, duties of courier, duty of consignor, interference with contents of consignments and repeal of various regulations under the Radioactive Substances Regulation 1958. Schedule (1) and (ii) of the regulations gives the paragraphs of the International Regulations that must be complied with by carriers and consignors respectively.

Appendix II

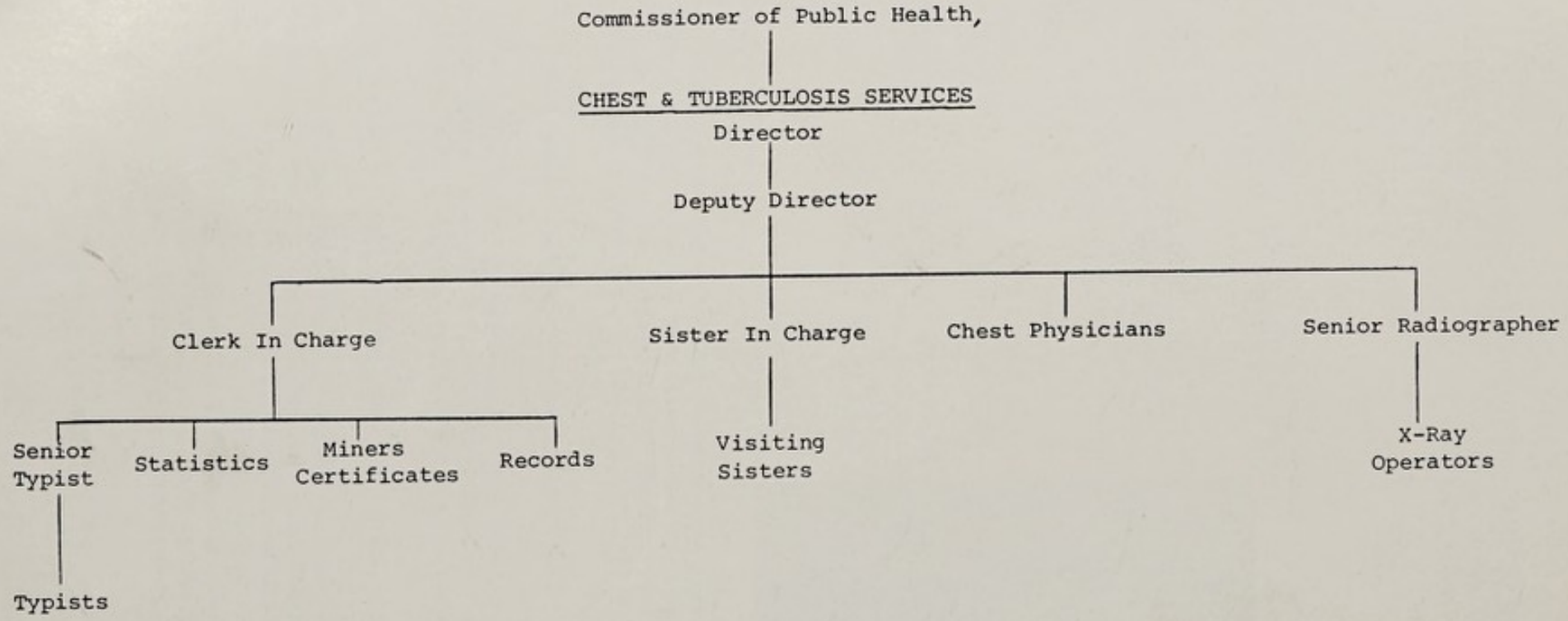
CHEST AND TUBERCULOSIS SERVICES

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

SENIOR STAFF

Director : Dr. J.T. Cassidy
Deputy Director : Dr. H.S. Chan
Sister in Charge : Sr. A.B. Elliot
Senior Radiographer : Mr. R. Ward
Clerk in Charge : Mr. R. Fryer

CHEST AND TUBERCULOSIS SERVICES - ORGANIZATION CHART



CHEST AND TUBERCULOSIS SERVICES

The attendances at the main Chest Clinics showed some reduction over the 1981 figures but this was only marginal.

The figures are as follows:	1981	1982
Attendances at - Perth Chest Clinic	11,735	10,110
Fremantle Chest Clinic	1,966	1,941
Kalgoorlie Chest Clinic	63	31
Domiciliary Assessment	44	59
	13,808	12,141
Country Chest X-ray Film Readings		
- Chest Clinic Requests	736	669
Other	11,177	10,083
	11,913	10,752
Sisters Home Visits		
- Supervision of anti-TB Drug Therapy	2,758	1,858
Other Visits to Patients on TB Register	852	744
Non TB Chest Patients	1,195	1,100
	4,805	3,702

TUBERCULOSIS

NOTIFICATIONS

The incidence rate for 1982 for new cases (per 100,000) of the population was 9.2 as compared with an incidence rate of 10.9 in 1981. This figure has varied very little in the past few years but what trend there is, is in the downward direction.

The notifications during the year numbered 136 and of these 123 were new cases.

There were five transfers in and eight reactivations.

The sex ratio for pulmonary disease was unchanged and showed the usual male preponderance of about a 3:2 ratio.

Of the total notifications of 136, 85 were born outside Australia. Of these 85, 36 were Vietnamese refugees which includes two transfers in.

At the end of the year there were 111 cases of active pulmonary tuberculosis on the Register. The change in the extent of disease since 1973 when compulsory x-rays were phased out is shown below and again no significant fluctuation is noted.

Year	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
1980	1.5	57.4	32.3	8.8
1981	2.4	61.6	30.4	5.6
1982	5.6	67.8	24.4	2.2
Average 1973-1982	2.8	48.3	38.2	10.7

NON-PULMONARY TUBERCULOSIS

Non pulmonary notifications for the year were 35 which included 13 atypicals. Of these 35, 17 involved glands mostly notified from Princess Margaret Hospital.

BACTERIOLOGY

42 of the 90 new pulmonary cases were bacteriologically positive. Of these 30 were positive for M. TB.

No case of Bovine tuberculosis was notified during the year.

Drug resistant organisms were recovered from three migrants, one was resistant both to rifampicin and streptomycin.

REACTIVATIONS

There were 8 reactivations reported during the year. As last year none of these reactivations had what we would now consider to be adequate treatment. All these reactivations occurred in patients born outside Australia. There was one Vietnamese who had previously three months' drug treatment. One was a Cambodian who had previously four month's treatment. One patient from Yugoslavia had three months' drug treatment. One was an Italian who had previously had pleurisy but no chemotherapy. One patient from Greece was supposed to have been treated previously for M. TB but on bacteriology this time was found to be suffering from atypical tuberculosis. One Greek patient had a pericarditis which had been treated previously as a TB pericarditis with seven months' chemotherapy. The pericarditis returned but at no time was there bacteriological proof that this was tuberculous in nature. One patient from U.K. who had previously had extensive tuberculosis reactivated, but he had not previously received any chemotherapy. One other patient from U.K. was previously treated in 1972 but again I would not consider that he had an adequate regime.

In the past few years therefore no case we have treated with our usual regimen has reactivated. This is very encouraging and means as I have stated before that the long term and indefinite follow-up of adequately treated cases of tuberculosis is no longer necessary.

ATYPICAL TUBERCULOSIS

25 of the notifications were for atypical tuberculosis. 12 of these were pulmonary infections and all were caused by M. intracellulare. The two deaths during 1982 attributable to tuberculosis, both occurred in patients with atypical organisms in both cases M. intracellulare. One of these occurred in an immuno-suppressed patient who was being treated for leukaemia. He had massive dissemination of the organisms involving bones, glands, liver, etc.

MIGRANTS AND REFUGEES

1,006 Vietnamese migrants arrived during 1982 compared to 1,199 for the previous year. 36 of these refugees were notified. This notification figure is somewhat reduced on the previous year when it was 55. Most of these notified cases were in fact on treatment when they entered Australia.

743 East European migrants arrived in Western Australia in 1982.

TREATMENT

78 cases were admitted to the Tuberculosis Ward of the Sir Charles Gairdner Hospital compared to 93 admissions in the previous year. Again the length of stay in hospital in 1982 averaged out at 29 days again a significant reduction of the figure of 46 days for the previous year. The stay in hospital for most patients was very much less than 29 days and this average as in previous years is accounted for by the necessity to keep some patients, mostly alcoholics, for a considerable period in hospital. Our

standard treatment regimen is unchanged, that is, pyrazinamide, rifampicin and isoniazid for two months, followed by rifampicin and isoniazid for a further seven months. As previously stated this is one hundred percent effective and has a nil breakdown rate.

As stated earlier we cease follow-up after two years.

PREVENTION

Epidemiological tuberculin testing was carried out on 10 to 14 year olds and 15 to 19 year olds. The percentage of positive reactors was 2.15 and 6.99 respectively. The figure of 6.99 for the 15 to 19 year olds is a considerable increase on the previous figure of 1.93. This figure does seem to fluctuate over the years, in 1980 it was 6.2, in 1981 1.93 and in 1982 6.99. The precise reason for the fluctuation is not apparent and may be due to sensitization by atypical organisms. Our B.C.G. campaign is continuing and during the year 20,416 children were vaccinated, nearly all by direct vaccination. There were no significant complications. Despite the fact that some other Australian states have abandoned their B.C.G. vaccination programme, I feel it is a very worthwhile project, particularly for young people who may be going overseas to areas in the world where the incidence of tuberculosis is very much higher than it is in Australia. The risk to the non vaccinated of getting a virulent M. TB infection is still there and this was exemplified recently in the death of a young man from both miliary tuberculosis and TB meningitis. He had not been vaccinated.

Mass miniature radiography has been largely abandoned as it could in no way be deemed to be a cost effective measure. The yield of any significant abnormality was only of the order of 0.02%.

Contact examination as always has been found to be effective and with one case it yielded two other active cases.

Commonwealth Regulations do not require people under the age of 16 to have a chest x-ray examination. As a result of this one girl at a metropolitan boarding school who had come from overseas was found to have active tuberculosis and a positive sputum. In my view children coming from overseas should all be Mantoux tested and if found to be positive should have an x-ray examination.

MINES MEDICAL SECTION AND OCCUPATIONAL HEALTH

The number of x-ray examinations carried out in respect of the mining industry were very much less than in the previous year. 3,534 compared with 8,791.

	New Applicants	Re-examinations	Total
Perth Chest Clinic	1,581	765	2,346
Kalgoorlie Chest Clinic	648	540	1,188
Mobile Unit	-	-	
	2,229	1,305	3,534

The Pneumoconiosis Medical Board held 21 sessions at the Perth Chest Clinic and four at Kalgoorlie Chest Clinic examining in all a total of 124 persons.

RESPIRATORY DISEASES PROGRAMME

The visiting Asthma Nurse and one of our sisters in the respiratory diseases section carried out the following number of visits:

Visits - initial	150
- follow-up	784
Group discussions & lectures	26
Camps	1
Country trips	3
Hospital Team Meetings	121

Referrals to the Asthma Nurse came from the following sources:

Asthma Foundation	43
General Practitioners	8
Special Physicians	92
Community & Child Health Sisters	2
Self-referral	5

In this programme we also have the services of a physiotherapist who attends for two sessions per week.

In 1982, 138 patients received treatment totalling in all 1,563 units of treatment.

We continue to run Stop Smoking Clinics and though the long term yield in these cases is only of the order to ten percent we feel that it is worthwhile to continue with the programme.

The position as regards tuberculosis in Western Australia is satisfactory and with our present level of activity it should remain so. Tuberculosis control programmes in some of the other states have been fragmented and this must be viewed with some alarm. Our present excellent position as regards tuberculosis having one of the lowest rates per hundred thousand of the population in the world has been achieved by very vigorous and active controlled measures and overall at a very modest cost. To lessen our vigilence now particularly in a country that has an active Immigration Programme, mostly from countries where the incidence of TB is very much higher than in Australia would be to invite a significant worsening of our figures.

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

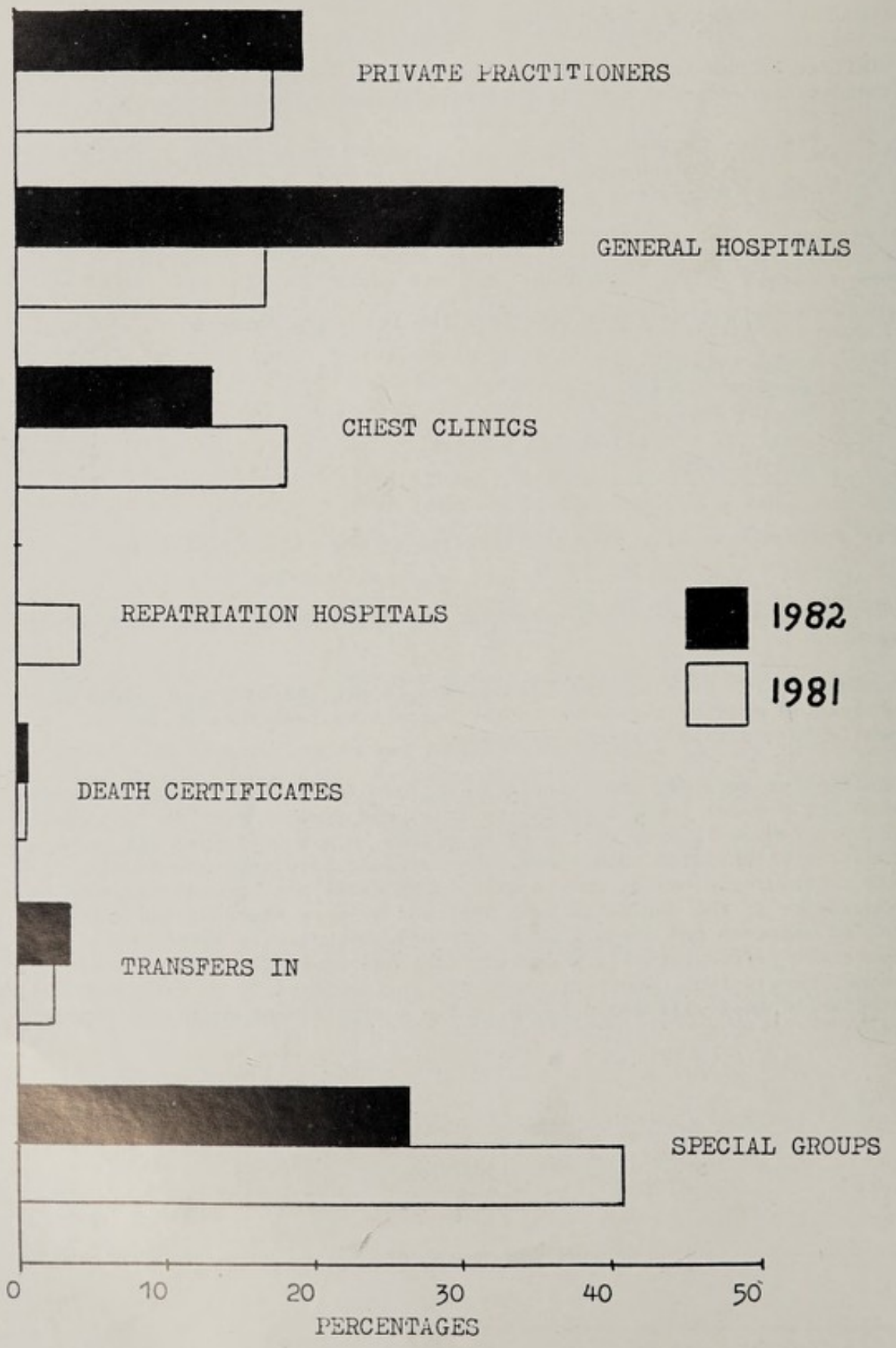


TABLE 1

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 TB 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
1980	1,265	136	31	167	10.7	483	38	16	5	-	5	0.4	0.4
1981	1,299	138	22	160	10.6	427	33	13	6	-	6	0.5	0.5
1982	1,342	101	35	136	7.5	366	27	4	2	-	2	0.15	0.15

TABLE 2

CASES OF TUBERCULOSIS NOTIFIED AND NUMBER BACTERIOLOGICALLY PROVEN 1968 - 1982

(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
1980	113	49	19	7	132	56
1981	105	40	11	8	116	48
1982	79	30	20	7	99	37

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
1980	1,265	136	10.7	5	0.4
1981	1,299	138	10.6	6	0.5
1982	1,342	101	7.5	2	0.15

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	122	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	163	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
1962	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
1980	78	57.4	44	32.3	12	8.8	2	1.5	136
1981	82	59.4	45	32.6	8	5.8	3	2.2	138
1982	64	63.4	26	25.8	6	5.9	5	4.9	101

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

Table 5.

ANALYSIS OF REGISTER AS AT 31ST DECEMBER 1982

A. Pulmonary Tuberculosis
(excluding Pleural Effusions)

Activity	Number on Register According to Original Extend of Lesions			Total
	Minimal	Moderate	Advanced	
Active	70	35	6	111
Inactive:				
0 - 1 years	40	29	4	73
1 - 2 years	78	27	7	112
2 - 3 years	16	20	-	36
3 - 4 years	8	5	1	14
4 - 5 years	4	5	-	9
5 + years	2	-	2	4
TOTAL	218	121	20	359

B. Pleural Effusion 7

C. Non-Pulmonary Tuberculosis 66

Total All Forms 432

TABLE 6

TUBERCULOSIS NOTIFICATIONS FOR YEAR ENDED 31ST DECEMBER 1982

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				3					8					11		11
5-9							1		1			1		1		2
10-14				1					1					2		2
15-19	1	1				1	1				2	2				4
20-24	5		1	1		7					12		1	1		14
25-29	7				1	5	1		2		12	1		2	1	16
30-34	6	1		1		3			2		9	1		3		13
35-39	2	1				1	1				3	2				5
40-44	3	2	1	1		1				1	4	2	1	1	1	9
45-49	1	1	1				1	1	1	1	1	2	2	1	1	7
50-54	2	2		1		1			1		3	2		2		7
55-59	2	1		1		2	2		1		4	3		2		9
60-64	1	2		1		2	2		2		3	4		3		10
65-69	2			1					1		2			2		4
70-74		1			1	1			1		1	1		1	1	4
75 and over	5	3	2	1	1	3	2		2		8	5	2	3	1	19
TOTAL	37	15	5	12	3	27	11	1	23	2	64	26	6	35	5	136

TABLE 7

SITE AND TYPE OF DISEASE (excludes transfers-in)

Pulmonary				Extrapulmonary			
Diagnosis	No.	% of		Diagnosis	No.	% of	
		Pulmonary Cases	All Cases			Extra-Pulmonary Cases	All Cases
Primary				Genito-urinary	4	11.8	3.1
Pleural effusion	5	5.2	3.8	Lymph glands	17	50.0	13.0
Post-Primary				Bone & Joint	3	8.8	2.3
1. Minimal	63	64.9	48.1	Meninges	1	2.9	.7
2. Mod. Adv.	25	25.8	19.1	Skin	4	11.8	3.1
3. Advanced	4	4.1	3.0	Throat	1	2.9	.7
				Internal Organs	4	11.8	3.1
TOTAL	97	100	74	TOTAL	34	100	26

TABLE 8.

BACTERIOLOGICALLY PROVEN TUBERCULOSIS CASES NOTIFIED 1972 - 1982

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

PULMONARY	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	TOTAL
Primary	1		1	2			1	1				6
Pleural Effusion	1	3	4	1	1		1	1		1	4	17
POST PRIMARY												
Min.	28	20	15	18	17	20	21	17	18	17	16	207
Mod.	36	30	34	30	19	25	29	30	22	25	12	292
Adv.	11	13	11	12	11	7	10	16	10	2	1	104
	77	66	65	63	48	52	62	65	50	45	33	626
EXTRA PULMONARY												
Genito-Urinary	7	10	13	10	7	6	2	6	5	3	1	70
Lymph Glands		2	1	3	2	2	3	1	1	4	3	22
Bone & Joint	1	3	2	3		2	3*	3	1	3	1	22
Menginges					2							2
Generalised							1					1
Abdominal								2			1	3
Chest Wall	1											1
Empyema			1	1								2
Mastoiditis			1									1
Ear							1	1	1	1		4
Throat											1	1
	9	15	18	17	11	10	10	13	8	11	7	129
TOTAL	86	81	83	80	59	62	72	78	58	56	40	755

TABLE 9.

REACTIVATIONS

Previous Treatment	Number of Reactivations										
	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
(1) No chemotherapy	4	3	3	4	3	1	2	1	3	6	2
(2) Inadequate Chemotherapy											
Without Surgery	3	4	3	7	1	5	4		3	8	6
With Surgery			1	1			1	1	2		
(3) Apparently Adequate Chemotherapy	1		1	1		2	3*	6			
TOTAL	8	7	8	13	4	8	10*	8	8	14	8

* Includes 1 with atypical tuberculosis due to M. Kansasii

TABLE 10.

REACTIVATION RATES

Year	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
No. of reactivations	7	8	13	4	8	10	8	8	14	8
As % of total cases	4.8	5.7	9.4	3.7	5.2	6.1	4.5	4.8	8.8	5.9
Per 100,000 population	0.7	0.7	1.2	0.4	0.7	0.8	0.7	0.6	1.1	0.6

TABLE 11.

WESTERN AUSTRALIA: TUBERCULOSIS INCIDENCE BY COUNTRY OF BIRTH 1973 - 1982: MALES

Country of Birth	Pop. at June 30 1981 Thousands (Census)	Incidence per Thousand Persons										Total Notifications 1973-82
		1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	
U.K. & Rep. of Ireland	94.8	0.21	0.29	0.12	0.13	0.26	0.19	0.06	0.13	.09	.07	132
Germany	3.9	0.56	-	0.28	-	0.56	-	0.27	-	-	-	6
Greece	2.3	0.74	0.74	-	-	0.74	-	0.42	-	-	1.3	10
Italy	16.2	0.29	0.41	0.12	-	0.35	0.12	0.12	0.18	.12	.06	30
Netherlands	6.1	-	0.16	0.16	-	0.16	-	0.17	0.17	-	.16	6
Poland	2.8	0.36	-	0.36	-	-	0.40	-	-	.40	.36	5
Yugoslavia	6.2	0.16	1.29	0.81	-	0.32	0.33	0.83	0.33	.33	.16	28
Other European	8.7	0.93	0.23	0.23	0.12	0.23	0.75	0.25	0.25	.12	.23	28
Other Birthplaces	39.6	0.50	0.55	0.92	0.76	0.59	1.21	1.45	1.45	1.60	.86	280
Total Non-Aust. born	180.6	0.31	0.37	0.29	0.20	0.33	0.38	0.36	0.38	.38	.28	525
Australian born	462.5	0.12	0.10	0.13	0.09	0.15	0.10	0.15	0.10	.09	.05	429

TABLE 12.

WESTERN AUSTRALIA: TUBERCULOSIS INCIDENCE BY COUNTRY OF BIRTH 1973 - 1982: FEMALES

Country of Birth	Pop. at June 30 1981 Thousands (Census)	Incidence per Thousand Persons										Total Notifications 1973-82
		1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	
U.K. & Rep. of Ireland	91.3	0.09	0.12	0.12	0.17	0.07	0.06	0.08	0.07	.05	.09	73
Germany	4.2	-	-	0.86	-	-	-	-	0.27	-	-	4
Greece	2.0	0.87	0.43	0.87	0.43	-	0.48	0.48	0.95	.47	-	11
Italy	13.1	0.15	-	-	0.07	0.07	-	0.08	-	-	.08	11
Netherlands	5.2	-	0.20	-	0.20	-	0.20	-	0.20	-	-	4
Poland	2.2	1.00	0.50	-	0.50	1.00	-	-	0.53	.53	.91	10
Yugoslavia	4.8	0.51	0.26	0.51	0.51	0.51	0.45	-	0.68	.23	-	15
Other European	7.1	0.34	-	0.71	0.34	0.34	0.31	-	0.16	.16	.42	14
Other Birthplaces	37.9	0.36	0.41	0.47	0.41	0.62	0.96	0.81	0.81	1.23	.55	164
Total Non-Aust. born	167.8	0.18	0.16	0.20	0.22	0.18	0.24	0.20	0.24	.27	.21	306
Australian born	462.7	0.08	0.07	0.06	0.04	0.07	0.06	0.07	0.06	.05	.06	241

TABLE 13.

PATIENTS FROM WHOM MYCOBACTERIA WERE ISOLATED (FOR THE FIRST TIME) IN 1982 (OTHER THAN M. TB)

Type	Isolations not clinically significant	Atypical Tuberculosis			Total
		Pulm.	Non-Pulm.	Total	
M. Kansasii	2				2
M. Scrofulaceum	1	1		2	2
M. Gordonea			1	1	1
M. Flavescens					
M. Avian					
M. Intracellulare	104	11	10	21	125
M. Terrae	1				1
M. Fortuitum	1				1
Mixed					
M. Chelonei					
M. Marinum			2	2	2
M. Triviale					
M. Haemophilum					
Total Patients	109	12	13	25	134

TABLE 14

MYCOBACTERIAL DISEASE OF LYMPH NODES IN CHILDREN

Year	M. scrofulaceum Identified	M. intracellulare Identified	M. gordonae Identified	M. TB (Human) Identified	Cultures Negative	Total Cases
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
1980	-	6	-	-	6	12
1981	-	5	-	-	2	7
1982	-	7	1	1	5	14
TOTAL NUMBER OF CHILDREN 1961 - 1982	30	104	1	3	109	247

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
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	-	-
1980	2	2	1	-	-	1	11	6	1	18	-	-
1981	3	1	-	-	-	-	18	6	-	24	-	-
1982	-	2	1	-	-	1	11	8	3	22	-	-
TOTAL 1955-82	23	10	33	32	1	66	262	111	8	382	3	1

Plus: Two patients with mixed pulmonary disease (1963 and 1970)

Two patients with mixed pulmonary disease and one haemophilum (1980)

Appendix III

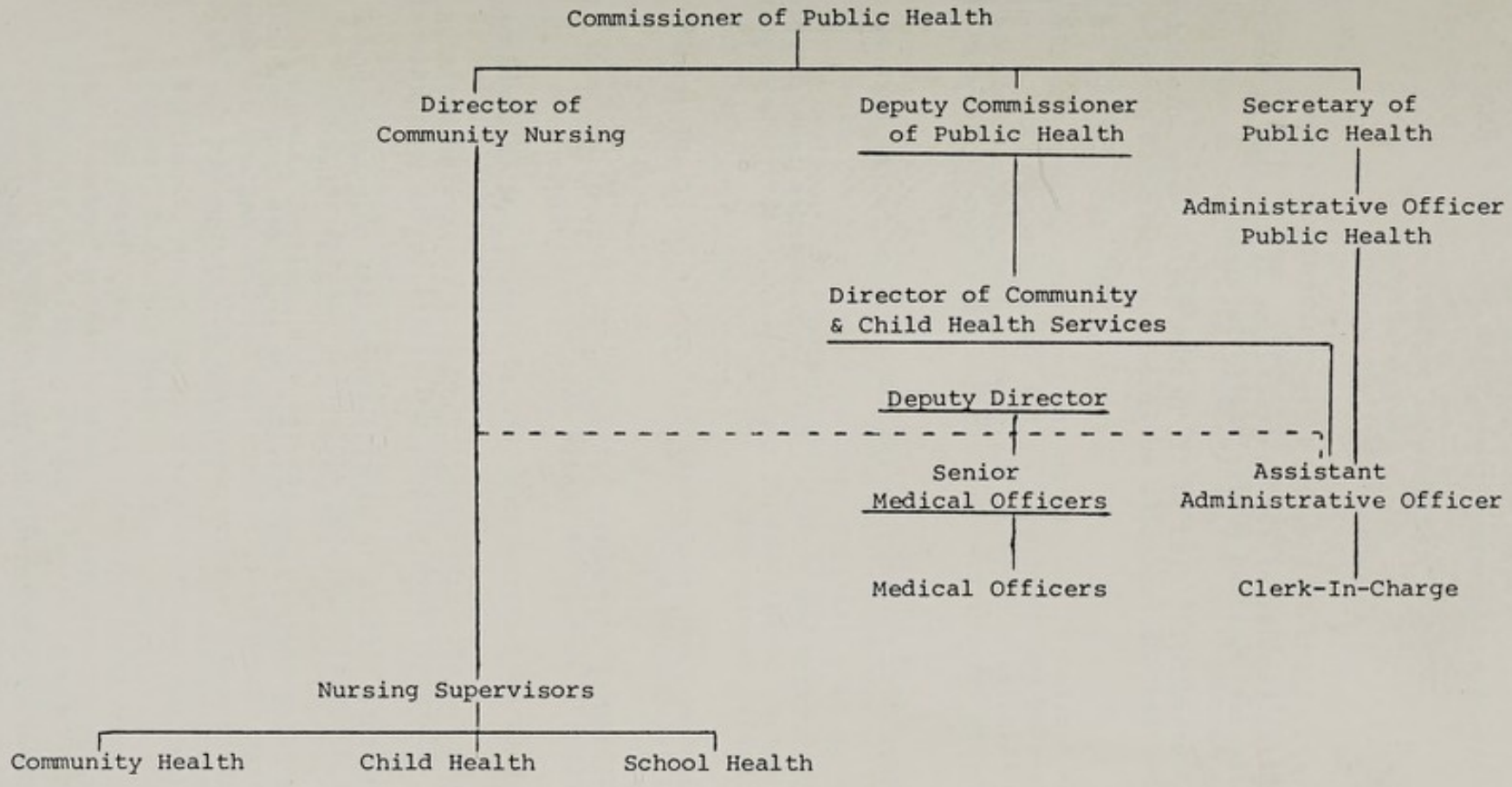
COMMUNITY AND CHILD HEALTH SERVICES

C.F. Quadros,
M.B., B.Ch., B.A.O., D.P.H.
Director

SENIOR STAFF

Director: Dr. C.F. Quadros
Deputy Director: Dr. J.M. Henzell
Senior Medical Officer, Child Health:
Dr. T.R. Henderson/Dr. B. Robson
Senior Medical Officer, Community
Health: Dr. D.G. Hicks
Senior Medical Officer, School
Health: Dr. M.J. Gibson
Paediatrician, Child Development
Centre: Dr. T.S. Parry
Nursing Supervisor, Child Health:
Sr. N. Chidlow
Nursing Supervisor, Community Health:
Sr. E.D. Panter
Nursing Supervisor, School Health:
Sr. L. Keddie
Assistant Administrative Officer:
Mr. J. Castle

COMMUNITY AND CHILD HEALTH SERVICES - ORGANIZATION CHART



COMMUNITY AND CHILD HEALTH SERVICES

ADMINISTRATION

1. STRUCTURE

1982 was eventful because of the restructuring of the Public Health Department into regionalised Public Health Services.

From 1 July Eastern Goldfields Public Health Region came into being and was responsible for the functions previously administered by this Branch.

The Education Section of the Branch was incorporated into the Education Services Branch of the Department as the Staff Development Unit. Orientation, in-service training and ongoing education as well as Aboriginal Health Workers training are now the responsibility of this new section.

The Epidemiology Unit responsible for immunisation is now part of the Branch.

A Youth Health Service was formed. This is a resource team comprising of a doctor, nurse, social worker, typist/receptionist. The objectives of the Youth Health Service are:

(a) The development and co-ordination of Public Health Department youth health activities.

(b) The provision of a resource centre in the metropolitan area for the ambulant treatment of health care of youth.

(c) To study and conduct research into adolescent health problems.

(d) In conjunction with other education units to provide training for medical officers, youth workers and allied health professionals.

(e) Senior Medical Officer to provide consultant role to Princess Margaret Hospital regarding adolescent patient service.

Community and Child Health Services, during 1982, was responsible for the Metropolitan, South West, Pilbara and Northern Regions and supplied specialist services and resource personnel and stores for all Regions.

2. STAFF

2.1 Child Health

Dr. Henderson was appointed Consultant Paediatrician and continues to provide a consultant service to the northern and eastern rural and remote areas of the State. He has continued to provide consultant services to Princess Margaret

Hospital and Hospital and Allied Services. Dr. B. Robson was promoted to Senior Medical Officer, Child Health.

Five (5) senior child health nurses were appointed:

- to improve supervision
- provide support
- enhance quality of services

Supervisory visits were made on a statewide basis to all Child Health Nurses. Community support, especially in rural towns through the Child Health Centre Committee, is highly commended. These committees give much time to raise funds to make the Centres comfortable and attractive and is partly responsible for attracting nurses to rural areas.

2.2 Child Development Centre

A Research Developmental Psychologist was appointed in the latter part of 1982. He has research and clinical involvement with the ongoing follow-up of low birth babies and the quality of family function.

Second Developmental Paediatrician, Dr. French was appointed in a part-time capacity. This appointment was in arrangement with The King Edward Memorial Hospital. He serves as a Developmental Paediatrician and is also involved with the care of low birth babies.

2.3 School Health

In School Health there was a stable Medical Officer situation. Two (2) nurses, M. East and S. Storrow, retired during the year having given valuable service to the Department. Thirteen (13) other nurses resigned for various reasons and were replaced.

2.4 Community Health

A medical officer was appointed in Meekatharra, Northern Region in April 1982. During the year there were thirty-four (34) resignations from nurses with thirty-two (32) appointments, three (3) enrolled nurse resignations and four (4) appointments, while nineteen (19) Aboriginal Health Workers resigned with twenty-four (24) appointments. (Figures include Eastern Goldfields to June 1982.)

Two (2) Regional Aboriginal Health Liaison Officers were appointed, Mrs. P. Thomson for the Pilbara and Mrs. Vi Drury, Central Region. These officers have the responsibility of establishing health committees which will involve local Aboriginal communities in advising in the planning and implementing of programmes. They also have a training role for non-Aboriginal staff in the cultural aspects of Aboriginal Health and responsibilities for Aboriginal Health Workers.

2.5 Allied Health Professionals

These professionals form part of the multi-disciplinary team. They work from the Child Development Centre and some are based at the Metropolitan Child Services Centres and Special Schools for Handicapped Children at Willetton and Koondoola.

2.5.1 Social Workers. Due to resignations and delays in filling vacancies the staff were stretched to capacity in trying to maintain effective services.

2.5.2 Occupational Therapists. Four (4) full time and one (1) sessional occupational therapists.

2.5.3 Speech Therapists. Nine (9) full time and three (3) sessional speech therapists provide services in the metro area. They also visit some country centres in the South West.

2.5.4 Physiotherapists. An additional physiotherapist to the team with the specific brief of co-ordinating the assessment and treatment of 'clumsy' children in primary school. Her mandate covers schools from Derby to Esperance. Remedial programmes have been established for the children assessed.

3. STAFF EDUCATION AND TRAINING

3.1 Medical Officers

Five (5) medical officers attended the 5-week Development Paediatric course organised and run by Dr. Parry during September/October 1982.

Various medical officers attended and participated in:

(a) Health Promotional Seminar;
(b) Scolosis seminar at Royal Perth Hospital;
(c) Child Care Conference - Adelaide;
(d) Audiological workshops.

3.2 Nurses

Nurses participated in:

(a) Orientation programmes;

(b) 2nd monthly meetings;

(c) Quarterly metro meetings of all Community and Child Health Services;

(d) Annual nurses conference;

(e) Regional Workshops;

(f) Child Care Conference in Adelaide;

(g) Audiological Workshops.

3.3 Health Workers

One (1) Aboriginal Enrolled Nurse obtained an Aboriginal Study Grant to the United States of America to study the problems of teenage pregnancies.

All Health Workers continued on-job training and attended group workshops at Regional centres.

3.4 Allied Health Professionals

3.4.1 Occupational Therapists

Attend regular case conferences; are involved in further education at W.A.I.T. and also have student placements from the W.A.I.T., Department of Therapy.

3.4.2 Physiotherapists: are involved in orientation programmes.

2nd year physiotherapy students attend for practical paediatric experience.

4. FINANCE

Funds provided from Consolidated Revenue Fund were restricted to the cost escalation of 10.5% on goods, services and construction materials and 12.5% on petroleum products. Funds provided by the Federal Government were restricted to an inflation factor of 5%.

5. TRANSPORT

No additional new vehicles were provided during the year. Replacement of vehicles were far short of requirements. Serious concern was expressed regarding the inadequate funding by the Federal Government for the Aboriginal Health Programme. As the service requires mobility over particularly harsh terrain, vehicles have to be maintained at a high standard. However, this maintenance is expensive and uneconomical, when vehicles have to be retained past the criteria set.

In spite of vigorous submissions to obtain additional vehicles for School Health Nurses covering large distances (over 18,000 km per year) no vehicles were approved during the year.

6. BUILDINGS

6.1 Staff accommodation was provided for at Meekatharra.

6.2 General repairs and renovations were carried out to buildings in all Regions. Extensive works included buildings in Mt Hawthorn, Koondoola, Southwell, Queens Park, Jigalong, South Hedland, Port Hedland, Newman, Roebourne, Carnarvon, Meekatharra, Onslow and Bremer Bay.

6.3 A new Child Health Clinic was completed at Willetton.

SECTIONS: PROFESSIONAL REPORT

1. CHILD HEALTH SECTION

Dr. Robson reports:

The Child Health Section has experienced another busy year during 1982 through its principal programmes of child health surveillance and parent education and support.

There has been only a slight increase in the total number of registered births (290) but a marked increase in attendance at Child Health Centres of individual children by well over 4000 throughout the year (7.5%).

Telephone consultations with parents relating to child health issues have increased by 11,319 (10%).

Throughout the year emphasis was given to the subject of Quality Assurance and we are indebted to Professor Patricia Gillespie, visiting Kellogg Fellow of the Western Australian Institute of Technology, School of Health Sciences. Professor Gillespie contributed lecture and seminar programmes to nurses on the complex subject of Quality Assurance and provided a clear insight as well as broadening of knowledge and enthusiasm for this all important subject.

All child health nurses undertook peer review throughout the year in the area of clinical screening procedures.

Clinical records are at present under review, especially in the area of client records, with the aim of encouraging greater accuracy and precision so that a better service can be given to clients and greater job satisfaction to the nurse. All field staff have been encouraged and invited to make contributions in the improvement of the method of recording. The project is expected to be completed and fully implemented in 1983.

It is encouraging to see and be told of the high regard which the consumers of the service show their respective centre nurses who collectively provide a well rounded and efficient service. Community support by the way of child health centre committees continues to be higher throughout the smaller rural towns. These faithful committees provide support to both the facility and the service and are heartily congratulated and much appreciated by Child Health Services. Centre committees donate time by fund raising to provide comfortable and cared for facilities and without their support it is doubtful whether nurses would be attracted to the rural areas.

2. TARGET POPULATION

The Child Health Section aims to provide preventive health programmes to all children in Western Australia from birth to pre-school entry, but as it is voluntary on the part of parents to attend the centres, there will always be a minority of the population who do not avail themselves to the service.

2.1 Vital Statistics

TABLE 1

Target Population (Australian Bureau of Statistics, Western Australia, 1981 - Census figures).

Under 12 months	21,054
1 - 2 years	20,283
2 - 3 years	20,806
3 - 4 years	21,242
4 - 5 years	21,030
Total	104,415

TABLE 2

Race / Condition	Caucasian		Aboriginal		Other Race		Non Aboriginal		Total	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
Stillbirths	137	6.8	16	14.2	2	2.1	139	6.6	155	6.9
Neonatal Deaths			17	15.3			101	4.8	188	5.3
Post Neonatal Deaths			11	9.9			69	3.3	80	3.6
Perinatal Deaths			33	29.2			240	11.3	273	12.2
Infant Deaths			28	25.2			170	8.1	198	8.9

Excludes all births where birthweight < 500 grams.
Includes 2 stillbirths from Registrar General's file not on Midwives file.

The caucasian mortality rates showed small changes which suggested rate stability. The ages at death for infants were similar between the two race groups, 36% died in their first day, by one week 49% had died, a further 10% died before the end of the neonatal period, and of the remaining infant deaths most died before completing 3 months of life. Of the 40 infants diagnosed as Sudden Infant Death Syndrome, 28 died by 3 months and of the 62 whose death was contributed to by congenital malformations 52 died by 3 months. Congenital anomalies contributed to 10 (36%) of Aboriginal infant deaths and 51 (30%) of non-Aboriginal infant deaths; infective diseases caused 7 Aboriginal (25%) and 6 non-Aboriginal infant deaths (4%). Other common reasons for death, in both race groups were prematurity and placental and cord problems. 11.4% of liveborn Aboriginals and 4.1% of live-born caucasian had birthweights less than 2500 grams.

2.2 Child Health Centres

Overall attendances at Child Health Centres show a steady rise in usage of the service provided; an increase of 7.5% in 1982 despite a relatively constant birth rate.

A total of 121,734 Stycar screenings (for developmental, hearing and visual problems) were performed, an increase of 7,329 (6.4%) from 1981.

Of these, 2,977 were referred for assessment mainly to general practitioners, the Child Development Centre or Princess Margaret Hospital for Children. The referral rate for other physical problems was considerably higher.

TABLE 3

CHILD HEALTH CENTRE STATISTICS 1980-82

	1980	1981	1982
Birth notifications received at Child Health Centres	20,044	21,440	21,516
Births Registered	20,607	22,877 (a)	22,339 (b)
Gross attendances	296,880	305,213	311,592
Individual attendances			
0-1 year	23,946	24,745	25,756
1-2 years	14,403	14,945	16,032
2-5 years	15,946	17,479	19,671
Total	54,295	57,169	61,459
Home visits	36,243	36,103	36,573
Telephone consultations	79,250	104,560	115,879
Hospital Visits	21,188	22,077	22,268
Stycar Screenings	107,085	114,405	121,734
Referrals	N/A	3,313	2,977

(a) Corrected figure for 1981 from Australian Bureau of Statistics December 1982.

(b) Preliminary Australian Bureau of Statistics figure.

Using these figures the percentage attendance for 0-5 years at centres during 1982 was approximately 59%.

The percentage attendance by age was:

Under 1 year 97% (up 3% from 1981)

1 - 2 years 79% (up 6% from 1981)

2 - 5 years 31% (up 3% from 1981)

97% of the under 1 year old population attended clinic approximately nine (9) times per child.

About 79% of children between 1 and 2 years attended clinic approximately two (2) times per child.

About 31% of the 2-5 year olds attended between one (1) and two (2) times each.

These figures indicate an average attendance of four (4) times for each child in all age groups, and indicates the continuing need for child health services by the parents.

The annual figures show that of the birth notifications (21,516) received, 20,031 attended for their post-natal clinic examination by a child health nurse; therefore 1,485 (7%) were non-attenders.

The Aboriginal population with approximately 1000 births are catered for through the under fives programme to be discussed later.

2.3 Play Information Mobile Service

This service delivered to parent groups by a child health nurse from a highly decorated van is proving very popular and is a special attraction to children when lodged at suburban shopping centres. Sessions are arranged on request by parent groups. The team visit community projects, e.g.

Hyde Park Festival x 3 days

Greenwood and Districts Playgroup demonstration day x 1 day

Leederville Alive x 1 day

Playgroup Association open day x 1 day

TABLE 4

PLAY INFORMATION MOBILE SERVICE GROUPS

	No. of Group Sessions	Total Attendance
Parent Groups	110	1,029
Parents of Handicapped	3	41
Students	39	1,307
Other	14	374
	166	2,751

2.4 Schools Resources Unit

The Unit comprises five (5) child health nurses and one (1) typist. Over 8,000 students, boys and girls in almost equal

numbers, from Year 9, participated in the Parenthood Course with the help of two hundred and eleven (211) teachers in both senior high school and independent high schools. The teachers continue to expand their student's participation in related activities and their own commitment to the course. More and more teachers are inviting nursing mothers into the classrooms to heighten awareness for the student of the real life situation. The 'Egg Project" and visits to day care centres also provide real life situations where students can experience handling and enjoyment of babies and young children. The "Activity Sheet" suggestions are being put into practice and proving very successful.

2.5 Country Involvement

2.5.1 Parenthood Classes

Teachers from twenty-one (21) State High Schools and five (5) independent High Schools implemented the course in country centres.

Sixteen (16) workshops were held for teachers in the city and four (4) in the country, namely, Port Hedland, Kalgoorlie, Manjimup and Mandurah.

2.6 Involvement with other Agencies

2.6.1 Nursing Mothers' Association of Australia

The seven (7) mini-intensives to prepare breast-feeding nursing mothers and co-ordinators of Nursing Mothers' Association of Australia district groups to enter classrooms were very successful. The mini-intensives were a new challenge for staff as on each day there were also the babies and toddlers present. A further four (4) have been requested and planned to be held early in 1983. Many of these women have indicated that they now feel more confident when relating to the students. Seventy-three (73) attendances.

2.6.2 Community Youth Support Scheme (C.Y.S.S.)

Programmes have been offered in the following centres:

Fremantle	2
Gosnells	11

Further visits to Gosnells C.Y.S.S. have been requested for 1983 in the course relating to child care.

TABLE 5

Attendances	1st Term	2nd Term	3rd Term	Sub Total	Total
PARENTHOOD COURSE - YEAR 9 STUDENTS					
City					
Boys	861	1,742	1,077	3,680	
Girls	908	1,321	843	3,072	
	1,769	3,063	1,920	6,752	6,752
Country					
Boys	411	360	133	904	
Girls	411	341	114	866	
	822	701	247	1,770	1,770
PARENTHOOD MATERIAL DISTRIBUTION					
City	20	-	-	20	
Country	145	253		398	
	165	253	-	418	418
Total number of students for Parenthood Course during 1982					8,940
Attendances at teacher intensives					156
SUPPLEMENTARY ATTENDANCES OF:					
Primary School Students					
Senior High School Students (Year 10-12)					
Parent Groups					
Commonwealth Youth Support Scheme Groups					
Student and Post Graduate Nurses					
TO:					
TALKS					
City	554	490	716	1,760	
Country	-	-	-	-	
	554	490	716	1,760	

FILM SHOWINGS

City	390	540	370	1,300	
Country	-	-	-	-	
	390	540	370	1,300	3,060
Total attendances for 1982					12,156

2.7 Parenthood Unit

This unit provides the following services:

1. Information Centre
2. Introductory night
3. Parenthood classes
4. Sewing group
5. Talks for parents
6. Public relations evening entertaining midwives from metropolitan maternity units.

(a) Information Centre at 16 Rheola Street, West Perth

Visitors to the Information Centre during the year:

Expectant parents	534
Parents	535
Students	65
Others	87

Others include: physiotherapists, grandmothers, post-graduate students, sales representatives, members of staff, teachers and social workers and country staff members, newspaper reporters, community workers, e.g. Childbirth and Parenthood Education Association.

(b) Introductory night

Eleven (11) of these evenings were held monthly during the year, attended by six hundred and ninety-five (695) expectant parents.

This program provides an opportunity for information to be given regarding the value and availability of preparation classes in the metropolitan area, and for medical advice about pregnancy.

(c) Parenthood classes

Each programme is made up of eleven (11) sessions (eight (8) talks, three (3) film nights).

Sixteen (16) sessions were held each week at ten (1) different centres from mid-January to mid-December.

(d) Sewing Group

Forty sessions were held in 1982 attended by 785 clients.

This group continues to be very popular. It provides:

- peer group support;
- available expertise in teaching sewing skills and choice of appropriate garments;
- professional advice for those who have doubts, and general oversight.

(e) Talks for Parents

Dr Parry presented two (2) sessions for parents of pre-school children. "They're only little for a little while", and "How to be a perfect parent - the impossible ideal".

These talks were well attended by 130 and 120 parents, respectively. The allocation of seats worked more smoothly this year.

(f) Public Relations Evenings

On November 10, Miss Chidlow, on behalf of the unit, invited the nursing supervisors and senior midwives from the metropolitan area to an evening where Mrs Diana Burr (Clinical Psychologist from Mental Health Services) gave a talk on Postnatal Depression. Three (3) members of the newly formed Postnatal Depression Support Group supported her by giving an account of their own experiences of postnatal depression.

Over fifty (50) midwives attended the evening which was most interesting.

Programmes provided in association with the staff physiotherapists:

Father-coached preparation for birth classes conducted at Rheola Street, remain popular. Four (4) sessions with nine (9) couples in each are held each week. Each course consists of seven (7) classes. Enrolments are limited to couples who also undertake the "parenthood" classes.

Postnatal classes for clients who have attended the above classes are held at 3 and 5 weeks post-delivery. With these groups leadership is shared by a child health nurse and physiotherapist. They are concerned with transition to parenthood as well as physical fitness. On occasions mothers have been referred to this group by colleagues who feel their clients have a special need. It provides peer group support and an opportunity to express negative feelings in a supportive environment.

2.8 Correspondence Resource Unit

The main tasks of this unit comprising two (2) full-time child health nurses are, besides corresponding with women in remote areas, to provide a telephone advisory service (total calls 9,590) and relieving in the country. Visits on a regular basis are provided monthly to Leinster and the Murchison.

TABLE 6

	Parenthood Classes	Preparation for Birth	Keep Fit
Number of classes held	649	233	179
Number of individuals	3,107	695	266
Total number of attendances	14,341	3,502	2,146

Gross attendances for 1982:

TABLE 7

	Eastern Goldfields	Murchison	Leinster
0 - 1 years	101	148	142
1 - 2 years	41	83	51
2 - 6 years	89	164	83
Total	231	395	276

2.9 Children's Day Care Health Team

TABLE 8

NUMBER OF CHILD CARE CENTRES AS AT JULY 1982 - METROPOLITAN AREA

Day Care	70	(23 Government subsidised)	
Occasional Care	12		
Family Care	342	(Private	140
		(Balga Scheme	32
		(Wanneroo Shire	87
		(Communicare	49
		(Town of Cockburn	34

TABLE 9

NUMBER OF CHILDREN IN TARGET POPULATION

	Registered Places	Children Enrolled
Day Care	2128	3311
Occasional Care	N/A	-
Family Care	± 1368	-

TABLE 10

CHILDREN SCREENED BY NURSES

JANUARY 1ST - DECEMBER 31ST, 1982

(* ECS - Early Childhood Services, Department of Community Welfare)

	TOTAL	BOYS	GIRLS
Number visits to Centres	1199		
Counselling contacts:			
with parents	594		
with staff	407		
with ECS*	56		
Home Visits	102		
No. full health appraisals	2043	1111	932
No. review examinations	796	477	319
No. referred to:			
Medical Officer	82	56	26
Family Doctor	137	83	54
Speech Pathologist	52	41	11
Social Worker	12	8	4
Hospital	5	4	1
N.A.L. or Audiologist	14	8	6
Dental attention	65	37	28
Immunisation update	55	33	22
Physiotherapist/O.T.	5	2	3
Psychologist	1	0	1
Guidance Branch	2	2	0
Total No. Referred	430	274	156

Of the 2043 children who had full appraisals, 430 were referred for further opinion, giving a referal incidence of 23%. These are children not previously known to have a medical or social disability, and includes acute physical episodes, e.g. rash, infected areas, inflamed drums etc.

The screening rate for the nurses was 62% which is acceptable in such a mobile and part-time population.

TABLE 11

NO. CHILDREN EXAMINED BY THE MEDICAL OFFICERS AND THEIR SUBSEQUENT REFERRALS

	TOTAL	BOYS	GIRLS
Visits to Centres	74		
Total No. children examined	318	201	117
Referred to:			
Speech Pathologist	19	18	1
NAL/CCHS Audiology	1	1	0
ENT (PMH or private)	20	12	8
Family Doctor	5	2	3
Ophthalmologist (PMH or private)	3	3	
Physiotherapist/O.T.	10	10	0
Psychologist	4	3	1
Gastroenterologist	1	1	0
Guidance Branch	1	1	0
Orthopaedic Surgeon	2	0	2
Social Worker	4	4	0
Total	70	55	15

Of the 318 children examined by the medical officers, 70 were referred on for specialist opinion, a rate of 22%. 20 children are receiving on-going review by medical officers, and therapy from speech therapist and physiotherapist/O.T. for developmental delay.

TABLE 12

This table shows the eventual outcome of children referred by the nurses and medical officers for specialist opinion.

Speech	40	assessed
	30	on assessment waiting list
	127	therapy sessions
	12	on therapy waiting list
	9	on review
Voice	2	removal laryngael nodes
Hearing and ENT	48	surgery or medication
	1	sensorineural loss and hearing aids
	7	normal hearing
	10	acute otitus media
	11	on specialist review
	2	needing surgery - fathers refused
	10	results pending
Heart	1	no reply from G.P.
	2	functional murmurs on review
	1	PMH - results pending
G.I. tract	1	megacolon treated
	1	hernia op.
Vision	4	strabismus
	3	refractive errors
	13	needed glasses
	4	on specialist review
	3	normal vision
	6	results pending
	3	no reply from G.P.
Development	4	mild retardation (referred Irrabeena)
	20	on review by M.O.
	1	on medication epilepsy
Testes	1	surgery
	1	specialist review
Orthopaedic	1	metatarsus varus for surgery
Inco-ordination	10	needed therapy programmes
	2	further assessment.

All members of the Children's Day Care Health Team are innovative and dedicated to the preventive aspects of these young children's overall health and well-being.

The statistics show a continuing referral rate of 23% from the nurses which indicates the children's vulnerability to health problems. Only 62% of the population was screened which reflects the high mobility and that many children are in care for minimal periods.

Confirmed defects are 9.4% of the total number of children screened which is comparable to other studies in this field.

3. SPECIAL PROJECTS

3.1 Congenital Malformations Register

The nurses continue to be involved in completing a Congenital Malformations Notification card whenever an appropriate child is identified, and the information is sent to Dr Fiona Stanley at National Health and Medical Research Council unit.

3.2 Dental Caries Survey

The nurses were involved in a Dental Caries survey for Dental Health Services from January 1st to December 31st, 1982.

4. ACTIVITIES WITH OUTSIDE AGENCIES

4.1 Meet a Mum Association (M.A.M.A.)

Members of the Childbirth and Parent Education Association of Perth met with representatives of Community and Child Health Services in forming a Meet a Mum Association which would principally provide: (1) an opportunity for mothers of very young children to meet together; (2) help prevent isolation and loneliness and (3) to improve communication between families in a given area. It was considered that child health nurses would initiate support for the establishment of small M.A.M.A. groups from the centres and that the Childbirth and Parent Education Association would provide the organisation and on-going commitment for maintaining the group contacts. A small pilot project involving 6 child health centre nurses in the southern suburbs was commenced in October and showed great promise. The response will be determined by the young mothers who see the need of the Meet a Mum Association groups. Child health nurses are very supportive of the idea and eagerly look to the review planned for mid 1983.

4.2 Child Safety Week, October 1982

Child Health Services were invited to assist the National Safety Council of Western Australia and emphasis was placed for involvement from rural areas. Child health nurses from Geraldton, Albany and Bunbury offered and provided assistance in media presentations on particular aspects of child health safety, viz.

Car safety
Swimming pool safety
Burns, scalds and sunburn

Emphasis was placed on accident prevention and responsible adult supervision.

5. PAEDIATRICIAN - SPECIALIST VISITS

Dr. Henderson, the Consultant Paediatrician, reports that approximately 8 visits of 2 weeks duration were made throughout the northern and eastern regions of the State. Major centres were attended 6-weekly and smaller centres 6 to 12-weekly. Consultations remained the major function at all centres, however active participation in teaching health workers, nursing staff, medical officers and advanced physician trainees remained an important contribution through the medium of clinical contact in the field, lectures, seminars and group discussions.

A co-operative relationship with allied health and other professionals of several departments and agencies made consultation and management easier, more economical in time and of significantly greater usefulness to clients. A continuous telephone consultative service has been offered to country practitioners throughout 1982, made possible by the Telecom paging service. This service has proved valuable in establishing early diagnosis and treatment and eliminating unnecessary transfer of patients.

Clinical expertise and performance has been maintained through the Consultant Paediatrician's Princess Margaret Hospital appointments involving in-patient and out-patient care of clients from the areas he services, together with sharing of duties in the Neonatal Intensive Care Unit. Links are maintained with the Child Development Centre and Department of Intellectually Handicapped to assist in management of clients of these Departments who are not accessible to the service normally available in the larger centres.

Research into infection and its consequences in Aboriginal children has been initiated and has already brought to light a greater prevalence of relatively penicillin resistant pneumococcus than was previously realised.

CHILD DEVELOPMENT CENTRE

Dr. Parry reports:

The activities of the Child development Centre have remained similar to those described in the 1981 report with the team providing a multidisciplinary approach to the assessment and management of children for a variety of developmental problems.

1. CLINICAL WORK

Referrals have increased yet again in the main being from other professionals working from both within and without the Community and Child Health Services. An Intake Committee each week considers the request for referrals in order to make sure that every referral is appropriate and that every assessment procedure is relevant to the family referred.

TABLE 1

REFERRAL PATTERN

1979	1,199
1980	1,147
1981	1,394
1982	1,437

There has been a further increase this year with 780 referrals being direct to the team, 556 referrals being to individual disciplines within the team, and 101 referrals were by telephone.

TABLE 2

PROFESSION	TEAM REFERRALS	DIRECT REFERRALS
Paediatricians	349	161
Social Workers	112	83
Occupational Therapists	37	36
Psychologists	160	94
Physiotherapists	35	41
Speech Pathologists	83	140

As seen in Table 2, the bulk of the referrals at the Centre are for paediatric evaluation, psychology and social work, a number of other professions being much more involved in work in facilities outside the Centre.

Of the 1,437 referred to the Centre, 1,374 new cases were actually seen during 1982 which reflects the waiting lists which remain lengthy in speech and occupational therapy. At 31 December 1982, there were 122 children waiting for speech therapy assistance and 58 for occupational therapy. The waiting time is approximately nine (9) months for speech therapy, five (5) months for occupational therapy and three (3) months for clinical psychology.

TABLE 3

CLINICAL COMMITMENTS

	1979	1980	1981	1982
New cases seen	1,171	1,253	1,393	1,374
Review appointments	1,087	1,203	1,541	1,680
Ongoing treatment	2,106	2,651	2,769	3,096
Telephone follow-up	3,178	4,567	7,136	9,122
Patients seen elsewhere	2,517	2,494	2,490	1,549

There has been a further increase in review appointments and ongoing treatments without appropriate increase in staff. Increased telephone follow up is an attempt to minimise the number of appointment times. The figure for the ongoing treatments also includes those seen in

groups as this has been another mechanism found effective, not only as a therapeutic approach, but also efficient in reducing waiting times. Even though every effort is made to either terminate contact at the earliest possibility or channel families on to alternative services for long term management, the increase in review appointments particularly for the paediatricians is becoming burdensome.

In an attempt to illustrate the time involvement of assessment and follow up, appointments have been allocated on arbitrary unit of half an hour of time. On this basis 5,397 units were allocated to new assessments (usually three (3) units per assessment), 3,403 units (one (1) or two (2) units) for review and 7,855 units of involvement in ongoing treatment. The total number of patients seen elsewhere fell during 1982 reflecting in part the increased need for time involvement in clinical work within the centre.

55% of referrals were from within the service. A significant increase has been in the overall referral from general practitioners and other medical specialists which is now running at around 12%. As most general practitioners refer direct to the team their percentage of the 780 team referrals is 19.5%. The bulk of referrals direct to paediatricians comes from general practitioners and other medical specialists.

Country referrals continue at approximately 25% and the assistance of Dr Brenda Hammersley, Paediatrician with Community and Child Health Services based in Albany, has continued to expand and co-ordinate services in the southern regions of the State. The senior Paediatrician and the Senior Physiotherapist of the Child Development centre visited the Nickol Bay area twice during 1982 and in addition to seeing children with developmental problems in remote areas have been able to encourage other professionals working in isolation as well as to speak to parent groups.

2. MANAGEMENT

A variety of individual treatment programmes continue to be arranged following assessment. In some instances, ongoing management may take place at other sites geographically closer than the Child Development Centre. Two weekly groups continue to be effective at the Child Development Centre, one being for physically disabled pre-school children and a second for a small group of developmentally delayed children in early pre-school years giving therapy and management advice to families while the degree of handicap present is emerging. The involvement of a social worker for discussion times with parents involved in the groups has been much appreciated.

Two groups for parents and children with early identified language delay were conducted by speech therapists in association with other professionals during the year and a self-esteem group for 10 to 12 year old children was run by a social worker.

Waiting lists for ongoing management in some areas, as already referred to, continues to be of concern. In addition, speech therapy programmes were limited by staff sickness, staff changes and increased demands of administrative and supervisory responsibilities within Public Health areas beyond the Child Development Centre.

3. EDUCATIONAL ACTIVITIES

Two Registrars in Advanced Training in Paediatrics spent a successful 12 months at the Child Development Centre. The third registrar position was sacrificed in order to obtain the services of an additional part time paediatrician.

Student placements in other disciplines (social work, psychology, occupational therapy, physiotherapy and speech therapy) were made available as in former years.

At least 158 lectures were given throughout the year and many more invitations for lecturing opportunities were declined because of the pressure of clinical commitments. From 27 September to 29 October a five week course in Developmental Paediatrics was held again with ten medical officers attending, two (2) from the eastern States and eight (8) from within West Australian health services. At the end of this time, a week long course in the use of the Griffiths Developmental Scales for Children was conducted as had a similar week course in January. Child Development Centre staff continue to be involved in in-service training within Community and Child Health Services, for Fifth Year Medical Students and in the Child Health Course run at Ngal-a. Public lectures in parentcraft attract very significant support with allocations for attendance being on a booking basis in the metropolitan area.

4. RESOURCES

A descriptive pamphlet concerning the work and referral procedures of the Child Development Centre was printed during the year assisted by a grant from the Department of Social Security, Office of Child Care. This has been well received and has probably contributed to the increase of referrals from general practitioners. Large orders for the pamphlets series, "As you grow", published during 1981 continue to be received particularly from other States.

5. CONFERENCES

Financial restraints have made it difficult for funding to be available for staff to attend Conferences other than at their own expense with study time being granted. The Senior Paediatrician however, was invited to participate in a Seminar at the Westmead Centre on 26-27 March 1982 concerning Community Paediatrics. The following papers were delivered: "Present training in community paediatrics" and "Training requirements and post-training opportunities in community paediatrics". He was also an invited speaker at the Australian College of Paediatrics Meeting held in Melbourne in May 1982 to speak on "Disorders of Speech and Language" in a 'Meet the Expert" session. He remains as a member of several State and national paediatric committees. He attended a conference in Adelaide from 9-13 May concerning, "Partnerships in child health - patterns for the future", and delivered two papers entitled "Developmental surveillance and assessment services - the West Australian model of partnership", and "The team approach in neuro-developmental disabilities".

Mrs Anne Spinks attended a workshop consisting of four three-hour sessions on 2, 9, 16 and 23 March entitled "Looking after yourself", the aim of which was to assist health professionals to cope with stress resulting from work commitments.

6. AREAS OF NEED

Help for families in remote areas of the State has commended and needs to be extended to other regions. Since the last report, it is noted with pleasure that a Youth Health Service has been established within the Community and Child Health Services and a co-operative partnership between that facility and the Child Development Centre Service is anticipated.

In order to assist families in stress, particularly those with handicapped young children, therapy assistants are needed to encourage and support home based programmes. Senior professionals cannot be involved in home visiting to the extent that it is required.

As mentioned in earlier reports the working space within the Child Development Centre is over extended and is placing limits on the types of programmes which can be carried out. Extension of accommodation continues to be an unmet need.

The Child Development Centre is recognised within this State and beyond as an effective facility for the multidisciplinary assessment and management of families in whom suspected or actual developmental problems are occurring. It continues not only to assist those with definite area of problem but to enrich family life by allaying anxiety, guiding, advising and preventing further problems. This supportive and preventive work of the service is not able to be depicted adequately in statistical terms.

EPIDEMIOLOGY AND SPECIAL SERVICES

Dr. R Allen reports:

1. IMMUNISATION

Injections administered by the Section during 1982 totalled 44,663 - an increase of 1.6% over the previous year. Most of this increase was in the infant primary injections of Triple Antigen and C.D.T., as well as Rubella Vaccine in the Year 8 schoolgirls, where the acceptance rate was 85.6% - the sixth successive annual increase.

The expected arrival of a combined Measles/Mumps Vaccine from the Commonwealth Health Department during the second half of the year did not eventuate, but is now certain that it will become available early in 1983. The vaccine's non-arrival has caused some confusion among parents who had anticipated its availability, and supplies are expected to be in heavy demand when it does appear.

Country mobile immunisation clinics have been plagued by mechanical breakdowns this year, due in no small part to the present Government policy of not permitting large vehicles to be replaced until maintenance costs become excessive. Even when this stage is reached, it is usually a further 12 - 24 months before a replacement vehicle is actually in operation. However, with the help of several all-night trips and some innovative repair work, disruption to publicised clinics has been kept to a minimum.

A survey conducted by Dr. C.T. Wong is of some interest. He shows that,

in a survey of 1,060 Grade I children in 20 randomly selected metropolitan primary schools, 83.1% had received the recommended pre-school booster for diphtheria and tetanus. (See appendix for full survey report).

TABLE 1

IMMUNISATIONS CARRIED OUT DURING 1982

Sabin vaccine		45,922
Triple Antigen	15,147	
C.D.T.	10,569	
A.D.T.	1,450	
Tetanus Toxoid	1,976	
Measles	5,626	
Rubella	9,801	
Miscellaneous	94	
Total injections	44,663	44,663
Total treatments		90,585

2. MALARIA

Twenty (20) cases of malaria were notified during the year - a decrease of 33% from the thirty (30) cases notified in 1981, and a decrease of 60% from the fifty (50) cases in 1980.

Concern has been expressed at the possible increase in notification in the future due to the recently approved scheme whereby previous refugees may sponsor relatives who will go directly to private accommodation and will not stay at the Graylands Hostel where anti-malarial treatment is instituted.

TABLE 2

NOTIFIED CASES BY COUNTRY OF ORIGIN

Country	PLASMODIUM			
	Vivax	Facliparum	Falciparum + Vivax	Total
Indonesia	8	1		9
Papua New Guinea	4		1	5
Thailand		1		1
South East Asia		1		1
Malaysia	1			1
Solomon Islands	1			1
Zimbabwe	1			1
Unknown (Merchant Seaman)	1			1
Total	16	3	1	20

APPENDIX

IMMUNISATION SURVEY

INTRODUCTION

In recent years there have been two surveys carried out in the Perth metropolitan area in which one of the aims was to determine the percentage of children in their first year of primary education who had received the "pre-school" or "5-year old" booster of Combined Diptheria and Tetanus (C.D.T.).

Hicks in early 1977 investigated 190 children in Grade I at six disadvantaged primary schools. He found that 22% had received the C.D.T. booster.

Quirk and McGrade in 1979 investigated 292 Grade I children at five randomly selected schools. They found that 76-87% had received the booster.

As both these surveys involved relatively small numbers of children, and the results showed such variation, it was thought that it would be a worthwhile exercise to conduct a much larger investigation, to be carried out towards the end of the year - after Local Health Authorities had completed their programmes of school immunisation clinics.

AIM

To estimate the percentage of children in the Perth metropolitan area who receive the recommended C.D.T. booster by the end of their first year of primary education.

MATERIALS AND METHODS

The survey sample was taken from a total of twenty (20) metropolitan schools selected at random from all areas of Perth so as to include as wide a geographical and socioeconomic distribution as possible. These twenty schools were located in fourteen different local health authorities.

Each enrolled child in Grade I was given a survey form to be given to the parent or guardian to be filled in. Parents were asked to return their completed forms together with any immunisation record cards which they may have of their child, for checking and verification. Every effort was made to do this by checking their cards against records held at the central immunisation records office at Rheola Street and also by the various Shire Records Office by telephonic enquiry where necessary.

The completed forms were analysed and results in Table I showed the level of response to the survey from each of the twenty schools.

TABLE I

School	Number Enrolled Grade I Students	Number of Returned Forms	Relative Frequency	Percentage of Students who Returned Forms
Spearwood	71	69	6.5	97.1
Willetton	119	112	10.6	94.1
Yale	106	106	10.0	100.0
Challis	87	68	6.4	78.2
Osborne Park	36	32	3.0	88.9
Nedlands	59	56	5.3	94.9
Wembley	45	45	4.2	100.0
Deanmore	50	47	4.4	94.0
Warwick	75	75	7.1	100.0
Balga	46	41	3.9	89.1
Heathridge	79	75	7.1	94.9
Illawarra	30	30	2.8	100.0
Maida Vale	41	41	3.9	100.0
Redcliffe	22	22	2.1	100.0
Darlington	48	44	4.1	91.7
Maylands	31	25	2.4	80.7
Noranda	46	42	4.0	91.3
East Victoria Park	48	43	4.1	89.6
Lesmurdie	34	34	3.2	100.0
South Perth	55	55	5.2	100.0
Total	1128	1062	100.0	94.2

As can be seen from the above, a very high response rate to our survey was obtained.

1062 out of a possible 1128 students returned the forms, giving an average of 94.1% return rate.

Eight (8) out of the twenty (20) schools surveyed returned a 100% response.

SURVEY OF PRE-SCHOOL BOOSTER

The school booster can be received any time after the 5th year. Most parents have been advised to get this done prior to school entry and they are given either by their local doctor or in one of the local immunisation clinics run by the Shires, or they can attend our central clinic at Rheola Street, West Perth.

Ideally, it is a C.D.T. booster following on a primary course of four (4) Triple Antigens (according to the pre-1979 schedule of immunisation as recommended by the National Health and Medical Research Council) or a

course of C.D.T. if Triple Antigen was contra-indicated for one reason or another.

When a child has received a Tetanus Toxoid recently, he or she will receive a Diphtheria only vaccine to complete the immunisation. There will not be many in this category.

Using the above criteria, 883 students out of 1062 respondents on analysis have been adequately immunised, an incidence of 83.1%.

Table II summarises the immunisation status from twenty (20) metropolitan schools surveyed.

TABLE II

School	Numbers Enrolled	Question-naires Returned	Numbers with Booster	Numbers without Booster	Percentage with Booster	Numbers w/immun. Cards Sighted
Spearwood	71	69	65	4	94.2	55
Willetton	119	112	95	17	84.8	78
Yale	106	106	88	18	83.0	67
Challis	87	68	44	24	64.7	30
Osborne Park	36	32	27	5	84.4	24
Nedlands	59	56	48	8	85.7	35
Wembley	45	45	49	6	86.7	33
Deanmore	50	47	44	3	93.6	39
Warwick	75	75	60	15	80.0	55
Balga	46	41	35	6	85.4	28
Heathridge	79	75	54	21	72.0	29
Illawarra	30	30	28	2	93.3	22
Maida Vale	41	41	36	5	87.8	24
Redcliffe	22	22	18	4	81.8	11
Darlington	48	44	40	4	90.9	28
Maylands	31	25	19	6	76.0	15
Noranda	46	42	39	3	92.9	38
East Vic. Park	48	43	29	14	67.4	26
Lesmurdie	34	34	27	7	79.4	21
South Perth	55	55	48	7	87.3	33
Total	1128	1062	883	179	83.2	691 (78.

TABLE III

MEASLES VACCINATION

School	Numbers of Grade I Students who returned forms	Measles Vaccination	No Measles Vaccination	Had Measles
Spearwood	69	42	25	2
Willetton	112	82	24	6
Yale	68	32	32	4
Osborne Park	32	15	16	1
Nedlands	56	38	18	-
Wembley	45	35	9	1
Deanmore	47	35	12	-
Warwick	75	60	14	1
Balga	41	24	15	2
Heathridge	75	43	32	-
Illawara	30	20	8	2
Maida Vale	41	27	13	1
Redcliffe	22	12	9	1
Darlington	44	27	13	4
Maylands	25	9	15	1
Noranda	42	26	16	-
East Victoria Park	43	23	16	4
Lesmurdie	34	21	12	1
South Perth	55	36	14	5
Total	956	607 (63.5%)	313	36 (4.5%)

Parents were also asked to indicate whether their child had measles vaccination.

Table III shows the measles immunisation position with each school. 607 children out of 956 had Measles Vaccination giving an overall 63.5%.

313 children did not get immunised by choice and 36 were not immunised because they have had the disease.

SUMMARY

From the data collected, 83.1% of students surveyed had a pre-school booster.

63.5% of these children were also immunised against measles by the time they entered school, and a further 4.1% did not receive the vaccine as they had already contracted the disease.

SCHOOL HEALTH

Dr. Gibson reports:

1. NUMBER OF SCHOOLS VISITED 1982

(a) Government Schools

	Metropolitan	Country	Total
Pre-Schools	94	83	177
Primary and Pre-primary	271	258	529
Senior High Schools	47	24	71
High Schools	7	3	10
District High Schools	-	56	56
Special Schools (including schools of the air)	20	15	35

(b) Non-Government Schools

Pre-schools	15	2	17
Primary and Pre-primary	81	52	133
Secondary Schools	25	11	36
Combined Primary and Secondary	31	13	44

(c) Services to school children in Perth, and the South West Region of the State are provided by school health nurses and medical officers. In addition school nurses are based at senior high schools in the larger country towns in the Goldfields and North West, whilst delivery of services to children attending schools in the remote areas is provided by the local public health field nurse and community medical officer.

2. STUDENT ENROLMENT FOR 1982

(a) Government Schools

Pre-primary	15,248
Primary	138,386
Secondary	68,257
Special Schools	1,785
	223,676

(b) Non-Government Schools

Pre-primary	2,619
Primary	28,568
Secondary	22,970
	54,157

(c) Total number of students attending schools in Western Australia 277,833

3. PROGRAMMES

3.1 Full Health Appraisals

(a) 32,365 children had a full health appraisal in 1982. 59% (19,216) of these were for children attending pre-schools, pre-primaries and kindergartens.

(b) 5,588 year one (1) children had a full health appraisal comprising 17% of the totals performed for pre-primary and primary school children. The majority of children therefore have their full examination and assessment prior to commencing full time schooling.

(c) Children in school years 2 to 7 who are new school entrants from overseas or from other States also receive a full health appraisal.

(d) 71% of all full health appraisals performed were for children attending schools in the metropolitan area.

TABLE SHOWING NUMBER OF FULL HEALTH APPRAISALS PERFORMED

YEAR	1982							
Pre-Primary	1	2	3	4	5	6	7	Total
19,216	5,588	1,453	1,128	1,118	1,232	1,002	1,628	32,365

3.2 Vision Screening

(a) 138,861 vision screening tests were performed during the year.

(b) Nurses referred 2,526 students for further ophthalmological assessment for a suspected visual problem and 1,725 for suspected strabismus.

(c) Medical Officers referred 119 students for further medical opinion regarding vision, and 57 children for assessment of strabismus.

(d) Most children who were referred were in pre-primary classes and in years 1, 5 and 8 - as expected, since routine vision screening occurs only in those specific years.

(e) 68% of all vision referrals were for children attending metropolitan schools.

TABLE SHOWING NUMBER OF PRIMARY AGED CHILDREN REFERRED BY NURSES FOR FURTHER VISION ASSESSMENT

YEAR								
Pre-Primary	1	2	3	4	5	6	7	Total
420	357	188	152	145	294	170	148	1,874

TABLE SHOWING NUMBER OF SECONDARY AGED STUDENTS REFERRED BY NURSES FOR FURTHER VISION ASSESSMENT

YEAR					
8	9	10	11	12	TOTAL
373	142	77	36	24	652

3.3 Hearing Screening

(a) 95,373 hearing tests were performed during the year.

(b) Nurses referred 1,479 students for hearing problems and 517 for other ear, nose and throat problems

(c) Medical Officers referred 128 students for hearing problems and 251 for other ear, nose and throat problems.

(d) 58% of those referred were in pre-primary or the first two (2) years of schooling.

(e) 47% of all referrals for hearing problems were for country children, indicating as in previous years that the prevalence of hearing loss is greater for children in rural and remote communities of the State.

(f) Ear Health Team results confirm that the incidence of ear disease and hearing loss is considerably higher for children living in remote Aboriginal communities.

3.4 Scoliosis Screening

(a) The scoliosis screening programme was further consolidated during the year and was extended to schools in Carnarvon, the Eastern Goldfields and Pilbara regions.

(b) Nurses screened 11,292 girls in year six (6) and 21,745 high school students in year eight (8) for spinal deformity.

(c) Medical Officers examined 1,633 year six (6) girls and 4,870 year eight (8) students referred by school nurses in this programme.

(d) Those students referred for further specialist opinion included 163 from year six (6) and 305 from year eight (8).

	YEAR 6 (females only)	YEAR 8 (males & females)
Number of students screened by nurses	11,292	21,745
Number examined by Medical Officers	1,633	4,870
Percentage referred to Community and Child Health Services Medical Officers	14%	22%
Number referred to specialist, General Practitioner	163	305
Percentage referred by Medical Officer	10%	6%
Percentage referred of totals screened	1.44%	1.4%

3.5 Health Education

(a) 6,934 periods of health education were taken by school nurses during the year. 2,969 (43%) of these were for children in primary and pre-primary classes and 3,965 (57%) for high school students.

(b) The health education programme in each school is arranged at the principal's discretion. In some schools the nurses make a major contribution to the course and take several classes of students for a variety of health related topics. Some nurses act as a resource for the school teaching staff in this area.

(c) Parents are invited to preview the films, slides and lesson plans which are used by the nurses in growth and development, and in the human attitudes, relationship and behavioural aspects of this programme.

3.6 Home Visits

(a) 9,625 home visits were made during 1982 by nurses. 5,762 (60%) were to visit parents of primary and pre-primary children and 3,863 (40%) to homes of high school students.

(b) In addition communication with parents is made by card following the assessments for vision and hearing screening, and in the event that a child needs to be referred parents are informed by letter, by phone, or in person at the school by invitation.

3.7 Immunisation

(a) The updating of children's immunisation status is an important aspect of health surveillance.

(b) In 1982 the parents of 3,685 primary and pre-primary children were notified that their child's immunisation needed to be completed.

(c) The parents of 2,274 secondary aged students were reminded of the need to update their child's immunisation.

3.8 High School Programme

(a) Most senior high schools in the State have a school nurse appointed to the staff. The nurse works from a purpose build health centre within the school.

(b) Students made 145,887 visits to consult the school nurse during the year.

(c) Nurses in metropolitan high schools took 2,237 periods of health education in 1982.

(d) 1,728 periods of health education were taken by nurses working in country high schools.

3.9 Priority Schools Programme

(a) The number of nurses involved in this programme was reduced by four (4) at the start of the year.

(b) Six (6) nurses provided health services to children attending the following schools:

Balga Senior High School
East Fremantle Primary School
Highgate Primary School
Lockridge Primary School
Midland Primary School
Roebourne Primary School

(c) Priority schools are designated by the Education Department as those schools which have need for priority in educational and other services.

(d) There is a high proportion of children from different ethnic families attending these schools.

(e) The nurses assigned to these schools utilise many community resources in the management of children's health needs including the use of interpreters.

3.10 Special Schools Programmes

(a) Multidisciplinary teams continued to provide services to students attending the Koondoola and Willetton Special Schools for physically handicapped children. These teams comprise nurses, doctors, occupational therapists, physiotherapists and speech therapists in addition to the Education Department staff of principal, teachers, teacher aides, physical education instructors and guidance officer.

(b) The additional part-time position of social worker at each school was established during the year. Children and their families have benefited in many ways from this complement to the teams.

(c) Pre-admission assessment and criteria for admission to these schools continued to be discussed with staff of the Education Department.

(d) Assessments and management programmes continued to be arranged for each child. Therapy is delivered in a variety of ways according to the child's needs, but may be individual, in a group setting on classroom withdrawal basis, within the classroom, in activity and leisure groups, in community and social environments in work experience placements and at school camps.

(e) Assessments, reviews and case conferences were arranged as necessary for the 160 children enrolled at Koondoola and Willetton Special Schools.

(f) School nurses continued to visit the special schools for intellectually handicapped children in metropolitan and country areas to undertake vision and hearing screening assessments. Other aspects of these children's health and medical needs are met by staff of the Mental Health Services through the Division for Intellectual Handicap.

(g) Health services were provided for children at the Chidley Education Centre throughout the year. This is a residential school for the assessment of country children with learning difficulties.

61 children at Chidley Centre were given a full medical assessment in 1982.

(h) Health services to students attending the several special schools for hearing impaired children were given by nurses and one medical officer during the year.

(i) Services to the Sutherland Special School for children with severe visual impairment were given by a nurse and medical officer during the year.

3.11 Ear Health Programme

(a) During 1982 the Ear Health Team continued to visit remote areas of the State. The centres visited were: Jigalong, Yande Yarra, Roebourne, South Hedland, Onslow, Wiluna, Laverton, Cosmo Newbury, Mt. Margaret, Leonora and Menzies.

(b) A total of 943 children were seen, of whom 737 were Aboriginal, 206 non-Aboriginal children were seen on a referral basis at some of the centres.

(c) The Ear Health programme aims to reduce ear disease and/or hearing loss in Aboriginal children by:

- identifying children with chronic middle ear disease and/or hearing loss and reviewing children previously identified as having middle ear disease.

- liaising with local Community and Child Health Services staff regarding the treatment of children with chronic ear disease.

- liaising with Education Department staff regarding children with hearing loss and their management.

- referring children for a specialist opinion as necessary.

(d) The prevalence of perforations of the ear drum in the 0-5 year age group varied from 16%, at Onslow, to 53%, at Jigalong.

(e) The prevalence of perforations in the 6-12 year age group varied from 15%, at Onslow, to 47%, at Jigalong.

(f) Hearing loss in the primary school population varied from a prevalence of 20% at Laverton to 51% at Jigalong.

(g) There was a high prevalence of children with abnormal tympanograms in all areas and is indicative of abnormal middle ear function in the presence of an intact ear drum.

(h) An F.M. amplification project was established at Jigalong for those children who had a constant bilateral moderate hearing loss. The system was designed by team members for use by selected children in the classroom. Evaluation of this project is still ongoing.

4. OTHER SPECIAL ACTIVITIES DURING THE YEAR

4.1 Report from Senior Audiologist, Miss Weekes:

(a) The audiological unit of Community and Child Health Services continued to grow during 1982. There was an increase in the number of children referred to the Rheola Street Centre.

(b) 304 children were assessed at Rheola Street; 219 of these were initial referrals and 85 were reviews.

(c) 6 children were referred to the National Acoustic Laboratory and subsequently fitted with hearing aids.

(d) 4 visits were made to district centres in the metropolitan area to see children referred and to provide backup for staff.

(e) 9 visits were made to country areas throughout the State.

(f) The training of new and current staff continued, with the senior audiologist's participation in regular nurse orientation programmes, update sessions for medical officers, nurses and speech pathologists.

(g) The senior audiologist participated in developing a pilot project involving the use of an F.M. radio system to provide amplification for hearing impaired Aboriginal children.

4.2 Children with Severe Visual Impairment

The programme to identify school children with severe visual impairment and to liaise with the Special Education Branch has continued as an ongoing project.

5. CONDITIONS IDENTIFIED DURING SCHOOL HEALTH APPRAISALS - INFECTIONS AND INFESTATIONS OF SKIN AND HAIR

5.1 Pediculosis

(a) 9,143 children were found to have pediculosis at the time of school medical assessments. Most of these (92%) were children of primary school age.

(b) In 1982 the decline of this infestation was again apparent for children at schools in the metropolitan area. 3,730 children attending metropolitan schools were found to have pediculosis.

(c) The increase in prevalence for children in country areas may be apparent rather than real, as documentation of findings at school medical assessments for staff working in remote areas has only recently been added to school health data collections.

5.2 Scabies

(a) 540 children were found to have scabies during the year. 399 (74%) were of primary and pre-primary ages.

(b) A twofold increase in the incidence of school children with scabies was evident for both primary and secondary aged students as compared with school health data for 1981.

(c) The increase was evident for students of all ages attending metropolitan schools and for primary aged children attending country schools.

5.3 Impetigo

(a) 581 children were identified to have impetigo and of these 488 (84%) were attending primary or pre-primary schools.

(b) The incidence was greatest for children attending country schools who comprised 393 (68%) of the total.

5.4 Ringworm

(a) 387 children were found to have ringworm at the time of school health appraisals.

(b) 225 (58%) were of primary and pre-primary ages.

(c) The incidence of ringworm for metropolitan and country students showed little difference at 55% and 45% respectively.

6. OUTCOME OF REFERRALS

6.1 Classification of confirmed disabilities and handicaps by systems 1982

Ophthalmologists' Assessments

Refractive errors	1,685
Infections	49
Trachoma	411
Strabismus	226
Amblyopia	83
Other	146
Total Positive Findings	2,600
Spectacles prescribed	1,361
Survey	21
Normal Vision	268

Hearing Assessments

Sensorineural hearing loss	142
Serous otitis media (glue ear)	368
Dry perforation	81
Perforation with discharge	136
Foreign bodies	35
Otitis externa	29
Transient hearing loss	174
Wax	85
Acute otitis media	91
Other	60
Total Positive Findings	1,201
Hearing aids supplied	16
Survey	210
Normal Hearing	57

Cardiovascular System

Congenital heart disease	31
Rheumatic heart disease	2
Other	26
Total Positive Findings	59

Musculoskeletal System

Muscular dystrophies	1
Scoliosis under review	545
Scoliosis requiring active treatment	23
Feet (Pes planus, etc.)	7
Perthes disease 'Irritable Hip'	2
Genu valgum	3
Fractures and trauma	191
Other	35
Total Positive Findings	980

Skin Disorders

Disorders of growth and nutrition

Under weight	11
Obesity	57
Growth retardation	34
Malabsorption	1
Anaemia	111
Thyrotoxicosis	-
Hypothyroidism	-
Diabetes	2
Other	11
Total Positive Findings	227

Genito-Urinary System	
Bilateral undescended testes	28
Unilateral undescended testes	45
Hydrocoele	31
Inguinal hernia	10
Enuresis	47
Other	21
Total Positive Findings	182
Central Nervous System	
Cerebral Palsy	3
Epilepsy	14
Migraine and recurrent headache	15
Other	9
Total Positive Findings	41
Psychosocial and Development Disorders	
Speech disorders	747
Development delay	86
Behaviour problems (referral other agencies)	85
Behaviour problems (managed within the service)	41
Learning difficulties	46
Mental retardation	4
Encopresis	10
Other	18
Total Positive Findings	1,037
Total Number of Disabilities and Handicaps	6,154

COMMUNITY HEALTH

Dr. Gill Reports:

PART 1

1. ABORIGINAL HEALTH

The continued emphasis on Aboriginal health has been maintained in 1982. Aboriginal involvement in policy and delivery of services has been gradually increasing, and a capable and experienced cadre of Aboriginal staff are available to assist in the service. Initial moves have already been made in many communities to set up local health

committees that would not only be advisory to the service in regards to the communities felt needs, but also be a vehicle for disseminating health related information that needs the community involvement for resolution. This is seen to be a gradual programme with much developmental work yet to take place.

2. CLIENT ENCOUNTERS

Table 1 shows the number of encounters with Aboriginal clients by the nursing staff and health workers, by region. The encounters totalled 281,163 and of these approximately 49% were for a variety of reasons that are not classified, but indicate the wide variety of health problems staff have to deal with. Of the major health programmes and problems, the volume of encounters related to the following in descending order:-

(i) Under Fives Programme
(ii) General Health Screening
(iii) Skin Diseases
(iv) Eye Disease
(v) Ear Disease

It is interesting to note that gastro-intestinal disease accounted for only 1.07% of encounters in this client group, and yet diarrhoeal disease in the under five year old child is still of major concern in the field. Interpretation of such data should therefore be limited to looking at work areas and volume rather than morbidity, as the latter is more appropriately determined by specific studies. It also needs to be stressed that encounter data does not include the casual encounters which can be quite substantial, and those clients seen by medical officers, as the latter are usually as a result of referrals.

In order to improve the recording of encounters a pilot trial was conducted in the Eastern Goldfields region. The trial showed that it was possible to improve the recording of encounters without increasing the volume of record keeping. A further development from this trial has been the possibility of improving the coding of encounters and conditions, and this is being explored. Whilst it is obvious that it would not be possible to obtain accurate epidemiological data, such data would nevertheless be useful in the long term to indicate secular trends. It is hoped to have the new recording and coding system fully functional in the forthcoming year.

TABLE 1

NUMBER OF ENCOUNTERS WITH ABORIGINAL CLIENTS, ALL REGIONS, 1982

	0-5	6-14	15-19	20-49	50-64	65+	Unknown	TOTAL
ENCOUNTER CODES								
UNDER FIVES PROGRAM"E	27768	793	471	1910	72	76	5488	36578
HEALTH SCREENING	1396	7450	531	2783	472	269	13238	26139
EAR DISEASE	3497	3337	228	682	117	150	3432	11443
EYE DISEASE	1098	1536	139	1290	700	577	9395	14735
HANSENS DISEASE	7	97	165	851	558	455	820	2953
ANTE OR POST-NATAL CARE	-	104	1442	2754	-	-	1754	6054
ACCIDENTS OR INJURIES	815	1343	525	3290	877	347	934	8131
ALCOHOL OR OTHER DRUG ABUSE	6	15	105	471	70	17	116	800
SKIN DISEASES	3911	6167	932	3835	1059	636	5844	22384
GASTRO-INTESTINAL DISEASE	1396	390	91	548	149	94	327	2995
RESPIRATORY DISEASE	2064	642	197	1392	588	406	1611	6900
MUSCULAR DYSTROPHY		2	4	7	4	1	42	60
MULTIPLE SCLEROSIS	1		2	54	13	4	97	171
RHEUMATOID ARTHRITIS	2	29	10	61	95	36	32	265
S.T.D. (KIMBERLEY)	6	20	68	200	33	17	102	446
CARDIOVASCULAR (KIMBERLEY)	3	1	7	58	81	50	18	218
HOSPITAL VISITS METRO	695	531	267	826	290	167	156	2932
OTHER	6980	14125	4794	31326	9938	7347	63449	137959
TOTAL	49645	36582	9978	52338	15116	10649	106855	281163

NOTES REGARDING ENCOUNTER STATISTICS

1. Under 5's Programme

   These figures include health promotion contacts between staff and the care givers of the young child, as well as the child.

2. Health Screening

   Includes screening procedures at Well Baby Clinics and of school children and for specific diseases (hypertension, diabetes, U.T.I., etc.), not included elsewhere.

3. The figures under Eye Disease, Ear Disease and Hansen's Disease do not include screening programmes on people found not to have the disease. Each of these contacts represents an intervention strategy for some pathology present.

4. The figures for Antenatal and Postnatal care are small because our staff do not provide this care, but see that the client is referred to the appropriate primary care source.

5. Many clients are uncertain of the precise date of birth.

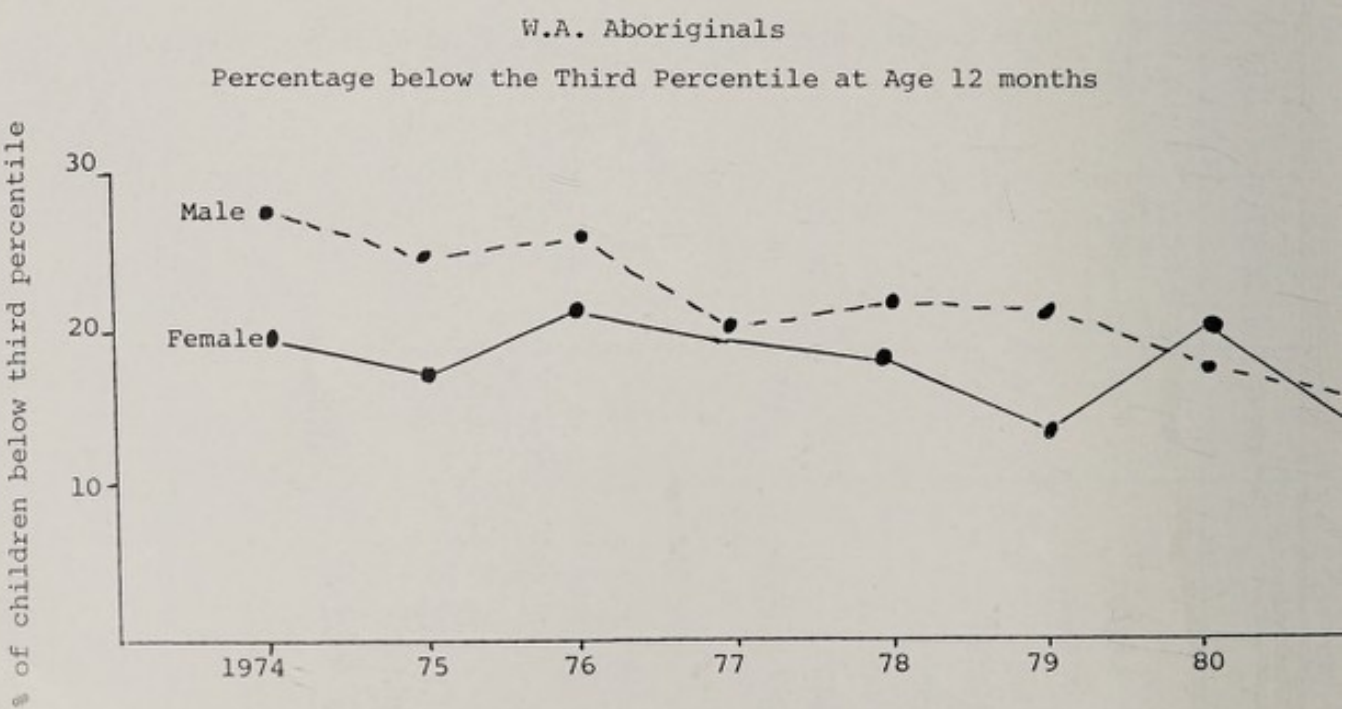
3. NUTRITIONAL ANTHROPOMETRY

This ongoing programme continues to provide encouraging trends. Graph 1 shows the percengage of male and female Aboriginal children below the 3rd percentile for children at age 12 months (not so marked for females). There is a marked improvement in height of children at 12 months of age.

Much work continues to be done in nutritional education and encouragement of breast feeding of infants. The nutritional needs of "high risk" groups such as babies, pregnant women, diabetics are focused on. Meals for the aged and disabled through existing facilities are being encouraged. There is concern with community stores which determine to a large extent the variety and nutritional value and amount of foods available. Efforts to upgrade management of the stores and food items stocked are being made in conjunction with relevant agencies and communities.

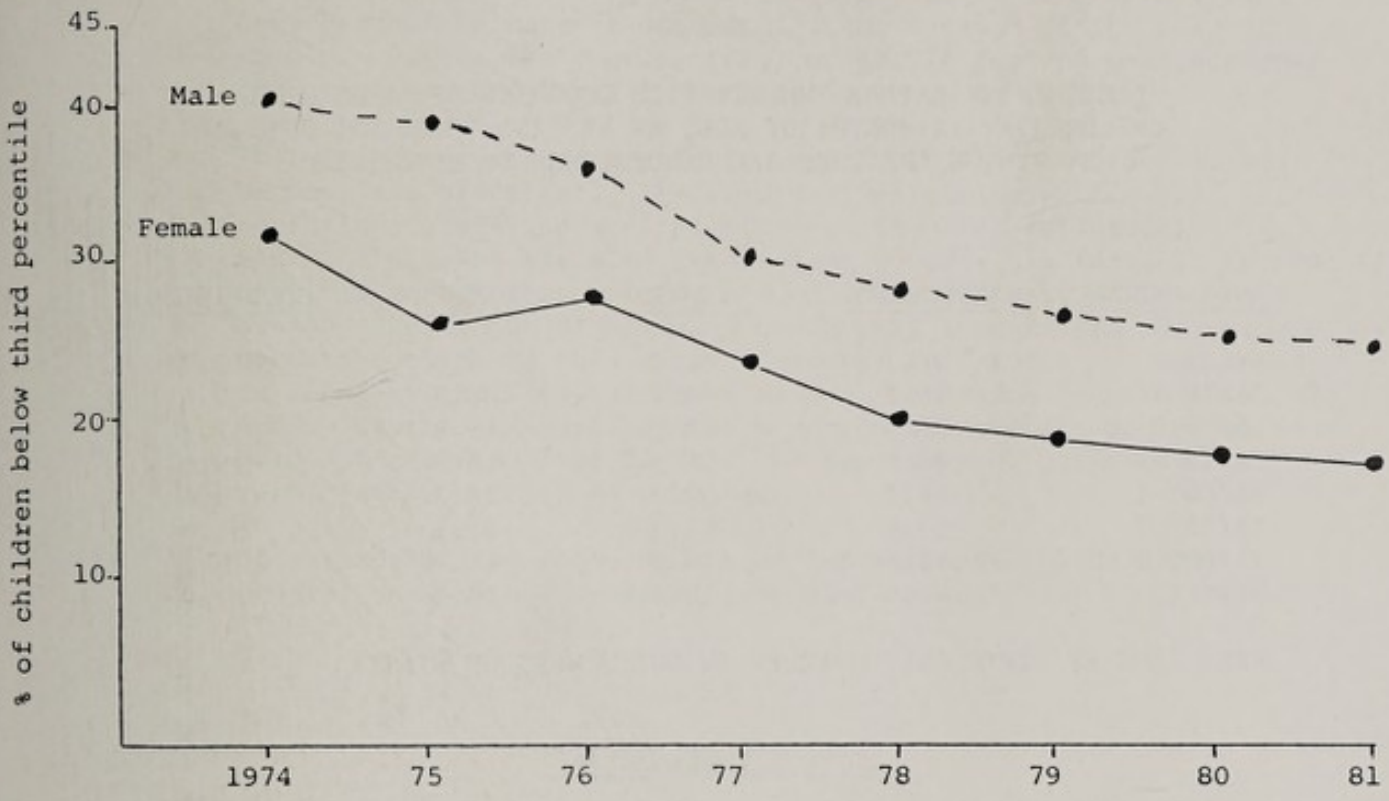
GRAPH 1

WEIGHT OF W.A. ABORIGINAL CHILDREN, PERCENTAGE BELOW THE THIRD PERCENTILE FOR EACH ANNUAL COHORT AT THE AGE OF 12 MONTHS



GRAPH 2

HEIGHT OF W.A. ABORIGINAL CHILDREN, PERCENTAGE BELOW THE THIRD PERCENTILE FOR EACH ANNUAL COHORT AT THE AGE OF 12 MONTHS



4. HEALTH EDUCATION AND HYGIENE

Every situation is used as a teaching one. Individual and group discussions are held. There has been improvement in water supplies, ablution and water facilities and better monitoring systems with the Public Works Department involvement and the Department of Aboriginal Affairs Aboriginal Public Health Improvement Programme.

5. IMMUNISATION

Centralised computer records of immunisation status in Aboriginal children born since January, 1981 are now available, and the accompanying Table 1 shows the coverage rates. Generally, where immunisation is offered mainly by the Community Health Services, the coverage is very good and it progressively decreases in the south west of the State where other agencies such as local government provide the main immunisation service.

Specific studies in the latter areas show that there is an increase in coverage after the children are past one year of age, and one of the possible reasons is that many doctors probably tend to postpone immunisation when children suffer from recurrent intercurrent infections, and this does happen in Aboriginal infants quite frequently. The main concern with this delayed coverage will be with regards to whooping cough, and it would appear necessary to encourage doctors to view the immunisation from this viewpoint.

With changes in the Nurses Board Regulations nurses can be certified as competent to give immunisation without direct medical supervision. A training programme to effect this is under way. This will effectively bridge the gap of those unimmunised children in due course.

TABLE 1

PRELIMINARY DATA : IMMUNISATION COVERAGE OF ABORIGINAL CHILDREN AT 12 MONTHS OF AGE, AS AT 22ND FEBRUARY, 1983, BY REGION (FIGURES ARE PERCENTAGES OF ELIGIBLES)

1981 COHORT	KIMBERLEY	PILBARA	NORTHERN	GOLDFIELDS
*BCG:	96.2	85.7	9.6	3.2
SABIN 1	98.7	93.7	88.3	70.6
SABIN 2	95.9	88.3	69.6	52.1
SABIN 3	89.1	78.5	43.2	39.1
TA/CDT 1	98.7	93.7	88.3	70.6
TA/CDT 2	95.9	87.5	67.7	51.0
TA/CDT 3	89.8	76.7	41.9	39.1
MEASLES	42.9	29.4	10.3	13.0

*NB: BCG AT BIRTH ONLY OFFERED IN NORTH WEST OF STATE

TABLE 2

1981 Cohort	North South West	South South West	North Metro	South Metro
*BCG:	1.7	4.4	1.5	1.9
SABIN 1	72.8	80.5	45.1	80.7
SABIN 2	57.0	71.6	31.5	63.4
SABIN 3	35.9	46.2	23.3	46.1
TA/CDT 1	71.9	82.0	45.1	82.6
TA/CDT 2	57.8	71.6	31.5	61.5
TA/CDT 3	39.4	44.7	21.8	44.2
MEASLES	3.5	1.4	9.7	19.2

*NB: BCG AT BIRTH ONLY OFFERED IN NORTH WEST OF STATE

6. ERADICATION AND CONTROL OF ENDEMIC DISEASES

6.1 Trachoma and Eye Health

The Public Health Department is represented on the West Australian Eye Health Association. The departmental team of Medical Co-ordinator (Dr. J. Williams), Field Nurse and Aboriginal Health

Worker have ensured co-ordination and continuation of programmes.

Screening programmes were continued throughout the State and Figure 1 shows the localities covered and the prevalence of follicular trachoma in children up to 10 years of age. It should be noted in interpreting these results that in some localities, e.g. Perth, the rate is not significant because of the size of sample. During the year, a total of 10,074 persons were screened for trachoma, and Table 1 shows the numbers by region.

There is now evidence available (see Table 2) that trachoma has become less prevalent. The clinical impression of ophthalmologists and medical officers involved in screening is that the disease has also become less severe. In fact, it is now possible to say that a large are of the south west of the State has no significant disease and no further specialised screening need take place in this area. Comparative figures for the zones outlined by the National Trachoma and Eye Health Programme in 1977 and using the same criteria show marked improvement in the at risk group of children (see Table). No new cases of blindness resulting from trachoma were seen.

As already stated there have been improvements in the water supply, housing and sanitation in many areas.

TABLE 1

TRACHOMA SURVEY 1982

REGIONS	NUMBER OF PEOPLE SCREENED
Kimberley	3,294
Pilbara	1,606
Eastern Goldfields	1,212
Northern	1,251
Metropolitan	240
South West	2,471
TOTAL	10,074

FIGURE 1

TRACHOMA SURVEY 1982

PREVALENCE RATES OF FOLLICULAR TRACHOMA IN CHILDREN 0-10 YEARS

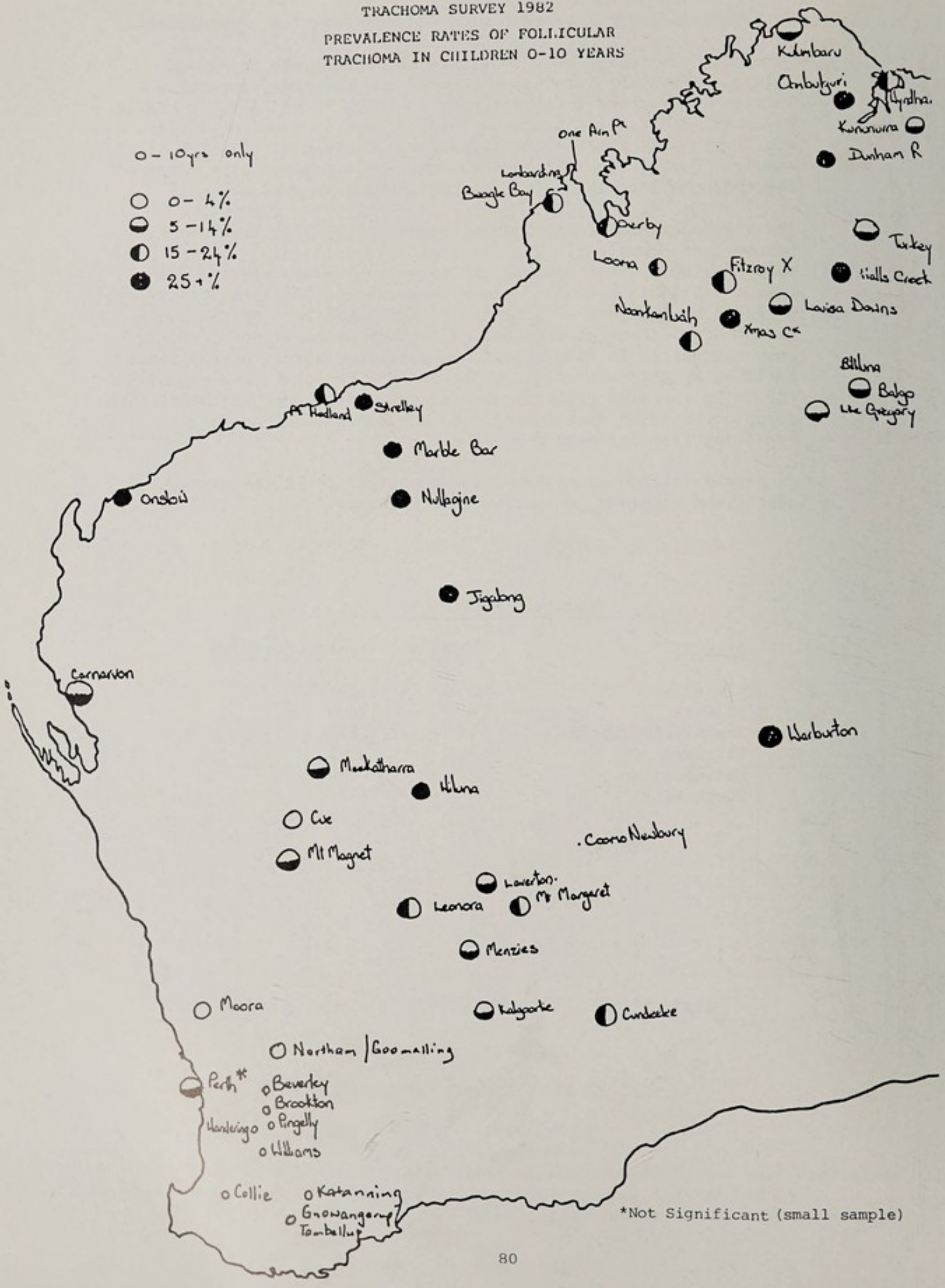


TABLE 2

COMPARATIVE PREVALENCE OF FOLLICULAR TRACHOMA,

WESTERN AUSTRALIA 1977 AND 1982

AREA/YEAR	1977* Follicular Prevalence Rate		1982 Follicular Prevalence Rate	
	All Ages	0-9 Years	All Ages	0-9 Years
ZONE 2	22%	52%	13%	22%
ZONE 3	32%	64%	13%	36%
ZONE 4	17%	37%	6%	13%
ZONE 6	17%	32%	8%	13%

*Note: Report of National Trachoma and Eye Health Programme.

Definition of Zones in accordance with National Trachoma and Eye Health Programme.

ZONE 2: Cattle Country - involves Kimberley and hinterland.

ZONE 3: Western Desert - covers inland areas of Pilbara, Northern and Eastern Goldfields region.

ZONE 4: Goldfields - includes contiguous areas of Norther and Eastern Goldfields regions.

ZONE 6: - Coastal towns and communities - all public health regions have localities in this zone.

6.2 Ear Health

Follow-up screening of ear health has continued during the period in the Northern, Pilbara, Eastern Goldfields and Kimberley regions. Whilst detailed results of the surveys are not yet available, no dramatic changes have been demonstrated. This was quite expected, of course, as the exact patho-physiology of chronic otitis media in the Aboriginals is not clear. The association with socio-economic status must mean that any dramatic improvements are only likely with general improvements in environmental, nutritional, social and economic parameters.

Dr. Coates, an Ear, Nose and Throat specialist has been working in conjunction with the Department. A study utilising direct suction under microscopic visualisation is being carried out on a pilot basis in Roebourne. Part-time Aboriginal health workers are employed to carry out the suction toilets and have become quite adept in carrying out their tasks. Preliminary feed-back indicates that this toilet method is preferred to the simple tap water toilet because it is quite comfortable for the children, who readily accept the method.

6.3 Leprosy

Annual screening for Hansen's Disease continues in at risk populations, especially in the Kimberley, Pilbara and new arrivals from South East Asia in the metropolitan area. There has been a decline in the incidence of Hansen's Disease.

TABLE 1

KIMBERLEY REGION, WESTERN AUSTRALIA

ANNUAL INCIDENCE OF LEPROSY AMONGST ABORIGINES

Year	Aboriginal Population	Number of new cases notified	Incidence - New cases/1000/annum
1971	7790	21	2.7
1972	8077	8	1.0
1973	8368	10	1.2
1974	8641	14	1.6
1975	8930	8	0.9
1976	9221	9	1.0
1977	9463	11	1.2
1978	9679	6	.6
1979	9858	9	.9
1980	10094	4	.4
1981	10266	4	.4
1982	10492	5	.5

PILBARA REGION, WESTERN AUSTRALIA

ANNUAL INCIDENCE OF LEPROSY AMONGST ABORIGINES

Year	Aboriginal Population	Number of new cases notified	Incidence - New cases/1000/annum
1971	2873	1	0.4
1972	2999	0	0
1973	3099	4	1.3
1974	3219	1	0.3
1975	3346	3	.9
1976	3451	8	2.3
1977	3525	5	1.4
1978	3675	5	1.4
1979	3639	1	.3
1980	3731	3	.8
1981	3813	3	.8
1982	3883	3	.8

6.4 Intestinal Parasites

Routine work with clients continues to show the importance of intestinal parasites and ill health, especially in the young child. Whilst the reasons for this are quite clear in the many communities where generally environmental sanitation and water supplies are far from satisfactory, it was decided to attempt to document the situation in the south west of the State. Aboriginal children 0-6 years old formed the sample for this study. One of the reasons why this area was considered for documentation was the fact that there are no "reserves" in this area, and most Aboriginals live in conventional housing with easy access to good water supplies, sewerage and waste disposal systems.

A total of 697 specimens from children under six years were obtained, 277 from the metropolitan region and 420 from the south west region, during July, 1982.

	Metropolitan Region	South West Region
Number of specimens examined	277	420
Parasite rate	30.3%	36.7%
Giardia lablia rate	21.7%	28.8%
H. nana rate	13.0%	14.4%
Bacterial rate	1.4%	4.7%

Of the 26 specimens yielding a bacterial isolate, the distribution of organisms was as follows:-

Shigella spp:	26.9%
Salmonella spp:	7.7%
Campylobacter jejuni:	57.7%

Thus, parasite rates were found to be unacceptably high, whilst bacterial carrier rates were not of much concern. The predominance of Campylobacter is interesting.

The relative frequency of parasite rates by age are shown in Figure 1. One child was infected with G.lamblia at four months of age, but infections appeared to begin at 7 months of age. For H.nana no infection was recorded below the age of 18 months. The peak infection rates were at 4 years of age for both parasite species.

Thus it would appear that in the main G.lamblia infections begin to occur at the age when weaning is common, but H.nana is acquired later, at the time the child is well and truly mobile. These factors may have implications for control.

One of the most important results of this survey was the demonstration of a high parasite prevalence rate in this population group, showing that much more remains to be done in decreasing overcrowding, and also in improvements in personal and food hygiene, especially in infants and toddlers. The study has important implications in terms of expectations of improvements in health that will follow the "Aboriginal Public Health Improvement Programme".

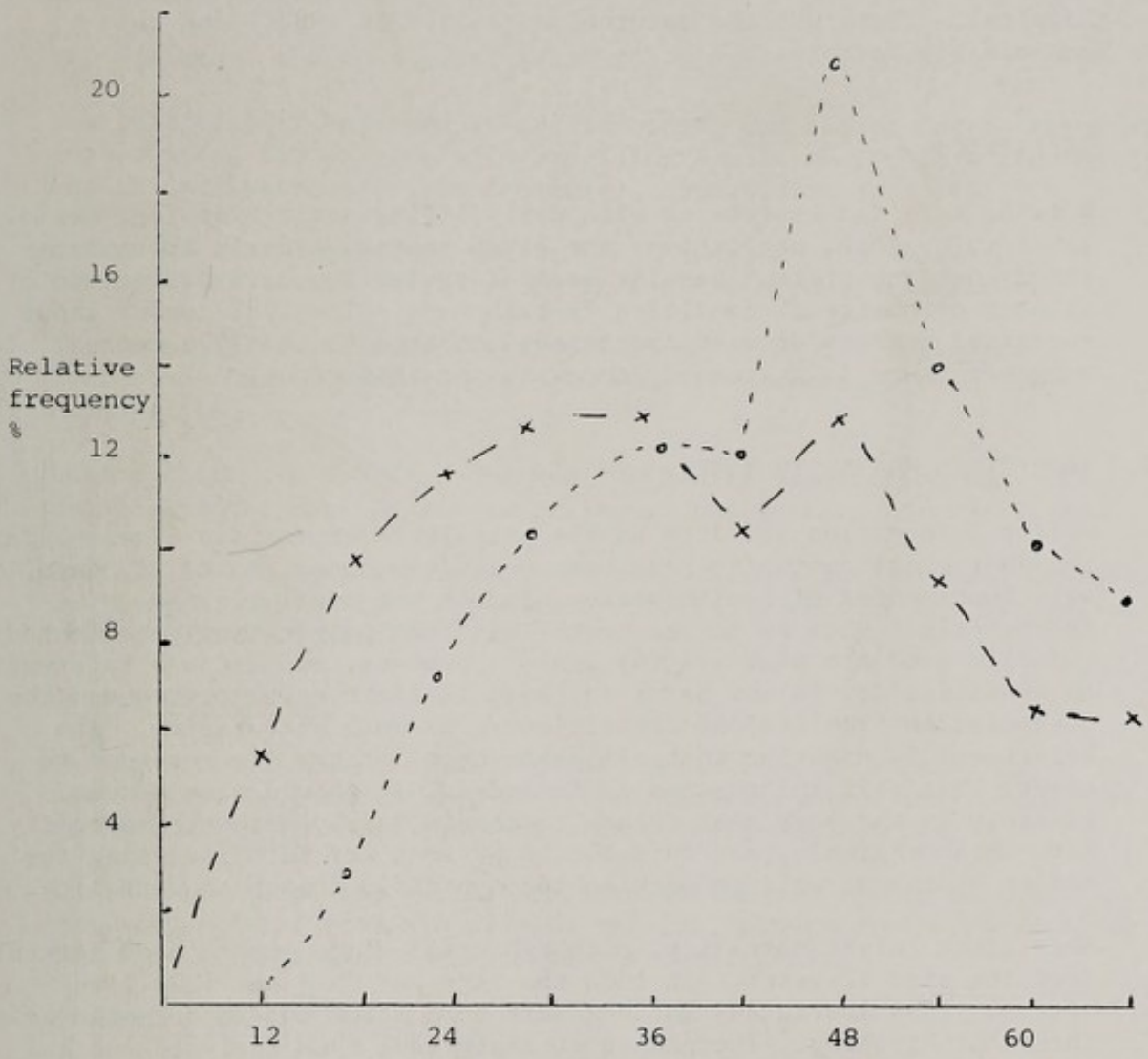


Figure 1. Relative frequency of infection with H.nana (- -o- -) and with Giardia lamblia (- -x- -) in your Aboriginal children in South West Australia, July 1982.

7. FAMILY PLANNING

Education programmes regarding fertility, pregnancy, fertility control methods, problems of high parity and frequent pregnancies are given in conjunction with the maternal health programme. There has been some decline in fertility rate. The crude birth rate for Aborigines is still much higher than for non Aborigines, 35 per 1000 compared to 17 per 1000.

8. ANTENATAL AND POSTNATAL CARE

Emphasis continues in having pregnant women attend antenatal clinic as early as possible. Frequent monitoring of pregnant women, especially the young and high risk, has led to improved outcomes in stillbirth

rates and neonatal mortality. Women are encouraged to deliver in hospital. There was one maternal mortality in 1982 - due to unavoidable factors.

9. GERIATRICS

Nursing care and assistance with daily living activities (eg. meals, laundry, hygiene, medication) are given to many elderly Aborigines throughout the State. Regular medical review for early detection of illness or change of condition is also made. The 1981 census shows increased numbers of aged Aborigines compared to the 1976 census. This suggests there is increased longevity for this group.

10. ABORIGINAL MORTALITY RATES

Whilst information and data on the prevalence of various diseases in the Aboriginal community have been well documented, mortality data, the very fundamental of health status, is not yet available for Aboriginals. Data on infant deaths has been painstakingly collected manually over the past six (6) years. However, as planned, information on Aboriginality is now being included in death certificates and the co-operation from medical practitioners is most encouraging. The department is ensuring that all death certificates are screened to ensure that this information is included. It should thus become possible in the very near future to obtain fairly accurate mortality data on Aboriginals, and this should go some way into assessing the health status as well as looking into specific causes of mortality.

Aboriginal Infant Mortality, although still high, has reduced markedly over the past 12 years. In 1982 the rate was 25.2 per 1000 live births. 1094 Aboriginal infants were born alive and 28 deceased before their 1st birthday. The causes of death have been analysed and a summary shows -

Severe Congenital Abnormalities	10
Severe Prematurity	4
Trauma associated with Birth	2
Meningitis	3
Pneumonia (1 complicated)	2
Sudden Infant Death Syndrome	2
Gastroenteritis (Both complicated)	2
Suffocated by overlying	1
Cerebral Haemorrhage	1
Cervical spine C5/6 lesion	1
	28

Particular attention is drawn to the inclusion of 4 live births of very small birth-weight and severe prematurity - the weights were 520, 570, 610 and 800 grams and the gestation of three of these was less than 24 weeks, one being 18 weeks.

11. ABORIGINAL HEALTH CO-ORDINATOR

Mr. Willaway, the Aboriginal Health Co-ordinator reports:

The 1982/83 year has been a very important and active one in terms of implementing new proposals in providing a more responsible preventative health care service to the Aboriginal communities.

Extensive travel has been undertaken throughout the State in establishing health advisory committees and alcohol committees.

The format of canvassing Aboriginal communities for recruitment of Aboriginal health workers has been readily accepted within most communities.

During this term the Trachoma and Eye Health Association was established to monitor and maintain eye health care for Aborigines.

Overall it has been a very busy year in which a lot has been achieved in liaison, communication and co-ordinating a service for Aborigines throughout the State.

Health Committees

Throughout the year many Aboriginal communities were asked to participate in establishing health committees, where they could advise on health problems and concerns within their communities.

It is pleasing to convey that 20 communities had agreed to this proposal, whilst some are already ongoing, others are in the process of forming or nominating members for the committees.

Kimberley Alcohol Committee

In August, 1982 a review was undertaken by Mr. C. Lee from the Alcohol and Drug Authority, and Mr. Willaway to investigate the extent of alcoholism within the Kimberley region. The findings portrayed a pitiful plight of hoplessness and disarray. Elders were urgently seeking an alternative to the drastic plight that is enveloping their people and communities. Throughout this visit some 5 alcohol committees were established to instigate some awareness programme.

In Wyndham a building was transferred to the Wyndham alcohol committee for use as a resource centre. This is one of the best initiatives for the East Kimberley region; to utilise and with minor renovations the building could be operational at a minimum cost.

Special Health Category

With the promotion of senior Aboriginal health personnel to the above positions, it is foreseeable that their services will be a valuable contribution to the department. It is envisaged that their role in establishing health committees in their areas will be greatly appreciated by the Aboriginal communities and likewise beneficial to the department.

PART 2

12. GENERAL COMMUNITY

Service is provided to the general community especially those with disadvantages and special needs. Much time has been spent on maintenance of wellness in the elderly through keep fit and activity groups. Weight reduction groups, stress management, antenatal classes and promotion of a healthy lifestyle have been aimed at. 83,264 encounters with individuals or groups were made during the year.

13. MUSCULAR DYSTROPHY

The main role of the nurse continues to be an educational and supportive one. New clients and their families are visited initially and then as required. The nurse works one evening each week to allow for visiting with families. The social problems of the chronically disabled cause a heavy work-load and the field nurse works as a co-ordinator of all helping agencies and other health professionals.

Professor Kakulas continues to be most supportive to staff members. The carrier detection programme has continued and the neuropathologists have commenced doing needle muscle biopsies in the unit, with the assistance of the field nurse.

Case conferences have continued on a fortnightly basis at Rocky Bay Village, the parents of the residents being invited to attend as part of the "Management Team".

TABLE 1

NUMBER OF ENCOUNTERS WITH NON-ABORIGINAL CLIENTS, ALL REGIONS 1982

	0-5	6-14	15-19	20-49	50-64	65+	Unknown	TOTAL
ENCOUNTER CODES								
UNDER FIVES PROGRAMME	4,573	502	76	420	15	7	282	5,875
HEALTH SCREENING	177	961	40	302	95	75	225	1,875
EAR DISEASE	113	70	18	105	10	20	90	426
EYE DISEASE	66	44	10	109	24	54	60	367
HANSEN'S DISEASE	3	15	36	314	41	49	10	468
ANTE OR POST-NATAL CARE	24	8	86	770	3	1	415	1,307
ACCIDENTS OR INJURIES	113	250	98	502	115	93	113	1,284
ALCOHOL OR OTHER DRUG ABUSE	-	1	5	72	28	31	22	159
SKIN DISEASES	148	170	38	309	74	204	186	1,129
GASTRO-INTESTINAL DISEASE	72	44	9	107	28	19	22	301
RESPIRATORY DISEASE	336	270	38	426	140	88	40	1,338
MUSCULAR DYSTROPHY	2	49	64	274	124	8	127	648
MULTIPLE SCLEROSIS	-	-	-	239	62	41	59	401
RHEUMATOID ARTHRITIS	1	2	4	36	48	152	3	246
S.T.D. (KIMBERLEY)	-	-	-	3	-	-	1	4
OTHER	1,019	1,203	630	7,494	1,579	3,373	2,134	17,432
TOTAL	6,647	3,589	1,152	11,482	2,386	4,215	3,789	33,260

TABLE OF CLIENTS VISITED

Type of Disease	Number	New Clients in 1982	Deaths
Duchenne	29	-	2
Becker	19	1	1
Limbo girdle	10	-	-
Fascio & scapulo-humeral	14	-	-
Dystrophia Myotonica	37	3	-
Myotonia congenita	2	-	-
Kugelberg Welander	7	-	-
Werdwig Hoffman	2	1	-
Friedreichs Ataxia	3	-	-
Van Recklinghausen's	1	-	-
Peroneal Muscular Atrophy	1	-	-
Distal Muscular Atrophy	1	-	-
Spino-Cellular degeneration	4	-	1

14. WESTERN AUSTRALIAN ARTHRITIS & RHEUMATOID FOUNDATION FIELD NURSE SERVICE

The Western Australian Arthritis and Rheumatoid Foundation field service has continued to be understaffed during 1982 due to absences caused by ill health. There were 2,137 home visits made and 26 advisory clinics staffed.

A new concept during 1982 was the introduction of "therapy clinics" at local hospitals rather than the nurse/therapist doing home visits. As a result, patients unit times have increased by 8% whilst travelling times have decreased by 4%

The emergence of 3 day patient/family education programmes in country areas has been exciting, and established the necessity of patient education as an integral part of the patients total treatment.

The senior field nurse was invited to be a guest speaker at a National conference on rheumatoid diseases in Washington, U.S.A. Her comment (on return) "I am now convinced that what we have achieved since 1975 is definitely worth preserving" is very encouraging and the greater involvement with regionally based Community Health sisters has proved to be of mutual benefit to both our service and the Western Australian Arthritis and Rheumatoid Foundation.

15. INDEPENDENT LIVING CENTRE

The nursing sister forms an integral part of the co-ordinated information service provided by the centre. The statistics show that

20% of enquiries are from nurses; these enquiries have a nursing bias (eg. areas of incontinence). This centre's nursing sister has expertise in those speciality areas which are not available from any other information source in Perth, in fact her role is unique in that it is the only position in Australia.

On October 5th the centre was re-located in new premises at the Royal Perth Rehabilitation Hospital. A new showroom is being built attached to the office area and the nursing sister has accepted the responsibility for the design and furnishing of the "disabled kitchen".

Team Figures

Clients seen at centre	1,033
Professional visits	918

16. HOSPITAL LIAISON SECTION

1982 has seen an increased awareness in the metropolitan hospitals of this section's role. None the less, difficulties are still being experienced with country clients who are sent to Perth under the Isolated Persons Travel Allowance and Accommodation Scheme. (I.P.T.A.A.S.)

The Royal Flying Doctor Service, Western Australian Section and Eastern Goldfields Section, are most co-operative with the repatriation of clients but a number of difficulties have been encountered when trying to return clients to the Kimberley Health Region through the Victorian Section of the Royal Flying Doctor Service.

This section continues to act as a public source for information calls and generally the enquiries are directed to some matter which has recently received media publicity (eg. whooping cough scare).

17. MULTIPLE SCLEROSIS

The Multiple Sclerosis Association, to which several departmental staff are seconded, eg. two (2) nurses, a physiotherapist and a social worker, moved into new Day Care premises. Unfortunately the design of the building is unsuitable for "wheel chair" clients.

Statistical Summation of Field Nurse during 1982

Number of client visits in year	498
Number of relatives contacted	17
Number of newly diagnosed clients	16
Number of clients on Community Health Register (excluding permanent care)	160
Number of clients admitted to permanent care	5
Number of clients who regularly attend the Multiple Sclerosis Centre	40

18. POLICE DEPARTMENT

The nurse has continued to give health education lectures to trainee police groups.

Police medicals and screening have continued although much of the work previously done by the nurse is now the responsibility of the new full time medical officer.

Preliminary talks have been held concerning supervision of this nurse and it is generally agreed that she may be better suited to the Occupational Health Section.

19. HANSEN'S CLINIC

This special clinic continued to be held weekly at the Queen Elizabeth II Medical Centre. 47 clinic sessions were held during the year with 159 clients seen. 252 children in hostels and attending schools on Commonwealth grants were examined.

20. INDO-CHINESE IMMIGRANTS

Table 1 shows the number of immigrants arriving during the year by month of arrival and Table 2 shows the main problems found in initial screening. A note needs to be made that the intestinal parasite rates are not a true reflection of prevalence, as an initial stat dose of Combantrin is given on arrival, and stools are only checked when produced about a week later. This must be borne in mind when trying to interpret the data.

One carrier of S.typhi was detected, but all medical attempts to achieve clearance failed. He is an adult male who has been given complete courses of Chloromycetin and also Amoxicillin. Invitro testing showed the organism to be sensitive to most antibiotics and the failure to obtain clearance must mean the inability of the drugs to reach the organism.

It is interesting that two cases of vivax malaria were found on arrival as previous experience showed that most cases only relapsed months after arrival. Prophylactic radical treatment is being continued for all these immigrants.

TABLE 1

INDO-CHINESE ARRIVALS

REFUGEE IMMIGRANTS - 1982

MONTH OF ARRIVAL	NUMBER
January	107
February	93
March	122
April	51
May	85
June	83
July	115
August	149
September	72
October	12
November	-
December	97
TOTAL	986

TABLE 2

INDO-CHINESE REFUGEE IMMIGRANTS

RESULTS OF INITIAL SCREENING, 1982

DISEASE/PROBLEM	NUMBER DETECTED	PERCENTAGE
Dental Caries	368	37.3
Pediculosis	486	49.3
Scabies	292	29.6
Trachoma	16	1.6
Tinea	9	0.9
Pityriasis Versicolor	105	10.7
Thallasemia trait	27	2.7
Tuberculosis	25	2.5
Syphilis	6	0.6
Previous treponemal infection	35	3.6
Otitis Media	8	0.8
Hypertension	18	1.8
Anaemia	21	2.1
Poor Vision	12	1.2
Hansen's Disease	Nil	-
Giardia lamblia	16	1.6
T. trichiura	30	3.0
Ascariasis	19	1.9
Strongyloidiasis	7	0.7
Chlonorchiasis	2	0.2
S. typhi	1	0.1
Other Salmonella	8	0.8
Shigella opp.	10	1.0
Hookworm	14	1.4
Malaria	2	0.2
TOTAL IMMIGRANTS	986	100.0

ALLIED HEALTH PROFESSIONALS REPORTS

1. PHYSIOTHERAPY

Mrs. M. Norman, Senior Physiotherapist, reports that two (2) trips were made to the Pilbara and one (1) to the Kimberley to provide support and help solve the paediatric problems with the physiotherapy staff in these Regions. These visits have lessened the isolation of staff in remote areas and any new resource materials and ideas are always enthusiastically received.

The main work continues in the Child Development Centre where 144 new children were seen and 415 treated on an ongoing basis. Physiotherapists in the two Special Schools continued to provide an excellent service to the physically and intellectually handicapped children in their care. A consultant service is also being provided for physically handicapped children at the W.A. School for the Deaf.

2. OCCUPATIONAL THERAPY

Mrs. J. Lynn reports that the therapists are involved in:

- Preventive education in the play and information mobile service where the needs of children in their formative years are stressed - to enable them to develop to their full potential;

- Early intervention programmes - assessment and treatment of "at risk" children;

- Individual and group therapy programmes;

- Holiday programmes and camps - therapists in the Special Schools attend these camps and provide skills in independence training;

- Home visiting;

- Transport Training and Work Experience - the occupational therapists at the Special Schools work with the potential school leavers to assist, where appropriate, in training for the use of public transport and investigating resources for work experience for these young people;

- Case conferences;

- Ongoing education and training of students.

3. SPEECH THERAPY

Miss Britten reports that the therapists in the Service continue to offer a wide variety of management approaches. Following diagnostic assessment, children are managed on home, school, day care programmes, individual or small group therapy with either child or parent focus, or are traced on a review basis. The type of management offered to a child and his family, will from time to time alter and clinicians time is therefore spent in regulating the most appropriate form of management possible, given the restraints of time and case loads. An integral part of any clinician's role is conferencing with other team members, and home, school or day care visits, for both diagnostic and therapeutic purposes. An essential part of all clinicians time is spent in assisting the significant people in the child's environment to deal with the presenting communication disorder and its management.

The evaluation of assessment data, report writing, preparation of programmes, team consultation and liaison with outside agencies as well as staff within our own service are essential requirements for all clinicians. It is hoped that improved record keeping in the future will reflect more accurately the range of activities required in case work.

Groups for the parents of children between 2 and 3½ years of age continue to be run. In addition groups for children with high level processing problems, syntactical difficulties, stuttering, oral dyspraxia, and articulation were offered. Speech therapists in the Special Schools continue to work very closely with the occupational therapists and teachers in a variety of group activities, both in and outside of the classroom setting. It should be stressed that although at a particular time in a child's management, group intervention may be most appropriate, not all children and their families are best serviced by group work.

Whatever management technique is used, working with parents and having contact with people in the community who are involved with a child is an integral part of a speech therapist's role.

4. SOCIAL WORK SERVICES

Mrs. M. Donovan reports that the year was particularly difficult due to staff changes and shortages caused by delays in filling vacant positions.

The social worker forms part of the multi-disciplinary team and provides social work support to other disciplinaries especially nursing staff.

Individual and group care work is undertaken. Whenever possible the focus is on the family as a unit.

Groups offered have included support groups for parents of physically handicapped children, and for parents of intellectually handicapped children; various parenting skill groups for parents experiencing difficulty in coping with their children's behaviour; groups for children including a group for 10-12 year old children with low self esteem.

Each social worker has provided a consultation and liaison service to other members of her team, to Branch field staff, to other professionals in the community and to parents who ring the centres. This is a significant and growing aspect of the social work function in the Branch. It is an economic use of social work time, as, with this back-up, field staff are often able to deal with situations which would otherwise have become referrals. It also helps cement working relationships with field staff and other agencies.

Needs for social work support have been identified in the Armadale and Rockingham regions. Additional staff are also required in the Koondoola area and in schools for physically disabled children.

Nutrition and Dietetic Services

Miss L. Boulden reports that as the resource person on nutrition matters for the staff of Community and Child Health Services, numerous telephone calls and letters are received requesting advice or further information on specific topics. Requests from the general public have increased recently.

Resource materials are produced to meet more general staff needs. In 1982 the nutrition components of the "Maternal Health" and "Care of the Elderly" handbooks were prepared. A slide/tape programme "Eating - A Way of Life" was produced. The "Caring for Baby" booklet (English and Vietnamese versions) was revised and reorganised to provide more advice and advocacy for breast feeding.

A new booklet "First Foods for Baby" has been written with assistance from the child health section for use in and distribution from child health clinics. The exercise of pre-testing this booklet with the target group for whom it is intended, (i.e. single mothers and women with a low income living in flats) convinced all those involved that materials should never go to print before being pre-tested.

The health education section has launched a programme to improve school canteens and the planning stage has involved a number of meetings and the preparation of educational materials.

There are regular lecturing commitments in the training programmes of child health sisters, mothercraft nurses, Western Australian School of Nursing 3rd year trainees, Western Australian Institute of Technology child health nurse trainees and dental health nurses. There is also participation in all staff orientation programmes and health worker workshops.

Trips with community health have included visits to Port Hedland, Jigalong, Derby and Kalgoorlie.

In 1982 an effort has been made to integrate the three dietitians working in community health centres in the country into the services of the Public Health Department and make them more aware of the wider role of the department. A one week orientation programme was organised for these dietitians in November.

The table below shows the services provided by the country dietitians and the number of clients seen throughout 1982.

Location	Employment Time	New Clients	Clients for Review	Clients seen in Group Sessions
Geraldton	Full time	387	1,356	817
Mandurah	3 sessions/week	144	195	284
Busselton	3 sessions/month	68	220	53
Margaret River	1 session/month	10	45	29
Augusta	1 session/month	8	55	27

The sphere of responsibility of the senior dietitian is very broad, ranging from problems of obesity in school children to growth failure in Aboriginal infants in remote areas to food standards and menu planning in nursing homes. Without another dietitian to whom duties can be delegated it is impossible to give adequate attention to all the nutritional problems identified by the staff. This is becoming more evident with regionalisation and it is hoped that this situation will be improved in the future with the appointment of a dietitian/nutritionist in each region.

5. Mrs. Sandy Hopkins, Ethnic Liaison Officer, reports that she has been involved in providing information to the Community and Child Health Services staff on cultural factors affecting health care. She has also been involved in training of health workers during orientation and ongoing educational programmes. Part of the service is to provide information on cultural factors through literature searches. Liaison with ethnic communities has been the major role as well as maintaining links with tertiary institutions. During the year 18 pamphlets were produced including translations. An outreach programme for migrant women was run at the Balga Community Health Centre in conjunction with the Community Health Nurse. The aim of this project was to provide health education and promotion of self help activities.

Appendix IV

COMMUNITY HEALTH PROGRAMME

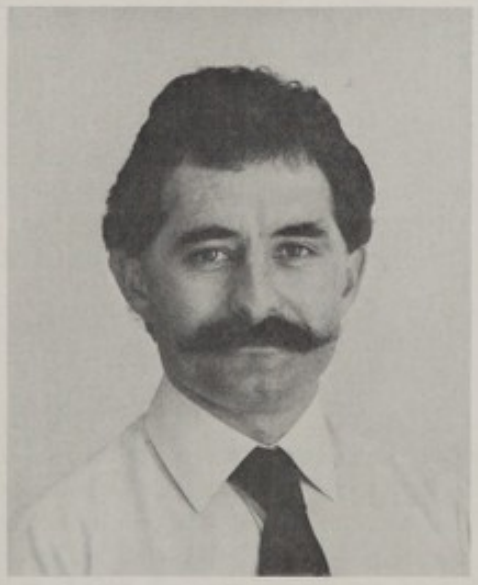
SENIOR STAFF

Deputy Commissioner of Public Health : Dr. L.J. Holman
Principal Physiotherapist : Mrs. C. Diamond
Social Work Supervisor : Mr. F.C. Parker
Senior Chiropodist : Mr. L.C. Foley
Asst. Administrative Officer : Mr. A.R. Boreham

L.J. Holman
J.P., M.B.B.S., F.R.C.S.E., D.P.H., F.A.C.M.A.
Deputy Commissioner of Public Health

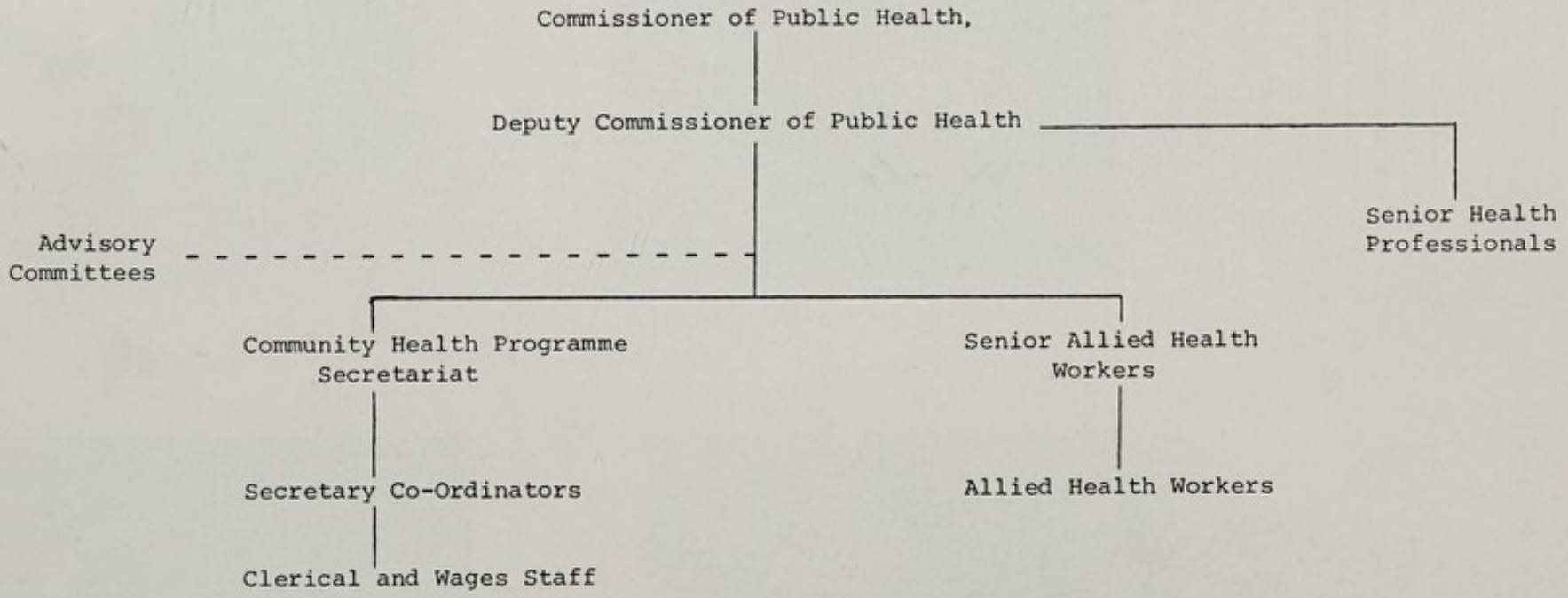
Mrs. C. Diamond
Dip.Phys.
Principal Physiotherapist

F.C. Parker
B.Ap.Sc., Dip.Soc.Stud.
Social Work Supervisor



L.C. Foley
Dip.Ch.
Senior Chiropodist

COMMUNITY HEALTH PROGRAMME - ORGANIZATION CHART



COMMUNITY HEALTH PROGRAMME

FINANCE

The 1982-83 allocation for Community Health Programme activities of $6,383,400 (including $863,000 for womens refuges), was a similar level to that provided in 1981-82. Although no new initiatives were funded there were a number of small but significant expansions in some existing programmes.

The State's allocation for subsidies for Aged Person's Homes furnishings, pensioner chiropody services, Senior Citizens Centres operating losses, and capital funding (State share only) totalled $686,000. This figure does not include various grants and subsidies obtained from the Commonwealth Government for Welfare Officers and Senior Citizens Centres.

UNIVERSITY

During the year negotiations for the sub-leasing of the Claremont Community Health Centre to the University of Western Australia, Department of Community Practise were completed. In essence the Centre has been leased to the University for a five year period to strengthen and further develop the emphasis on specialised community practise training.

DAY CARE

Action was also taken to establish a position for a nurse to co-ordinate the development of a network of day care services for aged and/or disabled persons. The aim of these centres is to improve the quality of life for aged and/or disabled persons. The day care co-ordinator will be appointed early in 1983.

WOMEN'S REFUGES

Funds for the Women's Refuge Programme were increased by $222,000 to $863,000. This increase enabled the payment of a higher salary subsidy for refuge workers and also restored the level of funds provided to local authority sponsored refuges to a level equivalent to 75% of estimated costs.

DIETETICS & NUTRITION

The dietetics and nutrition services provided under the Community Health Programme were increased with the appointment of a sessional dietitian to work at Mandurah. At the end of 1982 there were sessional dietitians employed at the Mandurah and Busselton Community Health Centres and at Margaret River and Augusta. A full-time dietitian is employed at the Geraldton Community Health Centre. Priority is given to involvement in

community education activities and group sessions are conducted whenever feasible. However attention must also be given to the need for some patients (particularly diabetic patients) to be consulted on an individual basis. Provision of an adequate service to individuals is often difficult given the limited amount of time the sessional dietitian has available.

At Lockridge Community Health Centre, fourth year dietetic students, working under the clinical supervision of their lecturers provided dietary and nutritional counselling to over 200 clients. Some of the main problems encountered were diabetes, hypertension, eating difficulties of clients with terminal cancer, lack of knowledge about budget planning. In addition weight control and nutrition education classes were conducted at the Lockridge Primary School.

A full list of Community Health Programme projects is given at the end of this report.

SOCIAL WORK

Social work services have again been stressed to the limit during the year with a necessary priority being given to crisis referrals at the expense of preventative and health related community development work.

Five new services were undertaken during the year.

1. Manning

   A Social Worker was stationed at the Manning Community Health Centre to give a Social Work service of a health related nature with an emphasis on working in the Bentley and Karawara areas.

2. Willetton & Koondoola

   A part-time Social Worker was placed in each of the Willetton and Koondoola Special Schools for physically handicapped children.

3. Department Counselling Service

   A confidential personnel counselling service was initiated in the Department to offer a service to Departmental Officers whose work performance is being or is likely to be affected by personal problems.

4. Aged Persons

   A part-time (50% full-time) Social Worker has been employed to undertake support work for volunteer groups offering their services to support aged people to remain in their own homes. This officer is available for consultative work to various organizations, either applying for or supported by grants under the Aged Persons (Home Care) Act.

5. Multiple Sclerosis

   A support and consultative service has been given to the Multiple Sclerosis Society in an effort to meet some of the unique health related social problems experienced by sufferers from this terrible disease.

This year has been extremely frustrating in that the demand for services cannot be matched with available resources. Significant unpaid overtime has been worked and this, added to the stress of attempting to determine priorities from relevant referrals has taxed the stamina of officers to the limit.

Recognition must be paid to the relieving Social Worker who has relieved in twelve different locations throughout the State during officers' absence on leave. This disruption to her home and private life has been significant.

In Appendix A and B is a summary of the work performed by some of the Social Workers in different positions throughout the State. The statistics of work are not comparable one officer with another because of the different types of work they do. Nor do the statistics indicate the significant amount of community work of a direct or consultative nature undertaken.

PHYSIOTHERAPY

Physiotherapy services during the last year have continued to be innovative and developmental.

Areas in which physiotherapists are involved include:-

a) Health Centres
b) C. & C.H.S.
c) Multiple Sclerosis Society
d) Chest Clinic
e) Elderly people's Fitness Programmes

Below are some sample figures to illustrate the service provided in 1982-83.

Child Development Centre	: 559 clients (including 144 new cases)
Koondoola Special School	: 74 clients
Willetton Special School	: 83 clients
Respiratory Disease Programme	: 490 clients
Keep Fit for the Elderly	: 986 clients

In each area patients are treated on request for specific need. Wherever feasible preventative and maintenance programmes are undertaken to enable people to better control their health and independence. Such programmes include -

a) Ante and post natal programme
b) Swimming programmes for asthmatic children
c) Swimming programmes for arthritic patients
d) Classes for ankylosing spondylitis patients
e) Fitness programmes for all age groups
f) Co-ordination and developmental classes in special schools
g) Relaxation and stress programmes, involving the teaching of massage techniques.

The development of these and other programmes have been noted by the W.A.I.T. Department of Therapy and all student training now includes an emphasis on preventative health measures.

Two areas have occupied us particularly during this year. The first is the development of a specific service for clumsy children. It is estimated that 6-7% of all school age children have a problem of sufficient significance to warrant intervention. The results so far have been most encouraging.

In the case of the elderly, fitness programmes have been undertaken to help the older person maintain their independence. In the metropolitan area, 1,000 people are involved. Classes in country districts are well underway with involvement increasing every week. The development of the team concept in the provision of services for aged persons continued with the appointment of a physiotherapist to be full-time co-ordinator for the fitness programme and an increase in the number of sessional physiotherapists employed to provide classes. At the end of 1982 there were fifty five classes functioning in the metropolitan area and several classes being started in the country areas using existing staff. We are presently developing swimming programmes for the less able and expect excellent results.

CHIROPODY

During 1982, a greater participation in the health education sphere took place. Staff gave more foot health lectures to other health professionals as well as members of the public than before. This involvement included the production of slide/tapes on various aspects of foot health. The response to these from Community and Child Health Services staff was excellent and additional ones are planned for the new year (1983). The increased podiatric knowledge among other disciplines greatly enhances the total effect of the small number of Departmental Chiropodists. Commonwealth funds were also made available to commence a domiciliary chiropody service in co-operation with the Silver Chain Nursing Association. Only three sessions per week were allocated, and this limits the availability of the service to a small section of the metropolitan area. This has proved to be a worthwhile and necessary service.

The winding down of the Department's involvement in the Claremont Health Centre saw the transfer of the chiropody item to the Kwinana Community Health Centre. Also due to increased demand, the sessional chiropody position at the Mandurah Health Centre was converted to a full time position. This will be filled in early 1983. As an expansion of services a weekly session was commenced at the Koondoola Special School for intellectually and physically handicapped children. The Willetton Special School is also keen to benefit from such a service.

Both the Kwinana and Geraldton clinics are now fully equipped with separate appliance making areas (an integral part of any chiropody service) and all full-time health centre clinics are now restricted to treating pensioners (aged) and medical benefit card holders only. This is to ensure that those in need who cannot afford private fees have access to a service and at the same time, those who can afford private fees are directed to a local private surgery.

In 1983 it is hoped that a greater emphasis can be placed on educating the public, both through the schools and health centres. A greater input here may increase the public's awareness of their feet and their foot health.

APPENDIX A

BREAKDOWN IN PERCENTAGE TERMS OF REFERRALS

COMMUNITY HEALTH CENTRES	Total Referrals	Doctors	Nurses	Self Referred	Other Agencies	Other Professionals	Hospitals	Home Visits	Office Interviews	Groups (Individual) Attendances
Busselton	211	54%	8%	18%	16%	2%	2%	235	435	666
Lockridge	202	20%	15%	46%	14%	2%	3%	659	682	255
Geraldton	168	30%	22%	13%	15%	2%	16%	194	354	-
Karratha	240	16%	6%	26%	11%	19%	22%	106	709	-
Kwinana	395	11%	9%	39%	30%	3%	7%	312	845	-
Mandurah	183	21%	17%	21%	30%	2%	10%	635	607	-
Manning	130	27%	12%	9%	27%	15%	10%	388	87	114
South Hedland	255	18%	2%	25%	10%	5%	41%	621	701	
Relieving S.W.	153	15%	24%	30%	18%	10%	3%	111	285	45

APPENDIX B

BREAKDOWN IN PERCENTAGE TERMS OF REFERRALS

	Total Referrals	Doctors	Nurses	Hospitals	Self Referred	Other Professionals	Home Visits	Office Interviews	Groups (Indiv.) Attendances	Professional Consultations	
										Phone	Int. Cons.
COMMUNITY & CHILD HEALTH SERVICES											
Child Dev. Centre Social Workers (2.5 full-time)	211	27%	37%	-	16%	20%	171	363	443	721	547
CHILD HEALTH SERVICE CENTRES											
Queens Pk. 14½ hrs p.w.	59	16%	58%	2%	20%	4%	96	7	105	22	3
Koondoola 23 hrs p.w.	97	15%	58%	1%	20%	6%	181	37	-	-	275
Southwell 20 hrs p.w.	69	20%	48%	-	30%	2%	51	20	-	79	59

PUBLIC HEALTH DEPARTMENT - W.A.

COMMUNITY HEALTH PROGRAMME

At 31st December, 1982 the following projects were funded under the Community Health Programme -

1. MANDURAH COMMUNITY HEALTH CENTRE)
2. BUSSELTON COMMUNITY HEALTH CENTRE)
3. KWINANA COMMUNITY HEALTH CENTRE)
4. LOCKRIDGE COMMUNITY HEALTH CENTRE)
5. KARRATHA COMMUNITY HEALTH CENTRE)
6. SOUTH HEDLAND " ")
7. GERALDTON & REGION " ")

These Centres provide a range of paramedical services on an individual and group basis. The emphasis of these services is on prevention and rehabilitation. In most centres space is also leased to private medical and/or dental practitioners and in the country arrangements are made for regular visits by specialists.

8. CLAREMONT COMMUNITY HEALTH CENTRE - See text of report.

9. CHILD DEVELOPMENT CENTRE - Centre provides diagnostic, assessment and treatment service for children up to the age of 17 years, together with undergraduate and post graduate teaching facilities.

10. WOMEN'S HEALTH CARE HOUSE - Provides medical care in aspects of health care particularly relevant to women (eg. gynaecological health screening and testing) and a range of health related welfare and information services.

11. HEALTH EDUCATION RESOURCE CENTRE - PERTH, MIDLAND, ARMADALE, FREMANTLE, SOUTH HEDLAND.
Provision of health education services. The Perth Office obtains or prepares resource materials and provides professional support to officers who work in conjunction with other health workers (particularly in Community Health Centres).

12. ARTHRITIS COMMUNITY SERVICE - Provides a field nursing and advisory service to people who have arthritis as well as to other staff involved in assisting arthritis patients.

13. COMMUNITY NURSING SERVICE - STATE WIDE - Provides a community nursing field service including health promotion and education related activities.

14. RESPIRATORY DISEASES PROGRAMME - Provides diagnostic and out-patient services including home visiting relating to respiratory diseases to persons with chronic non tuberculosis chest conditions.

15. COMMUNITY HEALTH PROGRAMME - SECRETARIAT - Provides administration and supervision of Community Health Programme projects in Western Australia together with related research and development of new projects.

16. HEALTH STUDENT ATTACHMENTS - The purpose of this programme is to enable health students to work and gain experience with general practitioners and/or other health professionals.

17. MANNING COMMUNITY HEALTH CENTRE) Minor Community Health Centres
18. LAKE VARLEY " " ") which provide a base for community
19. CERVANTES " " ") nursing services and in some cases
20. NULLAGINE " " ") school or child health nurses, and
21. BREMER BAY " " ") visiting health and medical
22. DALWALLINU " " ") services. Provides multi-
23. SOUTHWELL CHILD HEALTH SER. CENTRE) disciplinary screening and
24. QUEENS PARK " " " ") assessment services to pre-
25. KOONDOOLA " " " ") school and school populations
) in the respective districts.

26. MOBILE CHIROPODY SERVICE - Provision of a chiropody service to rural communities on a visiting basis.

27. HEARING CONSERVATION IN INDUSTRY - Provision of a team to measure, evaluate and control noise levels in industry.

28. ASTHMA FOUNDATION OF W.A. - MEDICAL SOCIAL WORKER - Provision of information and health related welfare services to asthma sufferers throughout the State.

29. PRE SCHOOL HEALTH TEAM - PERTH - Provides a screening assessment and treatment, physical, behavioural and developmental abnormalities to pre-school children in day care centres.

30. W.A. DEAF SOCIETY - INTERPRETER/WELFARE OFFICER - Provision of a welfare service by a person skilled in "sign" language for profoundly deaf persons.

31. STATEWIDE MAXIMIZATION OF RESOURCES - This project is to provide for the upgrading and utilization of existing buildings to enable the provision of services (mainly visiting) which would not otherwise be possible.

32. CENTRAL RESOURCE POOL - Provision of allied health, health related welfare and clerical services to voluntary and government agencies.

33. ETHNIC HEALTH SERVICES - Funds are used for the provision of community health and health related welfare services to ethnic groups, particularly the local Asian population.

34. HEALTH INTERPRETER/TRANSLATOR SERVICE - Project's purpose is to provide community health and health related welfare services/health interpreter/translator services to ethnic groups.

WOMENS REFUGE PROGRAMME

35. NARDINE WOMENS REFUGE (Nardine Collective)
36. WARRAWEE " " (Fremantle City Council)
37. MARY SMITH NIGHT SHELTER (Mary Smith Night Shelter Assoc.)
38. AVE MARIA WOMENS REFUGE (Daughters of Charity)
39. BYANDA EMERGENCY LODGE (Salvation Army - Perth)
40. STIRLING WOMENS REFUGE (City of Stirling)
41. LUCY SAW CENTRE (Lucy Saw Centre Assoc.)

42.	ACRAH WOMENS REFUGE	(Association for the Care & Rehabilitation of Alcoholics and Homeless Persons Inc.)
43.	EMMAUS WOMENS REFUGE	(Socius Inc.)
44.	NORTHAM WOMENS REFUGE	(Northam Share and Care Group)
45.	FINLAYSON HOUSE	(Goldfields Womens Refuge Assoc.)
46.	JESUS PEOPLE WOMENS REFUGE	(Jesus People Welfare Services Inc.)
47.	WONTHELLA HOUSE	(Geraldton Womens Refuge Assoc.)
48.	O'NEIL HOUSE	(Salvation Army - Port Hedland)
49.	KARRATHA WOMENS REFUGE	(Salvation Army - Karratha)

Under this programme financial support is given to community groups and local government authorities. A women's refuge is a place which provides short term accommodation as well as emotional and practical support for women and children who are escaping intolerable domestic situations and other crisis situations which result in homelessness.

Appendix V

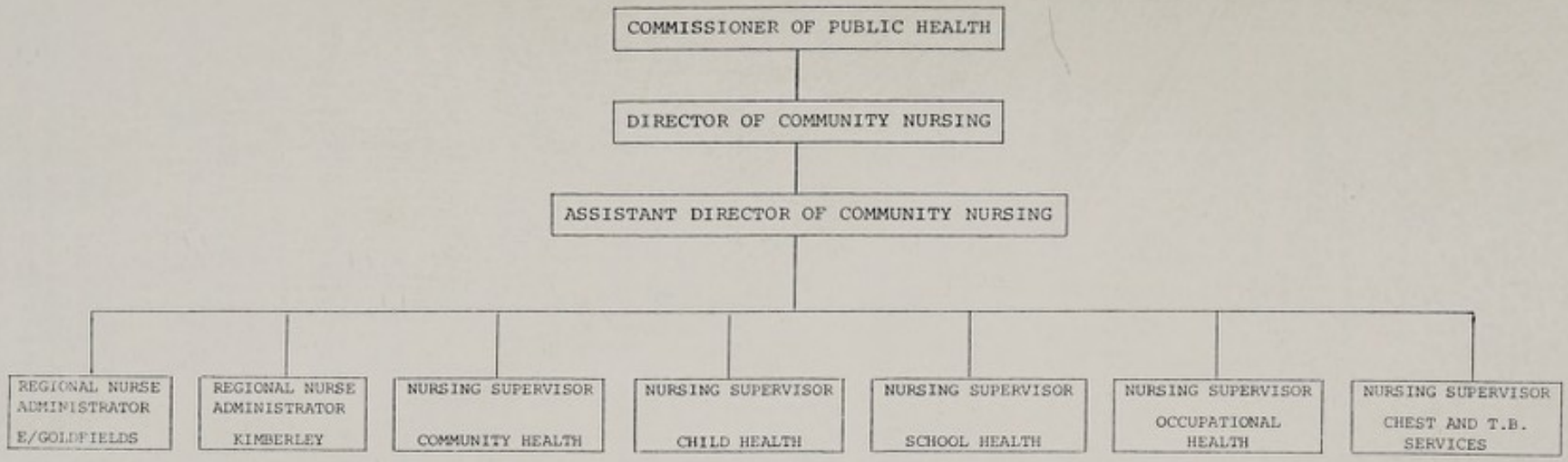
COMMUNITY NURSING SERVICE

Miss P.M. Reid
F.C.N.A., Dip.N.(N.Z.)
Principal Director of Community Nursing

SENIOR STAFF

Principal Director of Community Nursing : Miss P.M. Reid
Deputy Principal Director of Community Nursing : Mrs. P. Baskin

COMMUNITY NURSING SERVICE - ORGANIZATION CHART



COMMUNITY NURSING SERVICE

STAFFING	1 Jan. 1982	31 Dec. 1982
Chest & Tuberculosis Services		
Visiting Nurses	13.5	13.25
Child Health Section		
Child Health Nurses	144	139
Community Health Section		
Enrolled Nurses	8	5
Field Nurses	109	105
Health Workers	47	59
	1 July 1982	
Eastern Goldfields Public Health Region		
Field Nurse	27	35
Enrolled Nurse	2	1
Health Worker	14	17
	1 Jan. 1982	
Kimberley Public Health Region		
Child Health Nurses	2	3
Enrolled Nurses	1	2
Field Nurses	35	42
Health Workers	32	29
School Health Nurses	1	3
Miscellaneous Registered Nurses	3	3
Occupational Health		
Occupational Health Nurses	2	2
Special Treatment Clinic Nurses	6	6
School Health Section		
Enrolled Nurses	4	5
School Health Nurses	134	128
Staff Development Unit	-	8

1982 saw the return to a more normal staffing pattern in Kimberley and the Eastern Goldfields following the aftermath of the restrictions that occurred in the latter part of 1980 and the associated complexities which evolved in 1981. This enabled the revitalizing of essential public health nursing activities such as maternal and child health programmes and the surveillance and control of infectious and endemic diseases.

NEW VENTURES

Regionalization of the Eastern Goldfields occurred on the 1st July 1982, in keeping with the decentralizing plan and policy laid down prior to Kimberley becoming regionalized. Mrs. Gay Bernard was appointed Regional Nursing Administrator on 23rd August 1982 and Miss Marguerita Pawle was appointed Deputy Regional Nursing Administrator on 6th September 1982.

The enthusiasm and energy of the new Region's administrative staff (medical and general as well as nursing) engendered considerable esprit de corps in the Region. This positive influence, combined with the gradual replenishment of staff numbers, transformed the Eastern Goldfields from its depressed and weary state to an extremely happy and efficient service.

Staff Development Unit

In association with the Department's policy of regionalizing its field activities the Staff Development Unit was established within the framework of the Education Services Branch on 1st July 1982.

Eight nursing staff, who were already heavily engaged in in-service education, were transferred from the Community and Child Health Services Branch to the Staff Development Unit and, together with administrative support personnel, became responsible for the training and developmental requirements of Departmental field staff.

Planning for the proposed change commenced formally in February 1982. The Assistant Director of Community Nursing, Mrs. Baskin, joined the Assistant Commissioner of Public Health and the Deputy Director of Community and Child Health Services in regular planning meetings and staff consultation.

Pending the appointment of the Principal Staff Development Officer, the Assistant Director of Community Nursing acted in the position and was assisted in those duties for a period by the Senior Nurse Educator for Child Health, Miss Woolcott.

All in-service programmes for nurses and Health Workers planned before July and to be conducted after that date, were continued by the staff.

The Staff Development Unit conducted the Annual Nurses Conference at the University of Western Australia in August for all nurses in the Public Health Department. This major event went smoothly and was of considerable benefit.

Enrolled Nurse Special Class and Health Worker Special

The above classifications were created to recognise the outstanding contribution made to the Aboriginal health programme by particular Aboriginal staff. These new positions enable the appointees to operate at a more senior level in their respective roles and for the service as a whole to benefit by their leadership.

The first members of staff to assume these roles were:-

Mrs. Pat Thompson, Enrolled Nurse, Special Class,
on 1st October 1982

Mrs. Violet Drury, Health Worker Special,
on 1st July 1981.

Immunization

After months of combined effort by a special committee of the Nurses' Board of W.A. and staff from the Public Health Department, the nurse's role in the Statewide immunization programme was formalised.

The Nurses' Board issued a policy statement which set out the standards of practice required by a nurse administering immunizations. The Public Health Department devised and introduced a programme to educate its nurses throughout the State in accordance with the policy statement.

This joint endeavour was undertaken to solve a long standing problem. In situations where the public does not have ready access to a medical practitioner (usually because of distance), it has been common practice for a local nurse to give the routine immunizations. This has posed a legal and ethical dilemma for both the nurse and the distant medical officer. Dr. Roy Allen, Medical Officer in Charge, Epidemiology and Special Services Branch oversees and authorises the implementation of this educational programme in close association with designated nurses.

1982 saw the introduction of a Registered Nurse working in a mobile immunization van instead of a doctor.

Meanwhile parents of 5,959 school children were notified regarding the need to update their children's immunization, a reduction of 4,594 (44%) on the number of such notifications in 1981.

Meet a Mum Association ("MAMA")

This project was initiated to provide an opportunity for mothers of very young children to meet together, to help prevent isolation and loneliness and to improve communication between local families.

Six Child Health Nurses in the southern suburbs initiated support for the establishment of small MAMA groups and the Childbirth and Parenthood Education Association provided the organization and ongoing commitment for maintaining the group contacts. This part of the project shows great promise and a review is planned in mid 1983.

GENERAL

Tuberculosis

136 new cases of tuberculosis were notified in W.A. during the year. 25 less than the previous year. The majority of the new cases were caucasian. Very little hospitalization now occurs in the management of tuberculosis. Instead, nurses visit the patient at home. During 1982, 1100 home visits were made by 12 nurses trying to trace defaulters.

Miss Hannah Gilgan, the Nursing Supervisor, Chest and Tuberculosis Services, retired on 23rd July after almost 25 years service in the management of tuberculosis. She was succeeded by Mrs. Alyson Elliott who has considerable nursing experience with chest conditions and tuberculosis.

Occupational Health

Mrs. Howell, Nursing Supervisor, continued to act as a resource person regarding occupation health nursing for the public, for nurses (especially those in industry) and for managements. In addition to this she contributed occupational health nursing input to a variety of education programmes.

The Occupational Health Nurses participated in health surveys and biological monitoring of workers. Practical activities included lung function tests, audio-metric testing and the collection of blood and urine to test for a variety of potentially hazardous substances.

Nursing Services to School Children

138,861 vision screening tests were performed for school children during 1982. 2526 students were referred for further ophthalmological assessment for suspected visual problems and 1725 for suspected strabismus. 68% of all vision referrals were from metropolitan schools. 95,373 hearing tests were performed for school children during the year. 1479 students were referred for hearing problems, 517 for other E.N.T. problems. 47% of all referrals for hearing problems were from country children indicating that the prevalence of hearing loss continued to be high in country children.

33,037 children were screened for scoliosis which was a decrease of 11,771 from the previous year. However, the geographical coverage was extended to schools in Carnarvon, the Eastern Goldfields and the Pilbara.

6,934 periods of health education were given by school nurses during the year. The programme at each school was subject to the direction of the School Principal. Parents were invited to preview the films, slides and lesson plans which were used by the nurses in growth and development and in human attitudes, relationships and behavioural aspects of this programme.

Nurses continued to participate in providing services to children with physical, intellectual and sensory handicaps.

CHILD HEALTH

Schools Resources Unit:

Over 8,000 high school students, boys and girls, in almost equal numbers from Year 9 participated in the Parenthood Course with the help of 211 teachers in both senior high schools and independent high schools. The teachers continued to expand their students' participation in related activities and their own commitment to the Course. More teachers invited nursing mothers into the classroom to heighten awareness for the student of the real life situation.

Breast Feeding Trends

Child Health Nurses from 12 metropolitan and 6 South West Child Health Centres assisted the Princess Margaret Children's Medical Research Foundation in a study of Growth and Feeding practices of W.A. Infants, which was published in the Medical Journal of Australia in May 1982.

The study confirmed the recent return to breast feeding. More than half the mothers were still breast feeding at three months. This trend was most marked and sustained in the highest socio-economic group. Weight gains in infancy showed negative correlation with the duration of breast feeding. By twelve months of age, infants from families in the lowest socio-economic group, who breast fed least, were significantly heavier than those from the highest. This fits data which shows an association between social class and breast feeding, and breast feeding and weight gain.

PARENTHOOD UNIT

Father coached preparation for birth classes remained popular as did the associated post-natal classes. The latter continued to be concerned with the transition to parenthood as well as to physical fitness.

Post-natal Keep Fit classes were also provided for any new mother following her six week post-natal medical check.

Children's Day Care Health Team continued to screen children in Day Care settings i.e. regular day care, occasional care and family care. Only 62% of this target population were seen due, it is thought, to their transient characteristics. Statistics showed a continuing referral rate of 23% from the nurses. Confirmed defects stood at 9.4% of the children screened which is comparable to other studies in this field.

RESEARCH AND SPECIAL PROJECTS

Congenital Malformation Register:

Child Health Nurses continued to be involved in the completion of a Congenital Malformation Notification Card whenever an appropriate child was identified, and the information was sent to Dr. Fiona Stanley at the N.H. & M.R.C. Unit.

Dental Caries Survey:

Child Health Nurses were involved in a dental caries survey for Dental Health Services from the 1st January to 31st December 1982. On the survey form they recorded individual carious teeth for each child affected.

Infant and Maternal Statistics:

Miss Joan Bedford, Field Nurse: Research and Statistics, was responsible for the overseeing of the data collection and coding of the Midwives Notification system and for providing the Annual Midwives Report and incidental tables from this data, and for information relating to infant deaths made available to us by the Registrar-General's office.

Routine sets of race related stillbirths and infant death tables were produced.

It is thought there are two categories of birth for which the Public Health Department may not receive notifications. These are births conducted by medical practitioners without a midwife in attendance (some doctors do notify) and births conducted with no professional supervision and which are

not admitted to hospital or contacted by Public Health nurses of any kind. This matter is being pursued.

CHRONIC DISEASES

Nursing services continued to be provided to individuals and families affected by asthma, chronic respiratory diseases, multiple sclerosis, muscular dystrophy, arthritis and rheumatism. These services are aimed at educating and supporting those affected to have the necessary knowledge and skills to understand and manage the disease at home with minimal emotional trauma or social dislocation.

Asthma:

This service continued to be much appreciated by the public and there was a great increase in the number of requests for information and advice.

The asthma nurse participated in education sessions for groups, families and individuals, clinic sessions in association with chest physicians, country swimming programmes for asthmatics and the annual children's camp at Serpentine.

Chronic Respiratory Diseases:

The nurse working in this area held six Stop Smoking courses during the year. The average success rate was 53%.

Trachoma:

In association with the Western Australian Trachoma and Eye Health Programme and the Royal College of Ophthalmologists, Community Health created a small trachoma team in March, comprising of a nurse, a doctor and a health worker. They screened a total of 10,074 clients during the remainder of the year and worked closely with other Public Health staff involved in the control of trachoma. It was heartening to find that a comparison with the 1977 National Trachoma and Eye Health Programme revealed a marked decrease in the prevalence of follicular trachoma in many districts throughout the State. (Figures given in Director, C & C.H.S. report).

HEALTH WORKERS

Further development of the health workers Achievement Record took place during the year, more detail being given on the actual record in the Education Services Branch. The new Achievement Records were well received by Health Workers who appear to have gained in self confidence by having their worthy efforts acknowledged and recorded. Attention and priority was given to involving the Health Workers in a specially designed Maternal Health Programme. A Maternal Health Manual was produced to be used as a reference for the Health Worker and as a teaching tool by the nurse.

The established method of selection and system of education for Health Workers continued during 1982. Depending on where they lived they were able to participate in conferences, in either Broome or Perth or Carnarvon.

Throughout the State Field Nurses have continued to work with Health Workers to support and encourage various Aboriginal groups to undertake the provision of a nutritious meal each day to the young children and the frail and elderly.

Gentle Gym for Senior Citizens has continued to flourish wherever it has been introduced in the southern half of the State. Originally developed by Miss Margaret Heys, Field Nurse, at Langford during 1979. The concept has subsequently been taken up by physiotherapists who prescribe the exercises, and either physiotherapists or nurses conduct the classes. Further innovations have occurred in the Eastern Goldfields where, at the request of a local G.P., Field Nurses have introduced Armchair Gym at the nursing home run by the Little Sisters of the Poor.

When Mrs. Isabel Paterson, Field Nurse, took over the Armchair group in October she introduced a new dimension by playing her flute instead of using taped music. Her playing attracted two patients to join her to make a trio - a gentleman with a flute and a lady playing the piano. Rhythmic armchair exercises are now undertaken with great enthusiasm to the Trio's rendering of First World War "Pop" songs.

Still on the subject of the elderly, for some years now the Community Health staff in Port Hedland have arranged an annual Barn Dance to raise funds towards the erection of flats for local pensioners. So far they have raised over $10,000 and as theirs is not the only source of funding, the flats are now a reality and are reported to be a source of much comfort and pride.

Tea and Sugar Train

A Child Health Nurse, Mrs. Barbara Perry, made this trip each month. Various other service personnel accompanied her from time to time including a School Health Nurse once a term and a Dental Health team mid year.

The timetable for running the Tea and Sugar Train was changed from four days to 2½ days to fit the decreased number of settlements. The population remained steady however because the people from the defunct sidings were moved to the remaining sidings.

The shortened schedule for the train meant arriving at some sidings at inconvenient times e.g. 3.00 a.m. at Zanthus. People complained that the train did not stop long enough: average time in each town being one hour.

Citizen of the Year

Mrs. Ruth Hicks, Field Nurse at Gnowangerup received Rotary's Citizen of the Year Award. A reflection of the outstanding contribution this elegant lady has made to the Gnowangerup community.

Special Courses and/or Educational Visits Interstate and Overseas

Miss Catherine Haney, Flight Nurse, Kimberley attended an aero-medical course. It was conducted at Richmond, N.S.W. under the auspices of the R.A.A.F. Miss Haney was the only non-service participant out of 42 who completed the course. She found it a most informative and worthwhile exercise.

Miss Cheryl Augusston, Enrolled Nurse, Metro., was awarded an Aboriginal Study Grant to Observe the Teenage Pregnancy Program as undertaken in a special project at the Johns Hopkins Medical Centre, Baltimore, U.S.A.

Miss Joan Bedford, Registered Nurse, in conjunction with Dr. Fiona Stanley, presented a session at the South Australian Midwives Conference on Research and Evaluation for Midwifery Nursing (Needs and Uses of a Midwife's Notification Form). This trip was funded by the South Australian Midwives Association.

Departmental Nursing Representation

During 1982 the Assistant Director of Community Nursing, Mrs. Baskin, participated in the following:-

- The Advisory Committee for Nursing, W.A.I.T.
- The State Advisor for Kellogg Nursing Fellowships
- The State Selection Committee Kellogg Nursing Fellowships

Independently

Mrs. Baskin also made official visits to the Eastern Goldfields and Northern Regions and to various centres in the metropolitan area.

During 1982 the Director of Community Nursing, Miss Reid, participated in the following:-

- Nurses Board of Western Australia :
  Representing Community Nursing Administration: Ministerial Nominee.
- Administration of Drugs Committee : Nurses Board.
  This Committee produces and revises policy statements issued by the Nurses Board. The production of a statement pertaining to the safe administration of cytotoxic drugs proved to be particularly challenging but eventually well worthwhile for West Australian nurses.
- Child Health and Mothercraft Subcommittee: Nurses Board
- Registration Committee: Nurses Board
  This Committee scrutinises applications to register in Western Australia.
- Nursing Education Evaluation Project Advisory Committee: W.A.I.T.
- Standing Committee on Mothercraft/Child Care Course: Nurses Board
- West Australian Trachoma and Eye Health Association

The Director of Community Nursing accompanied the Commissioner, Deputy Commissioner and the Director of Administration on official visits to places in the South West, Eastern Goldfields and Metropolitan areas.

In October the Director of Community Nursing attended a Nursing Conference workshop in Melbourne on the Standards of Nursing Practice and the Goals in Nursing. Her report on the outcome of the week's activities was circulated to senior nurses.

CONCLUSION

As science and technology stride forward, sometimes dazzling us with their pace, complexity and benefits, the every day human experiences and basic needs of people seem in danger of becoming submerged into a quantitative but indifferent mass. The more human situations are converted to statistical order the more important it becomes for society to secure the props essential to the maintenance of a humane society. Nursing has an important part to play on this stage. In order to meet the associated responsibility, nurses must secure and strengthen their fundamental nursing function and thereby continue to keep our society kindly and personalized while at the same time providing the highest of professional care.

Within the constraints of available resources the Community Nursing Service of the Public Health Department met this challenge during 1982. Accessible quality nursing care was provided to the citizens of Western Australia at every stage of life from antenatal care to care of the bereaved. My thanks go to all those who worked so hard to make this possible.

Appendix VI

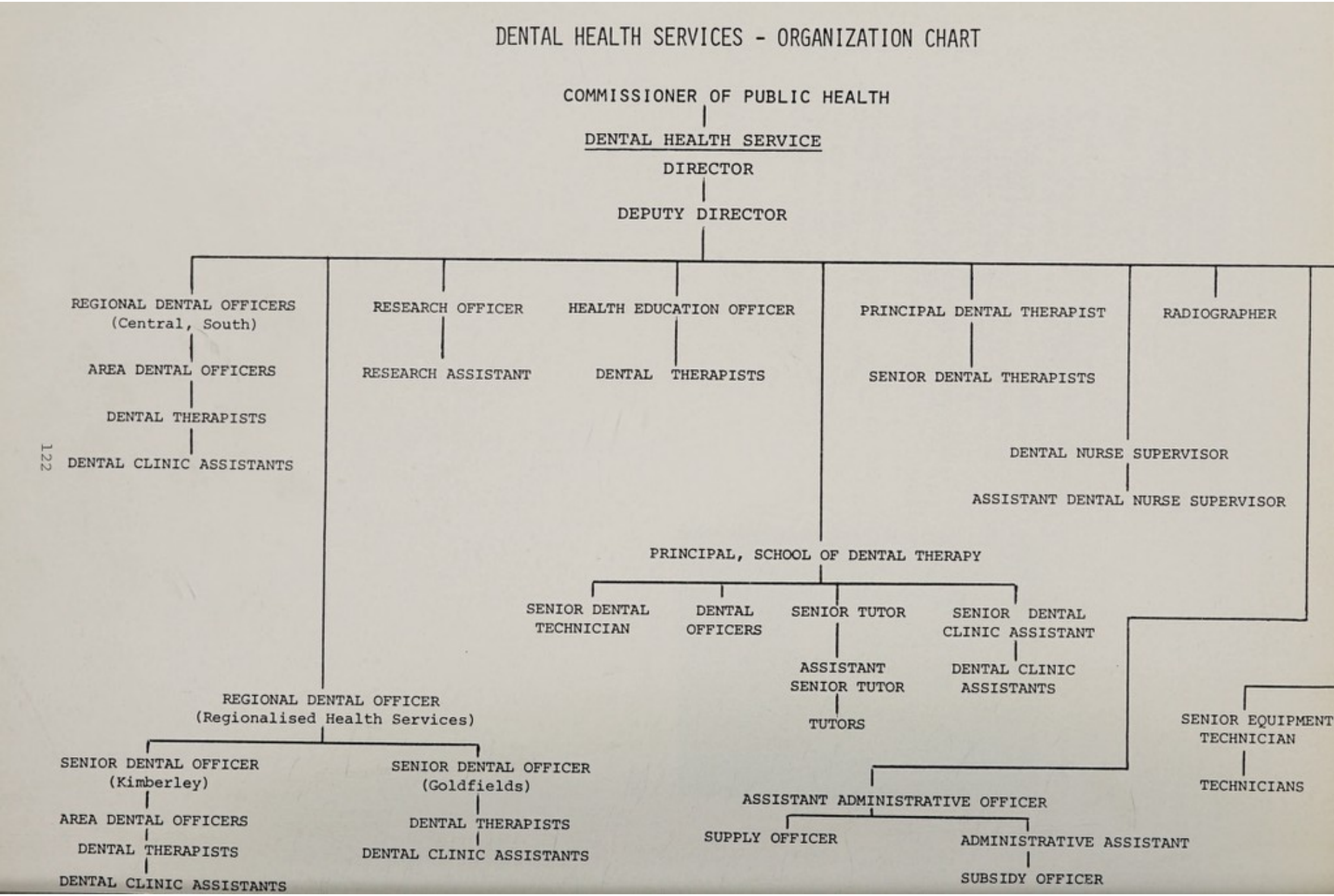
DENTAL HEALTH SERVICES

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

SENIOR STAFF

Director : Mr. J.L. Prichard
Deputy Director : Mr. H.G. Lamplough
Principal, School of Dental Therapy : Mr. D.C. Neesham
Assistant Administrative Officer : Mr. G. Drimatis

DENTAL HEALTH SERVICES - ORGANIZATION CHART



DENTAL HEALTH SERVICES

1. INTRODUCTION

1982 was generally a year of consolidation for Dental Health Services. Following the expansion during previous years of the School Dental Service throughout the State, the effectiveness of the preventive programme, coupled with continuing emphasis on working efficiency, resulted in a general improvement in operator : patient ratios.

Reallocation of resources within the Dental Health Service allowed the Itinerant Dental Service to provide clinical and preventive services to a number of remote communities not previously serviced. This was particularly noteworthy in the Kimberley. The initiation of a visiting service to Leinster to cater for the needs of the primary school children there was greatly appreciated by the community.

2. ADMINISTRATIVE SERVICES

2.1 STAFF

Staff numbers as at 31 December 1982 were as follows:-

Dental Officers	50
Dental Therapists	233
Dental Clinic Assistants	162
Clerical and General Staff	27
Wages Staff	31
Dental Cadets	7
TOTAL STAFF :	510

2.2 EQUIPMENT MAINTENANCE

The major items of dental equipment in use by Dental Health Service comprised, as at 31 December 1982:-

Dental Chairs	300
Dental Operating Units	330
Dental Operating Lights	330
Dental Evacuation Systems	300
High Speed Handpieces	360
Low Speed Handpieces	360
Low Speed Handpiece Attachments	1,200
Low Speed Motors	360
Air Compressors	150
Autoclaves	150
Dental X-ray Units	150
TOTAL MAJOR ITEMS :	3,990

The introduction, at the beginning of 1982, of a routine equipment maintenance programme to all clinics, caravans, and dental therapy centres throughout the State, significantly reduced the need for equipment repairs.

2.3 MATERIALS SUPPLIES

All dental materials for all clinics, caravans, and dental therapy centres in all regions are supplied monthly from the Dental Health Service Bulk Store. This store holds 1,800 stock items and 750 spare part items.

During 1982 the store supplied 380,000 items.

The store is also responsible for moving the majority of dental therapy caravans. During 1982 these caravans were towed a total distance of 75,000 km.

3. SUBSIDISED DENTAL SCHEME

3.1 INTRODUCTION

The country patients' subsidy scheme enables eligible persons in areas with no Government Dental Clinic to receive care from the local private practitioner and to obtain a cash subsidy from the Government towards the cost of the treatment. The amount of subsidy is calculated in accordance with an income test. The patient is responsible for payment of the balance of the account to the dentist.

Acknowledgement is made to participating dental practitioners; without their assistance the scheme could not have been extended to the many eligible recipients.

3.2 ELIGIBILITY

Persons eligible for assistance include

i) School children subject to family size and family income. Primary school children are excepted. They may receive care from either the School Dental Service, or a dentist of their choice at their own cost.

ii) Pensioners (aged, widowed and invalid).

iii) Recipients of benefits (supporting parent, sickness, unemployment).

iv) Missionaries.

Persons receiving benefits who are under the age of 18 years are considered to be the responsibility of the parent (unless they are living away from home). Applications relating to such persons are completed and signed by the responsible parent. Total family

income is required to be detailed. With respect to recipients of pensions and benefits, eligibility is dependent on a qualifying period of 6 months; i.e. the applicant must have been in the eligible category for at least 6 months prior to application for subsidy. The qualifying period does not apply to school children for whom eligibility is established by income test only, and not as a result of parents being in receipt of a pension or benefit for a stated time.

Emergency treatment, which includes relief of pain, treatment of infection, treatment of traumatic injuries, and repairs to dentures, maybe undertaken without prior approval.

Persons who belong to private health funds and who have cover for ancillary benefits are not eligible for subsidy assistance.

3.3 STATISTICS

Statistical data relating to the scheme are given in Table 1.

TABLE 1

SELECTED STATISTICS FOR SUBSIDISED DENTAL SCHEME : 1982

	Children	Pensioners	Others	Total
Applications Received	506	1,794	2,541	4,841
Applications Approved	487	1,762	2,405	4,654
Cost of Services ($)	33,619	347,348	369,717	750,684
Subsidy Paid ($)	28,252	267,521	291,608	587,381
SERVICES:				
Examinations				2,251
Extractions				2,964
Restorations				6,317
Dentures				1,309

4. CLINICAL SERVICES

4.1 GENERAL DENTAL SERVICE

The general dental service operates through a number of Departmental Dental Clinics situated in strategic towns in the north of the State where no private dental clinics exist. This is a demand-based service which provides comprehensive dental treatment to its patients. Specialist treatment, however is not provided, but referral to these services is offered.

4.1.1 Kimberley Region

Dental Clinics were maintained in Kununurra, Wyndham, Derby, and Fitzroy Crossing, with visiting services to Halls Creek, Looma, Koolan Island, and the Derby Leprosarium.

The Dental Clinic at Broome was transferred to private practice during the year.

4.1.2 Pilbara Region

Dental Clinics were maintained at Port Hedland, Exmouth, and Paraburdoo. These clinics provided regular visiting services to Goldsworthy, Shay Gap, Marble Bar, Telfer, Yandi Yarra, Strelley, Nullagine, Jigalong, and Onslow.

The Dental Clinic at Tom Price was transferred to private practice during the year.

4.2 ITINERANT DENTAL SERVICE

The Itinerant Dental Service brings dental care to communities remote from private dental practices and Departmental clinics. As far is practical each community receives two visits per year.

Basic dental treatment is provided to adults on a demand basis. Every attempt is made to provide a preventive dental service for pre- and primary school children similar to that offered by the regular School Dental Service.

During 1982 the Intinerant Dental Service was upgraded and its services were extended.

Upgrading was possible by the acquisition of modern fully equipped dental caravans that largely replaced the portable dental equipment previously used. These caravans visit communities situated on or close to bitumen roads. Additionally, a number of remote community centres were permanently equipped with dental chairs and operating lights, providing greater comfort for the patient and more appropriate operating facilities for the staff. During 1982 the Itinerant Dental Service extended its operations to provide a more frequent and regular service to extremely remote areas of the State than had been possible beforehand. This initiative was most prominent in the Pilbara and Kimberley.

A major shift in emphasis was the change from a demand-based treatment service for primary school children to a need-based preventive service, modelled on the School Dental Service.

4.2.1 Kimberley Region

An Itinerant Dental Service, based at Derby, provided services to La Grange, Lombadina, Beagle Bay, One Arm Point, Balgo Hills, Lake Gregory, and other Aboriginal communities.

4.2.2 Eastern Goldfields Region

Mobile Dental Clinics provided services to the North Eastern Goldfields and to communities along the Trans Australian Railway Line.

An Aerodental Service provided treatment for the Eyre Highway Communities, the Nullabor Pastoral Stations, the Cundeelee Aboriginal Community, and the Warburton Ranges Central Reserves.

4.2.3 Other Regions

Mobile Road Dental Clinics provided twice yearly services to isolated communities in the Pilbara, Murchison, Gascoyne, and the Northern and Southern Agricultural areas.

4.2.4 On Behalf of the Commonwealth

At the request of the Commonwealth, two visits were made to the Cocos Islands to provide dental care.

4.3 SUMMARY OF TREATMENT

Table 2 summarises the treatment provided by the General and Itinerant Services.

TABLE 2

SUMMARY OF TREATMENT PROVIDED BY THE GENERAL AND ITINERANT DENTAL SERVICES, 1982

	General Dental Service	Itinerant Dental Service	Total
PREVENTIVE			
Prophylaxis	1,392	777	2,169
Preventive Treatment	511	468	979
RADIOGRAPHY			
Films	1,407	126	1,533
OPERATIVE			
Amalgam Restorations	4,583	2,196	6,779
Synthetic Restorations	1,710	373	2,083
Gold Restorations	108	-	108
Crowns/Bridges	90	1	91
Root Canal Restorations	242	8	250
Sedative Treatments	1,229	200	1,429
SURGICAL			
Teeth Extracted	2,239	426	2,665
Minor Surgical Procedures	127	35	162
PROSTHODONTICS			
Complete Dentures	194	16	210
Partial Dentures	166	14	180
Rebase/Reline	37	12	49
Repairs/Additions	278	100	378
ORTHODONTICS			
Removable Appliances	39	-	39
TOTAL ATTENDANCES	14,352	4,752	19,104

4.4 SCHOOL DENTAL SERVICE

The School Dental Service offers dental treatment and oral preventive services on a needs-basis to all pre-school and primary school children throughout the State. Its overall goal is to continually improve the oral health of children.

The operational objectives of the School Dental Service are:

i) To provide structured systematic preventive programmes to reduce the prevalence of dental caries and gingivitis in pre and primary school children.

ii) To organise a system of dental care whereby accumulated needs are met on entry to the programme (initial care) and systematic periodic detection and correction of new increments of disease are met as soon as they occur (maintenance care).

iii) In co-operation with the Education Department and Community Health personnel, to conduct health promotion activities to prepare students to make knowledgeable decisions about their own and the community's oral health now and in the future.

iv) To carefully monitor and evaluate all preventive and control processes.

v) To provide effective referral for all treatment requiring specialist procedures.

vi) To effect positive referral to community dental services or private dental services (as the case may be) on completion of primary school.

These objectives are realised through the employment of Dental Therapists who work under the general direction and control of Dentists. Dental Therapists work in Dental Therapy Centres which are located throughout the Perth metropolitan area and in larger country towns. Smaller country towns are serviced by Mobile Dental Therapy Caravans which visit these communities twice a year.

At 31 December 1982, 918 primary schools and pre-schools were serviced by 137 Dental Therapy Centres (fixed and mobile).

A total of 189,730 primary and pre-school children were eligible for dental care. This represented 94.8% of the total primary and pre-school child population.

The coverage of the target population by the School Dental Service is given in Table 3.

TABLE 3

COVERAGE BY THE SCHOOL DENTAL SERVICE, 1974-1982

Year	Number of Dental Therapy Centres	Target Population (Primary School children)	No. of children with access to a Dental Therapy Centre	% of children with access to a Dental Therapy Centre
1974	9	152280	9810	6.4
1975	14	154089	18099	11.7
1976	39	157359	46466	29.5
1977	65	162081	70942	43.8
1978	89	165086	98319	59.5
1979	102	165245	110905	67.1
1980	127	165317	149422	90.4
1981	134	184615*	173198	93.8
1982	137	189730*	179854	94.8

*Primary, Pre-primary and Pre-school children.

4.5 THE REGIONALISED DENTAL SERVICES

The second stage in the regionalisation of dental services occurred on 1 July 1982 with the creation of the Eastern Goldfields Public Health Region. A harmonious, working relationship has been established between the Dental Health Service and the Region. A similar relationship continues to exist between the Service and the Kimberley Public Health Region.

An expansion of preventive activities in the regions (particularly the Kimberley) has resulted in a dramatic increase in demands on Dental Health Service for supply of toothbrushes and toothpaste. The use of these materials is being closely monitored in terms of their effectiveness in improving oral health. The extensive provision of dental services throughout the State by the Dental Health Service prior to Regionalisation insured that no changes in staffing levels or major expenditure on capital equipment have been necessary.

5. TRAINING SERVICES

5.1 UNDERGRADUATE TRAINING

During 1982 the Government decided to discontinue undergraduate training through Dental Health Service. Future Departmental requirements were to be provided by the Western Australian Institute of Technology and from Dental Therapists drawn from other States.

The ninth and last intake of first year trainees commenced their course in February 1982. Twenty students commenced and sixteen successfully completed their first year. Seven trainees commenced second year and six completed the course.

5.2 SERVICE ORIENTATION

A number of Graduate Dental Therapists were employed during 1982. Fourteen of these came from within Australia and four from overseas. A flexible orientation programme was introduced.

5.3 IN-SERVICE TRAINING

The Branch continues to emphasise in-service training at the local "area" level. These courses are organised by Area Dental Officers and cover a range of relevant subjects.

A major seminar in atraumatic techniques and new preventive regimens in paediatric dentistry was held during the year. Many distinguished visitors attended, including faculty from the Dental School and W.A.I.T., and members of the dental profession in private practice. These techniques will be introduced progressively throughout the Dental Health Service during 1983-84.

6. DENTAL HEALTH EDUCATION SERVICES

6.1 ADVISORY AND SUPPORT SERVICES

The Dental Health Education Unit continued to provide advisory and support services for dentists, dental therapists and other health and educational personnel throughout the State. 33 schools were visited following requests from School Dental Service staff and teachers for assistance with educational programmes.

8 field seminars for dental therapists were held, and 196 requests from the public for information about prevention of oral disease were serviced.

6.2 EXTRA MURAL EDUCATIONAL SERVICES

The Unit provided an educational service for health professionals and other community groups as requested. A total of 123 lecture/discussion sessions were conducted as listed below:-

Child Care and Mothercraft Courses	17
Schools of Nursing	12
Dental Nurse Training Courses	3
School Dental Therapy Training Courses	16
School Canteen Seminars	6
University Dental Students	2
Canteen Managers Course	2
CPUY and Community Care Groups	6
Parent groups at pre-school centres	53
Other Groups	4

Close liaison with the Education Department continued; the two major areas being the Advisory Committee on School Canteens and

development of the new Health Education Syllabus for schools.

7. EPIDEMIOLOGICAL AND RESEARCH SERVICES

7.1 EPIDEMIOLOGICAL SURVEYS

An ongoing assessment of the affects of the School Dental Service was continued on samples of metropolitan high school students; data on oral health status, oral hygiene practices, and dental visits were collected.

7.2 CLINICAL RESEARCH STUDIES

Field testing of several promising new restorative and preventive materials and techniques in paedodontics was initiated during the year. Particular emphasis was placed on the use of Silver Fluoride as a preventive material and on Glass Ionomer Cement as a fissure sealant and as a restorative material for primary teeth.

7.3 EVALUATION STUDIES

Continuing evaluation of the effectiveness of the School Dental Service was continued using the data processing format of the Australian School Dental Scheme. Selected parameters of the service are given in Table 4.

TABLE 4

SELECTED PARAMETERS OF THE SCHOOL DENTAL SERVICE, 1977-1982

	1977	1978	1979	1980	1981	1982
Number of children examined	25,391	90,774	136,487	182,821	226,982	229,104
Percentage of children with no caries experience in the permanent teeth at age 12	12.1	14.4	18.4	19.6	18.8	19.7
Mean number of missing permanent teeth per 100 children at age 12	19	16	10	7	8	5
Mean number of decayed, missing and filled permanent teeth per child at age 12	3.9	3.6	3.2	3.0	3.0	3.0
Mean number of decayed permanent teeth per child at age 12	1.3	1.1	0.7	0.6	0.6	0.6
Mean number of decayed deciduous teeth per child at age 6	1.3	1.2	1.1	0.9	0.8	0.8

8. MISCELLANEOUS

8.1 VISITORS

The Dental Health Service was pleased to receive visits from the following persons:-

Dr. G.G. Craig, Senior Lecturer in Paedodontics, University of Sydney

Dr. J. Kibble, Senior Dental Officer, South Australian Health Commission

Dr. A.G. Short, Principal, Dental Nurse Training School, Wellington, New Zealand

Dr. W. Videroni, Principal Dental Officer (Field Services), Department of Health, Brisbane.

8.2 VISIT

The Director attended the biennial conference of the New Zealand Dental Association in Christchurch.

8.3 PUBLICATION

Dental Health in Western Australian Children. G.W. Medcalf. Health in Schools : September 1982.

9. ACKNOWLEDGEMENTS

Throughout the year this Branch has enjoyed support and assistance from the Commissioner of Public Health Dr. J.C. McNulty and the Deputy Commissioner of Public Health Dr. L. Holman as well as the continued co-operation of all Branches and Sections of the Public Health Department.

As Director, I wish to acknowledge this support and in particular:

a) Mr. R. Smith, Principal Psychologist, Mental Health Service for assisting in arranging Psychology and the Human Relations Course.

Clinical Psychologist Mr. G. Van Ierland conducted Psychology and Human Relations Lectures to Dental Therapy Trainees.

b) Dr. V. Blackman, Director, State Health Laboratory Services, for assisting in arranging the microbiology practical class. Mr. M. Elliott assisted in conducting these classes.

c) Dr. K.J.M. Carruthers, Assistant Commissioner of Public Health allowed Mr. W. Lefler of the Health Education Services Unit to provide lectures in Communication.

d) Dr. C.F. Quadros, Director, Community and Child Health Services for assisting in arranging the Diet and Nutrition Course. Mrs. J. Nice and Ms. L. Boulden conducted these classes.

The assistance of these persons and organisations is appreciated.

In addition, the successful accomplishments of the Dental Health Service could not have occurred without the loyal and dedicated service of the personnel of the Branch. To these members I record my personal thanks.

Appendix VII

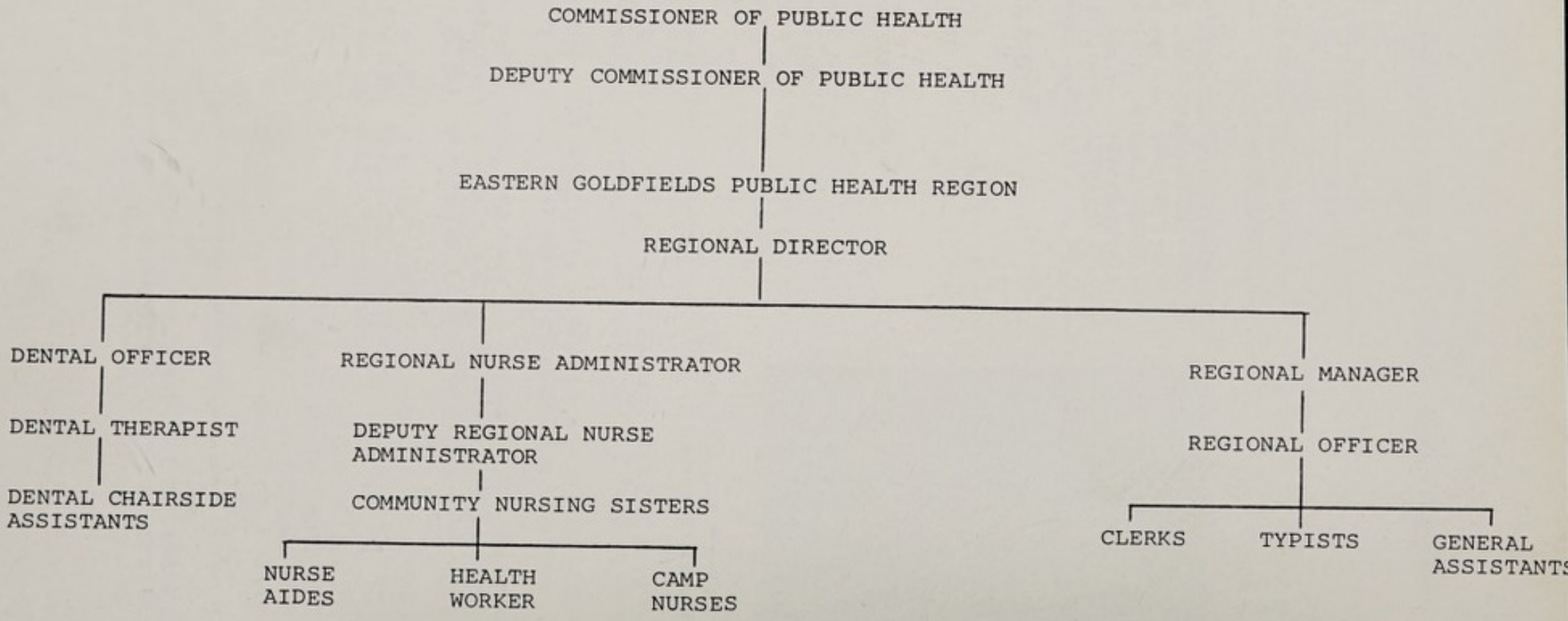
EASTERN GOLDFIELDS PUBLIC HEALTH REGION

SENIOR STAFF

Regional Director : Dr. D.R. Coid
Regional Manager : Mr. B.A. Clark
Dental Officer : Mr. K. Lomax
Regional Nurse Administrator : Mrs. G.A. Bernard

D.R. Coid
M.Sc., B.Med.Sci., B.M., B.S., M.R.C.P.
Regional Director

EASTERN GOLDFIELDS PUBLIC HEALTH REGION - ORGANISATION CHART



EASTERN GOLDFIELDS PUBLIC HEALTH REGION

TABLE I

STAFF AS AT 31 DECEMBER, 1982

	Approved Full-Time Positions	Number of Employees
Medical Practitioners	2	1
Dental Practitioners	1	1
Nursing Administration	3	3
Administrative/Clerical	5	5
Public Health Field Nurses	19	19
W.A.A.R.F. Nurse	1	1
Chest & Tuberculosis Nurse	½	1
Health Centre Nurse	1	1
Child Health Nurses	5	5
School Health Nurses	5	5
Dental Therapists	7½	7
Dental Chairside Assistants	6	5
Health Workers	12	11
Camp Nurses	N/A	4

INTRODUCTION

The Eastern Goldfields Public Health Region was formed on 1st July 1982. This report is concerned with Public Health Department activities in the Region after that date. For information regarding Eastern Goldfields activities prior to July 1982, reference should be made to the reports of other Departmental Branches.

The Department finalised its policy for Regionalisation of Public Health Services in July 1982 and the Regional staff have attempted to implement this policy. In doing so the Region has, in particular, emphasised the following principles in its operations.

(i) the fostering of the idea of team approach to public health problems.

(ii) the development of the relationship of the Region with the central executive and functional branches.

(iii) a closer liaison with other Departments and agencies in the Region particularly Local Governments.

In 1982, certain public health issues gave cause for concern. The communities of Mt. Margaret and Cundeelee remained without adequate water supplies or sewerage. The Department continued to make regular representations to the appropriate bodies, concerning the urgency of the matter. Also, during the last quarter of 1982, some concern was expressed by members of the general public regarding levels of sulphurous fumes in the Kalgoorlie/Boulder atmosphere. For further information regarding Departmental monitoring of sulphurous fumes reference should be made to the report of the Director of the Occupational Health, Clean Air and Noise Abatement Branch.

It was the desire of the region to upgrade both its public health improvement programs and staff facilities in the Eastern Goldfields. However funding restrictions curtailed some projects, these are being carried over to 1983.

The Regional Director was appointed to the Pneumoconiosis Medical Board, to assume duties in 1983.

On 21st October 1982, the Deputy Commissioner of Public Health, Dr. Lawson J. Holman, A.O., unveiled a memorial to the memory of the late Sister Judith Osborne, who was killed on duty on 30th April, 1981.

Whilst there were a number of positive moves to improve public health in the region in 1982, much remains to be done. Pockets of poverty remain within the Goldfields which contribute excessively to regional morbidity patterns.

COMMUNITY NURSING

The Region was fortunate in obtaining the services of Mrs. G.A. Bernard as Regional Nursing Administrator and Miss Marguerita Pawle as Deputy Regional Nursing Administrator. The transfer of nursing administration from the Community and Child Health Services Branch has been effected and liaison is continuing between the School, Child and Community Health Nursing Supervisors in Perth and the Regional Nursing Administration based in Kalgoorlie. A major task for the Region has been to encourage the different nursing sections to work together and support each other in the field. Community Nurses have been involved in a variety of health promoting activities. These are described briefly below.

1. Nursing Services for Aboriginals

The Region provided a nursing service to Aboriginals in the following communities:

Kalgoorlie/Boulder	Mt. Margaret
Cundeelee	Leonora
Norseman	Laverton
Esperance	Warburton
Coolgardie	Cosmo Newberry

Aboriginals comprise only 7% of the population of the Region but contribute disproportionately to the prevalence of ill health in this community. With the help of Aboriginal Nursing Aides, Camp Nurses and Health Workers the Public Health Field Nurses have broadened their

sphere of activities in the field of Aboriginal health. While the main thrust of their duties remains concerned with individual Aboriginal clients (see Table II & III) the Region has been interested in the establishment of Aboriginal groups for the promotion of health related activities. An example of this is the Newarrie Mima group in Kalgoorlie. Community Nurses have also been involved in forming 'ad hoc' Aboriginal groups for the purpose of health education.

2. Nursing Services for Religious Conventions

At least three religious conventions were held in the Region in 1982, the largest of which was at Mt. Margaret, being attended by approximately 3,500 people. The Region provided health services at short notice for these conventions. The assistance of Kimberley Public Health Region, Community & Child Health Services, the Inspection Services Branch and Central Administration in making this response is acknowledged.

3. Immunisation Clinics

Community Nurses helped in staffing Immunisation Clinics at Southern Cross, Kambalda and Boulder (see Table IV).

4. Nursing Services for the Eastern Goldfields Regional Prison

This project was commenced in 1982. In this six months to December 31st, 1982, 479 prisoners underwent health screening on admission to the prison.

5. Nurses with Flying Duties

The Region employed three Nurses as Public Health Field Nurses with Flying Duties, who were seconded for duties with the Eastern Goldfields Section of the Royal Flying Doctor Service. In 1982 there were only relatively minor contributions by these nurses to the more important Public Health activities of the Region. In the latter half of 1982, the average number of hours flown was 11.4 hours per nurse per week. The flights undertaken by these nurses are recorded in Table V.

6. Arthritis Nursing

In 1982 the Region obtained its first full-time Arthritis Nurse based in Kalgoorlie. She works closely with the Western Australian Arthritis and Rheumatism Foundation.

7. Exercise Classes for Elderly Citizens

In 1982 groups were instituted in Kalgoorlie/Boulder, Esperance and Ravensthorpe. They are aimed at promoting the social and psychological, as well as physical, well being of senior citizens. Such groups have proved to be very popular with both nurses and clients participating.

8. Child Health Nursing

Despite staffing shortages and difficulties with staff accommodation the Child Health Services were maintained in 1982 (see Table VI).

Clients living on the Nullabor Plain continued to be serviced by the "Tea and Sugar Train".

9. School Health Nursing

During 1982 there were five Community Nurses whose main activities were in School Health. Generalist Public Health Nurses became more involved in School activities in areas where no permanent School Nurse was based. Particular examples were in Norseman, Laverton and Kambalda.

Much activity continued to be in screening and assessment programmes. These are recorded in Table VII.

10. Extended Care Nursing

Field Nurses at Norseman, Ravensthorpe and Cundeelee carried out all Extended Care Nursing duties in their respective areas. Nurses at Leonora, Laverton, Coolgardie and Southern Cross carried out health surveillance home visits on Extended Care Clients, and worked closely with the local hospitals.

11. Chest & Tuberculosis Nursing

One half-time Chest and Tuberculosis Nurse was based in the Region. Her activities included involvement in the local effort for the November 10th "give it away for a day" anti-smoking campaign, and in helping with 'stop smoking' groups.

12. Aboriginal Health Worker Training

This important activity of the Community Nurses continued in 1982. Achievement Records for Aboriginal Health Workers are gradually being introduced. It is hoped that these will prove a useful adjunct to the training programmes.

13. Research Activities

Epidemiological investigation and monitoring of services are essential public health activities. Two Field Nurses assisted the Regional Director with the Region's monitoring of Sexually Transmitted Diseases. It is hoped to extend this nursing role.

REGIONAL PUBLIC HEALTH DENTAL SERVICES

The Department's Regionalisation Policy with respect to Dental Health Services "gives scope for local (regional) decision making in matters such as utilisation of resources available to the region". The Region, therefore, has initially attempted to establish effective lines of communication between itself and the Dental Health Services Branch.

Delivery of various components of the Public Health Dental Services sometimes presents problems in the Region, due to the large area that needs to be covered. It is hoped that the Department will ultimately be able to deliver comprehensive preventive services to all towns and settlements in the Region.

ADMINISTRATION

The Region was successful in obtaining the administrative services of Mr. B. Clark as Regional Manager and Mr. R. Willis as Regional Officer.

With the advent of Regionalisation the administration assumed a considerably increased workload. In addition, extra sub-regional centres were created in Southern Cross and Warburton. Some of the achievements of the administration section in 1982 are described briefly:

Leonora

Major up-grading of the town office occurred; further space for clinic work was obtained.

Mt. Margaret

The administrative section co-ordinated the Departments provision for Health Services for the Aboriginal Religious convention.

Kalgoorlie/Boulder

A transportable office was obtained and situated to relieve staff overcrowding problems. The internal structure of the Regional Headquarters was altered to allow for smoother administrative operations.

Cundeelee

Major renovations of the Departments premises were undertaken. The Regions administration arranged the installation of a water purifying system to allow staff and clients to have access to clean water.

Contact with Local Government Authorities

The administration attempted to foster the important relationship of the Region with the administration of the Local Government Authorities. This has been to the Region's advantage particularly with regard to certain child health facilities. For example negotiations were conducted with Kalgoorlie and Esperance Councils to facilitate improvements. The Region is grateful for the assistance of both these Local Government bodies.

ACKNOWLEDGEMENT

I wish to thank the members of the Eastern Goldfields Public Health Team for their sustained efforts in 1982.

The application of the staff to their public health duties during a time of considerable administrative change was a significant achievement.

TABLE II

EASTERN GOLDFIELDS PUBLIC HEALTH REGION**

PUBLIC HEALTH NURSING ACTIVITIES

1 JANUARY - 31 DECEMBER 1982

Age Groups	Number of Registered Clients	Number of Encounters	Average Number of Encounters per client per year
0-5	559	4,527	8.1
6-14	994	12,970	13.0
15-19	444	1,655	3.7
20-49	1,318	9,506	7.2
50-64	222	2,076	9.4
65+	142	2,470	17.4
Unrecorded Age	N/A	14,120	N/A

**Includes encounters undertaken under the auspices of Community and Child Health Services, 1st January 1982 - 30th June, 1982.

TABLE III

PUBLIC HEALTH NURSING ACTIVITIES

KALGOORLIE/BOULDER FRINGE & RESERVE AREAS

1 JULY 1982 - 31 DECEMBER 1982

	Recorded Client Contacts	Referred to G.P.	Admitted To Hospital
July	327	22	11
August	150	15	10
September	197	16	10
October	106	11	2
November	264	17	9
December	309	23	9

TABLE IV

EASTERN GOLDFIELDS PUBLIC HEALTH REGION

IMMUNISATIONS AT BOULDER

1 JANUARY 1982 - 31 DECEMBER 1982**

	Sabin	Triple	C.D.T.	A.D.T.	Tetanus Toxoid	Measles	Rubella
January	93	67	35	-	1	14	-
February	85	55	38	3	-	14	-
March	111	64	54	3	1	24	-
April	99	49	34	2	1	18	-
May	70	46	27	4	1	16	-
June	54	38	27	1	3	8	1
July	43	37	23	-	5	1	-
August	63	46	28	9	-	16	-
September	50	41	16	3	-	22	-
October	59	41	19	6	2	16	-
November	83	65	34	3	2	26	1
December	83	49	41	6	-	13	1
TOTALS	893	598	376	40	16	188	3

**Includes immunisations undertaken under the auspices of Community and Child Health Services January - June, 1982.

TABLE V

EASTERN GOLDFIELDS PUBLIC HEALTH REGION

PUBLIC HEALTH NURSES WITH FLYING DUTIES

FLYING ACTIVITIES 1ST JULY 1982 - 31 DECEMBER 1982

	Total Flights	Flights with Accompanying Medical Practitioner	Patients Carried	Hours Flown
July	30	5	82	126
August	41	6	102	158
September	32	5	84	136
October	40	4	89	152
November	40	4	80	149
December	41	3	100	168

TABLE VI

EASTERN GOLDFIELDS PUBLIC HEALTH REGION

CHILD HEALTH ACTIVITIES

1ST JULY 1982 - 31 DECEMBER 1982

Clinic Consultations:	0-1 Years	2567
	1-2 Years	498
	2-5 Years	484

Home Visits	390
Hospital Visits	493
Stycar Screening	1718
Advice by Telephone	1244

TABLE VII

EASTERN GOLDFIELDS PUBLIC HEALTH REGION

SCHOOL SCREENING & ASSESSMENT PROGRAMME

1982 - DECEMBER 31 1982

	Pre-Primary & Primary	High School	Totals
Vision	1625	807	2432
Hearing	1534	315	1849
Scoliosis	570	957	1527
Emergencies/first aid	57	99	156
Consultations	-	3674	3674
Pediculosis	83	2	85
Scabies	11	2	13
Impetigo	2	-	2
Ringworm	1	3	4
Dental Care	65	-	65
Colour Vision Defect	17	4	21
Immunisation notification	17	534	551
Home Visits	-	115	115
Full health appraisals	649	-	649
Other	2891	78	2969

Appendix VIII

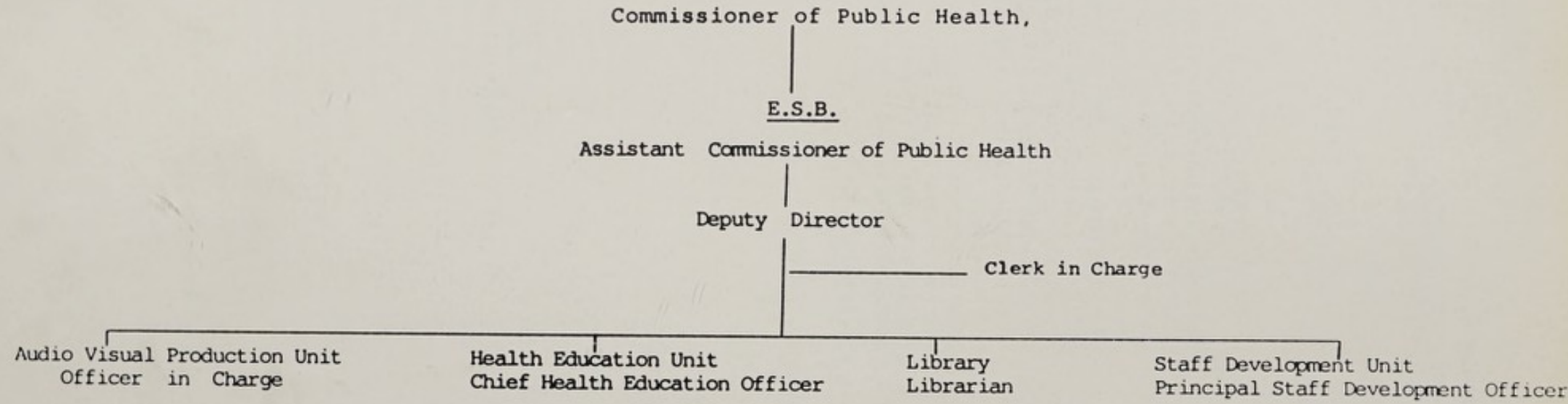
EDUCATION SERVICES BRANCH

K.J.M. Carruthers,
J.P., M.D., B.S., M.R.C.S., L.R.C.P.,
D.P.H., F.C.C.P., F.A.C.M.A., A.K.C.
Assist. Commissioner of Public Health

SENIOR STAFF

Assistant Commissioner of Public Health : Dr. K.J.M. Carruthers
Deputy Director, Education Services Branch : Dr. J.M. Henzell
Clerk in Charge : Mr. P. Hemmings
Officer in Charge, Audio Visual Production Unit : Mr. P. Wilson
Chief Health Education Officer, Health Education Unit : Mr. C. O'Doherty
Librarian : Mrs. B. Proud
Acting Principal Staff Development Officer : Mrs. P. Baskin
Acting Principal Staff Development Officer : Miss N. Woolcott

EDUCATION SERVICES BRANCH - ORGANIZATION CHART



EDUCATION SERVICES BRANCH

INTRODUCTION

Further organisational change occurred during 1982 with the creation of a Staff Development Unit within the Education Services Branch, to enhance the knowledge and skills of staff of the Public Health Department as a whole. The Unit was established by transfer to the Branch of staff who had previously been involved in educational functions within the Community and Child Health Services, under the leadership of Dr. J. Henzell. A more detailed report on the activities of the Staff Development Unit from July to December 1982 will appear below.

Dr. Henzell, formerly Deputy Director, Community and Child Health Services, became Deputy Director of the Education Services Branch and is located in a newly established Branch administration unit at 514 Hay Street, the building which accommodates the central staff of the Health Education Unit.

The work of the Health Education Unit was seriously disrupted by budgetary difficulties. Because the Unit discontinued its offset printing service in line with Government policy, the funds allocated to the printing budget were inadequate to maintain the existing activities of the Unit. Accordingly, the publications "Health in Schools" and "Health Education Readings" were suspended. "Health in Schools" will not be commenced again, but it is anticipated that a modified form of "Health Education Readings" will be produced during the 1983/84 financial year.

As "Health Education Readings" has a very wide circulation list, numerous complaints were received by the Unit because of the cessation of the publication. In addition to curtailment of printing activities, a planned nutrition promotion exercise also had to be cancelled.

The Audio Visual Production Unit continued to be bedevilled by staff problems. During the year the position of Producer in the Audio Visual Section remained vacant, and consequently problems continued in meeting production deadlines. The activities of the Medical Photography Section continued to expand, and the staff are facing increasing difficulty meeting all requests.

AUDIO VISUAL PRODUCTION UNIT

The Audio Visual Production Unit provided a photographic, art, television and audio visual service to a number of organisations including:

Princess Margaret Hospital
Health and Medical Services
Public Health Department
Queen Elizabeth II Medical Centre
King Edward Memorial Hospital
Fremantle Hospital
Mental Health Services
State Health Laboratories
Various research and patient care associations and foundations.

The staff situation for the year was as follows:

Appointments:	Photographic Supervisor Audio Visual Supervisor 3 Photographers Production Assistant
Resignations :	1 Photographer
Retirement :	1 Photographer
Vacant Items:	Producer

Work has commenced on the audio visual and television facilities located in "G" Block of the Queen Elizabeth II Medical Centre. Although not quite on schedule it is expected to be completed by the end of the financial year.

Staff shortages have been most noticeable in the audio visual and television section. However the number of programmes produced has shown a slight increase over the previous year.

Projects completed over the period 1st January 1982 to 31st December 1982 were as follows:

Static Exhibitions	22
Tape/slide Programmes	10
Television Productions	36
General Requests completed	3,342
	3,410

HEALTH EDUCATION UNIT

The Unit continued to provide health education services and resources to other Branches of the Department, to Health related agencies, community organisations, schools and to the public generally.

New initiatives in the form of programmes supported by printed material were developed and implemented in schools and the community.

SUPPORT FOR SCHOOL HEALTH EDUCATION

The Unit's commitment to school health education continues. A Health Education Officer is employed to advise and assist teachers. Country Regional Officers continued to support schools by conducting programmes on health related issues and by providing printed resource material. The Health Education Unit contributed extensively to the work of the Education Department's Ministerial Committee which was established to advise on health education in schools. Unit staff have had a direct working relationship with Education Department curriculum writers preparing the new Health Education K-10 syllabus.

Seminars for Teachers

Seminars (designed to examine methods of presenting health education programmes) were held for primary and secondary school teachers.

Support for Teacher Education

Sessions designed to inform student teachers about methods of health education and the service offered by the Unit to practicing teachers, were conducted in the majority of tertiary institutions engaged in teacher training.

Particular assistance was given to the Nedlands Campus of the W.A. College of Advanced Education, in the further education of a group of overseas post-graduate students. Individual students were advised about content and method related to school health education, and a series of lectures was planned and presented at the College.

Services to Country Areas

The Health Education Officer Schools Specialist travelled widely through the country areas of the State visiting schools to talk with teachers and assist with health education programme planning.

SPECIALIST SUPPORT FOR HEALTH WORKERS AND EDUCATORS

The Unit continues to offer support to staff of other Branches of the Public Health Department.

Community and Child Health Services (Public Health Regions)

The provision of printed resource material is part of an ongoing service. A health education workshop was conducted at the annual conference for nurses by the Unit's Staff Training Officer.

Dental Health Services

Co-operation with this service increased. A joint nutrition education programme was developed for which School Canteen Seminars were organised by the Regional Health Education Officers and conducted with assistance from dental therapists. Involvement in training programmes for dental therapists continued.

Special Clinic

All health education material relating to sexually transmissible diseases is prepared on a co-operative basis. An outline for an education programme, together with support material, has been distributed widely throughout the State.

Immunisation Clinic

The revised Health Education Reading on immunisation was distributed throughout the State. Local government health surveyors were involved in the distribution of relevant material.

Inspection Branch

The Unit's support for health surveyors of the Department continued during 1982. Resource material on swimming pool safety and food handling, together with all aspects of health education was prepared for distribution.

ENVIRONMENTAL HEALTH ISSUES

Fly Campaign

The Unit again assisted local authorities and Departmental staff to implement a mass media campaign to educate the public in methods of fly control.

Pool Sense Programme

Designed by the Unit for pool owners, this programme provides information on pool hygiene, supervision of children and demonstration of rescue and resuscitation. Programmes have been arranged by the Unit's Regional Officers in association with local government health surveyors in metropolitan and country areas.

ALCOHOL AND DRUG EDUCATION

The close liaison which has been established with the Western Australian Drug and Alcohol Authority has continued this year. A number of joint seminars were held in country areas. Their purpose was to increase awareness of initiatives designed to prevent alcohol and drug abuse. Seminars were held in Esperance, Geraldton, Mandurah, Harvey and Manjimup. A specially developed Alcohol Education programme was conducted at the Geraldton Regional Prison.

SMOKING

The Unit is represented on the Education Committees of the National Heart Foundation. Assistance was given to the "Give it Away for a Day" campaign. Health Education support for the Cancer Foundation's educational activities continues.

Smoking programmes have been prepared by the Unit's officers and have been implemented in schools. These programmes will be extended in 1983 to the schools in the South West.

PUBLICATIONS

The production of Health Education Readings continued through 1982. However, towards the end of the year it was decided to discontinue this multi-subject approach to health education publications. It is envisaged that future Readings will take the form of single topic publications, the majority of which will provide support material for the Unit's programmes. During this current year information has been distributed widely to health workers and members of the public.

The publication of the quarterly abstracting journal, "News and Views" continues. Response from readers show that this is regarded by health and education specialists as a valuable resource.

DISTRIBUTION OF PUBLICATIONS 1982

Health Education Reading & Special Mailings	802,879
Information Bulletins	184
News and Views	2,360
Health in Schools	5,712
TOTAL	811,135

ST. GEORGE'S HALL

Back Awareness Week

In 1982 a "Back Awareness" programme conducted by the Health Education Unit in association with the Royal Perth (Rehabilitation) Hospital, showed that there was considerable public interest in obtaining both information and skills relevant to ways of preventing back problems. The programme aimed to develop an appreciation that back pain is largely preventable and to encourage people to take special precautions to protect the back at home, work and leisure.

Media/Press Releases

The printed media have helped to raise public awareness on issues related to health education. This was most effective for "Back Awareness Week" when all sessions held in the hall attracted a capacity audience.

Press statements which are released routinely to initiate awareness of issues of concern within the community, receive immediate response from the public for further detailed information.

NUTRITION

Dial-A-Dietitian

This programme was initiated by the Unit's Health Education Officer, (Nutrition). Each Wednesday, for a six week period interested members of the public were invited to 'phone in queries on nutrition. Media publicity raised community awareness about this programme. The response rate was in excess of 500 calls for the period.

What's for Breakfast

A kit for teachers of primary school students was prepared by Unit staff. The requests for the material indicates that there is a need for educational material on nutrition.

Your School Canteen

Other printed material to support the school canteen seminar programme has been prepared by the Unit.

MIGRANTS

The Health Education Unit continued to prepare information on health issues for migrant groups. This information is reproduced in seven (7) languages and distributed to non-English speaking groups.

A Vietnamese/English glossary of health terms has been prepared for use by medical and other personnel who are engaged in providing services to migrant groups.

REGIONAL ACTIVITIES

Community Groups

As part of community development, regional officers continued work with community groups to present programmes on health issues. In addition, specific programmes for local communities were conducted. Examples of these follow:-

CENTRAL METROPOLITAN REGION (CLAREMONT)

Following changes in accommodation arrangements at the Claremont Health Centre, the officer responsible for this region continued working from the Fremantle office.

Liaison with the Independent Schools Education Committee resulted in a proposal for in-service programmes for teachers to assist in the preparation of health education material for the classroom.

Planning commenced with the University of Western Australia, Faculty of Education for the health education component of the Physical Education curriculum.

KWINANA/ROCKINGHAM REGION

The training course for home visitors continued. The programme was initiated to meet the needs of people who are isolated for reasons of illness or other contributing factors.

A meeting of local community and sporting groups and representatives from three schools was called to discuss the issue of solvent abuse. As an outcome of this meeting, a family forum was arranged to examine problems relating to communication within the family.

NORTH-EAST METROPOLITAN REGION (MIDLAND)

Sessions designed to develop an understanding of the drug issue, including smoking and alcohol were conducted for schools and community groups.

The Canteen Seminar programme previously mentioned in this report was initiated by the Unit's Midland Regional Officer and piloted in this region.

NORTH-WEST METROPOLITAN REGION (WARWICK)

The officer in this region continued to support programmes on social issues, conducted for students in Technical Colleges. A seminar for parents of senior high school students, "Drugs and the Family" was

conducted in association with senior staff of the Health Education Unit and officers of the Police Lecturing Branch.

SOUTH-WEST METROPOLITAN REGION (FREMANTLE)

A "Healthy Lifestyle" programme was conducted for community groups in this region. The aim of the programme was to present concepts of health care and prevention of health problems. Programmes conducted in five primary schools in this area were designed to encourage responsible decision-making on all issues related to health, including drugs and smoking. Liaison with the City Council continued.

SOUTH-EAST METROPOLITAN REGION (ARMADALE)

Sessions were held with an occupational therapist from a Correction Centre to discuss strategies for sessions on health issues. These programmes included sessions on drugs, including alcohol and smoking.

Parents and Citizens Groups

A session involving the use of film and group discussion was held to develop awareness of alternatives to drug abuse. The group presented ideas for alternative activities and the resources available in their community.

Regional Activities (Country Regions)

South-West Region (Busselton)

A workshop was conducted to stimulate teachers' interest in preparing school health education programmes designed for Year 7 students. It is envisaged that in 1983, Years 6-10 will receive the same programme. The Busselton Health Education Officer conducted an in-service for teachers in the Bunbury area.

Mandurah Region

A "sensible eating" programme was designed and initiated by health workers in this Centre. Members of the group were encouraged to maintain a balanced diet and to participate in physical activities.

Geraldton Region

Pregnancy Support Group: Information on resources was made available to this group. The programme was designed to raise awareness of aspects of stress for pregnant women and to provide information about the effects of smoking, alcohol and drugs.

Adult Aboriginal Education: A programme on health issues was conducted for the Aboriginal Club in the region. Three sessions for Year 6 and 7 Aboriginal children were conducted on Human Growth, Understanding of Self and Others.

Pilbara Region

Primary and secondary schools in the area received programmes and resources to support health education, including drugs, alcohol and smoking.

A programme initiated in Paraburdoo in 1981 continued this year. In-service for teachers to discuss available resources and assist in programme planning was conducted.

A new initiative for 1982 has been the formation of a priorities rating for future programmes. Lifestyle/Self Care nutrition, including over-the-counter drugs, alcohol and smoking received a high priority in the order of issues requiring health education programmes.

RESEARCH AND EVALUATION

The Unit has continued its commitment to research and evaluation. During 1982 evaluation reports were produced for the Mandurah Alcohol Seminar, the "Dial-A-Dietitian" Service, "Back Awareness Week" and the "What's for Breakfast" programme. Material produced for distribution through schools and community outlets in connection with the "Medicine Messages" campaign was tested for effectiveness and acceptability. A random sample of teachers throughout the State was surveyed to establish their opinions of the publication "Health in Schools".

Background research reports were prepared on swimming pool safety and the immunisation status of children in Western Australia.

Where possible, an evaluation component is built into Unit programmes during the development stage.

Following this principle, planning commenced for evaluation of "The Pool Programme" and the "Canteen Seminar" programmes in 1983.

STAFF

The Unit had only one vacant item during 1982. An Environmental/Extension Officer was appointed to the position towards the end of this year. This will ensure that health education programmes will be introduced into areas of the State which do not have the services of a Health Education Officer.

The Unit's Supervising/Training Officer, appointed early in 1982 has established and maintained liaison with regional officers through visiting them in their areas and assisting in programme planning. This has resulted in closer contact between central office and outer metropolitan and country regions. Unit based programmes can now be developed and implemented in the regions, at the same time programmes developed in the regions can be made available through central office to all areas of the State.

Two additional appointments have been made. The services of a medically qualified officer have been obtained to advise in the area of health promotion. The position is shared on a part-time basis with the University of Western Australia, Department of Community Practice. A Health Education Officer (Aboriginal Health) will assist in planning programmes and advise of the content of printed support material for Aboriginal groups.

LIBRARY

In 1982 the library system expanded to include a branch library at the Alcohol and Drug Authority. A librarian attended on two days per week to establish and supervise the library. It has grown in size rapidly and many books and journals have been relocated from the head office library.

In February the library hosted a Medline training course conducted by the National Library of Australia. All our librarians have now been trained to access at least one data-base system. Most have been trained to use several systems.

The Library has been represented at the following seminars and meetings:

Australian Bibliographic Network Seminar
The Life Sciences Consultative Committee (National Library)
Information Technology Week
Library Promotion Council of Western Australia

The Librarian-in-Charge sat on two committees established by the Public Service Board to examine the processes by which Government libraries may be automated.

New photocopiers were purchased for the head office library, and the Health Education Unit/Occupational Health Library. Head office library also purchased a microfilm reader/printer.

The hospitals librarian has been very active this year and has visited hospitals throughout the State.

"Capsules" continued to be a popular means of alerting a large number of users to articles of current interest. The total number of requests in 1982 was 1269, which represented an average of 79 requests per issue (66 in 1981). The most popular articles concerned old fashioned kitchen remedies, staff burnout and glue sniffing.

Journal circulation has continued to represent a large amount of clerical work and some preliminary work has been done to automate this function in order to provide a faster service. The monthly average of journals circulated represents approximately 5300 transactions.

The restrictions of the Copyright Act have continued to affect the free transfer of information throughout Australia. Many libraries have reported a drop in inter-library loan traffic since the new Act's introduction and this library is no exception. The result has been that we are obtaining and providing less information at a greater cost, in terms of staff time expended in completing and filing declaration forms and in the cost of printing these forms. We are looking towards on-line document ordering as a possible means of partially alleviating this problem.

The rapid inflation in the price of journal subscriptions meant that we needed to constantly monitor our journal list and eliminate very expensive titles, which were not in heavy demand. This enabled us to enter subscriptions for new journals so that our collection remained up-to-date and of maximum utility to the Department.

REPORTS FROM BRANCH LIBRARIES

Community and Child Health Services

The growth of the Public Health Regions has increased the demands on this branch. In addition to the services provided to Community and Child Health Services staff, services are also provided to doctors, nurses, social workers, speech therapists and occupational therapists pursuing studies related to the child and community health fields served by this Department. This library is rapidly outgrowing its present accommodation, and relief must be anticipated in 1984/85.

State Health Laboratory Services

Accommodation is rather restricted in this branch, and moves are in progress to provide an office for the librarian to allow better security. Lack of clerical support staff is an on-going problem and some part-time assistance was provided from head office.

Health Education/Occupational Health

The accommodation for this branch is now satisfactory, but we are waiting for more space to become available for viewing room, film storage and repair facilities. Work is in progress to establish the Departmental film library at this branch.

State X-Ray Laboratories

This library was relocated to alternate accommodation in 1982, and new shelving purchased to accommodate the expanding collection. The large cataloguing backlog which developed in 1981, when the position was left vacant for most of the year, has been a continuing problem. More items are being dealt with as series publications to enable faster access to them.

Dental Health Services

More space was provided for the library and new shelving obtained for the growing collection.

Many user education talks were given to students.

Alcohol and Drug Authority

The library was relocated in Salvatori House, and has grown to twice its original size. It is now part of the resource area, which includes education and research. The shelving has increased from 24 to 108 shelves.

The library now controls the loan of both the hardware and software of the audio visual collection.

Hospitals Librarian

Although constrained by a lack of support staff, great progress has been made by the hospitals librarian in 1982. Hospitals visited were:

Kununurra	Carnarvon
Wyndham	Exmouth
Broome	Numbala Nunga
Derby	Mt. Henry
Port Hedland	Sunset
Albany	

Minimum book budgets have been established for the North-West hospitals, and co-ordinated purchasing has been established to reduce duplication. On hospital visits stocktakes have been done, and on-site cataloguing. A pleasing development has been increased use of facilities by the allied health personnel.

The major problems faced by the hospitals librarian include rapid staff turnover in the North-West, the restrictions of the Copyright Act, and the lack of suitable audio visual materials to meet the high demand.

The future direction of this service must be towards greater regionalization of both collections and eventually library staff.

Statistical tables showing:-

Books Accessioned, 1982	(Table 1)
Interlibrary Loans	(Table 2)
Book Loans	(Table 3)
Audiovisual Materials	(Table 4)
General Statistics	(Table 5)

TABLE 1

BOOKS ACCESSIONED, 1982

Public Health (Head Office)	980
Community & Child Health Services	347
Health Education/Occupational Health	305
State X-Ray Laboratory	257
Dental Health Services	93
Alcohol & Drug Authority	113
Hospitals	485
State Health Laboratories	78
TOTAL	2658

TABLE 2

INTERLIBRARY LOANS

2.1 Interstate and Overseas Loans

	1978	1979	1980	1981	1982
Australia	471	707	643	350	373
Overseas	13	13	9	19	23
TOTAL	484	720	652	369	396

2.2 Interstate Loans

	1978	1979	1980	1981	1982
Courier Service	826	1057	948	569	623
Other	646	657	653	1398	1188
TOTAL	1472	1714	1601	1967	1811

2.3 External Borrowings

	1978	1979	1980	1981	1982
Interstate & Overseas	436	529	519	300	314
Intrastate: Courier	1564	1434	1528	1456	1400
Other	350	412	500	327	234
TOTAL	2350	2375	2547	2083	1948

TABLE 3

BOOK LOANS

Head Office	2793
Community & Child Health Services	4535
S.H.L.S.	571
HEU/OH	409
D.H.S.	485
S.X.R.L.	272
A.D.A.	175
TOTAL	9240

TABLE 4

AUDIOVISUAL MATERIALS

Format	New Accessions	Total Held	Loans
Health Education/Occupational Health			
Films	9	281	3451
Videotapes	1	57	13
Slides	9	105	568
Kits	-	24	61
Audio Cassettes	-	-	9
Alcohol & Drug Authority			
Films	1	6	4
Videotapes	1	26	25
Audiocassettes	1	15	1
Slides	5	6	1
Filmstrips	6	19	-
Dental Health Services			
Films	1	23	38
Videotapes	3	5	-
Audiocassettes	1	16	2
Slides	1	19	116
TOTAL	39	602	4289

TABLE 5

GENERAL STATISTICS

		Head Office	A.D.A.	C.C.H.S.	S.H.L.S.	D.H.S.	H.E.U./O.H.	S.X.R.L.	Hospitals
Reference Queries		3650	19	362	894	34	414	17	125
Computer Searches (Literature)		404	27	66	55	12	57	13	63
Photocopies Provided		40,560	463	7454	2634	254	680	148	1322
New Journals		68							
No. Journals Cancelled		58							
Computerized Cataloguing	Hits	548	24	50	32	12	13	5	Included in Head Office
	Total Checked	1533	76	163	90	27	69	17	

STAFF DEVELOPMENT UNIT

The Staff Development Unit was established to undertake

- Orientation of new Public Health Department staff
- In-service training and continuing education

These include both informal and formal learning activities which contribute to personal and professional growth.

Orientation

A series of learning activities designed to enable newly-appointed staff to function effectively within the Department.

In-service Education

Planned programmes to facilitate the development of skills and knowledge required for effective performance.

Continuing Education

Activities designed to up-date knowledge for continuing practice, to prepare for specialisation and career advancement, and to facilitate personal development.

The purpose of the Staff Development Unit, in partnership with Departmental, Branch and Regional Administration, is to improve the effectiveness of the Public Health Department through a systematic process of training/education that assists in the development of stable and competent staff. In addition, the Staff Development Unit was established to undertake the co-ordination of Aboriginal Health Worker training on a Statewide basis throughout the Department. Seventeen officers transferred from Community and Child Health Services in order to establish the new Unit.

Up to 31st December, 1982 all orientation and in-service programmes that had been previously planned were undertaken.

Mrs. J. Anstead was appointed as Principal Staff Development Officer, which is a new position. As she was not able to take up this position until 1983, Mrs. P. Baskin was Acting Principal Staff Development Officer from 1st July, 1982 to 3rd November, 1982, and Miss N. Woolcott from 5th November, until 31st December, 1982.

During 1982 each Aboriginal Health Worker participated in four 4 day workshops, as well as the bi-regional Annual Conferences. In addition education files were fully established for each Aboriginal Health Worker, thus providing a basis for future programme development and administrative reference. New support material in the form of resource texts, supplementary worksheets and pre/post tests have also been developed. The health content related to the specific requirements of each Aboriginal Health Worker's individualised duty statements, has been defined with the introduction of Achievement Record Sheets. These Achievement Records are specific in regard to which knowledge and skills must be acquired; they define the appropriate mode of application. When assessed and completed they take the form of work contracts between Regional Administration and the individual Aboriginal Health Worker.

The Annual Nurses' Conference was held as usual in August, between 9th and 13th August, 1982 at the University of Western Australia. Additional programmes mounted were as follows:

Regional Rural In-Service Programmes

East Kimberley	2nd February	and	5th October
West Kimberley	16th March	and	2nd November
Pilbara	15th - 18th June		
Eastern Goldfields	28th - 30th April		19th - 21st October
Northern Region	31st March	and	29th September
South West (Busselton)	24th March	and	26th October
(Bunbury)	24th March	and	3rd November
(Northam)	17th March	and	20th October
(Katanning)	21st April	and	13th October

Aboriginal Health Worker Workshops

East Kimberley	-	8-11th February, 13-16th July, 27th September - 1st October.
West Kimberley	-	22-25th March, 2-5th August, 4-8th October.
Pilbara	-	22-25th May, 25-27th October, 8-12th November.
Eastern Goldfields	-	22-26th February, 23rd-27th August, 6-10th December.
Northern Region	-	8-12th February, 10th-14th May, 23rd-27th August.
Geraldton	-	5th-9th July, 22nd-26th November.
Metropolitan Region	-	14th-15th February, 18th-19th March 20th-21st May, 19th-20th August, 23rd-24th September, 21st-22nd October.
South West(Katanning)	-	27th-28th January, 22nd-23rd March 17th-18th May, 19th-20th July, 11th-12th October, 15th-16th November.

Bi-regional Conferences for Aboriginal Health Workers

Broome	-	24th-28th May.
Perth	-	21st-25th June.
Carnarvon	-	6th-8th September.

Table showing Aboriginal Health Worker Training 1982 Progress Report is attached.

ABORIGINAL HEALTH WORKER TRAINING 1982 PROGRESS REPORT AT 1/3/83

	COMPLETED	OUTSTANDING	IN PROCESS		COMPLETED	OUTSTANDING	IN PROCESS
ALCOHOL CONTROL - I	1	38	34	EYE HEALTH - I	4	56	52
ALCOHOL CONTROL - II	0	1	1	EYE HEALTH - II	0	6	6
CARE OF ELDERLY - I	0	39	35	IMMUNISATION - I	9	51	47
CARE OF ELDERLY - II	0	4	4	IMMUNISATION - II	1	6	6
EAR HEALTH - I	12	45	39	MENTAL HEALTH - Ia	9	47	44
EAR HEALTH - II	1	11	11	MENTAL HEALTH - Ib	8	37	35
ENVIRONMENTAL HEALTH - Ia	28	40	34	NUTRITION - I	14	47	42
ENVIRONMENTAL HEALTH - Ib	19	40	35	NUTRITION - II	1	6	6
ENVIRONMENTAL HEALTH - II	0	5	5				
				NUTRITION ANTHRO-METRY - I	21	36	32
				NUTRITION 0-5 - I	5	49	46

REGION:	Total number of Aboriginal Health Worker Files	Total number of active Aboriginal Health Worker Files	Total number of new Aboriginal Health Workers in last 6 mths	Aboriginal Enrolled Nurses outside program
Kimberley	39	33	0	0
Pilbara	21	14	7	2
Northern	22	14	3	1
E. Goldfields	23	15	8	1
Metro. & S.West.	27	21	2	3

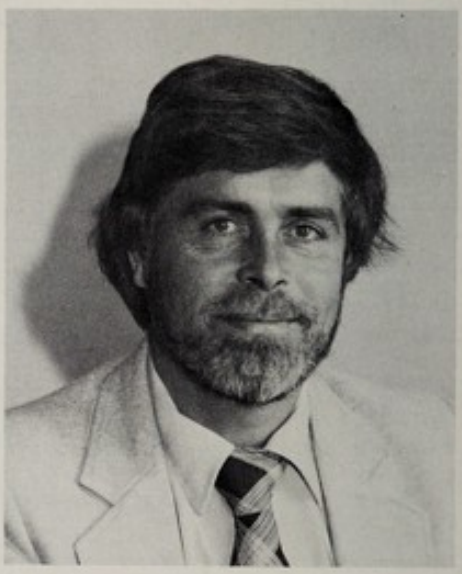
Appendix IX

INSPECTION SERVICES BRANCH

SENIOR STAFF

Director : Dr. R.S.W. Lugg
Food & Nutrition Officer : Mr. J.R. Edinger
Waste Engineer : Mr. S.B. Hansen
Chief Health Surveyor : Mr. R.C. Zehnder
Deputy Chief Health Surveyor : Mr. R.W. Sweetman
Senior Health Surveyor (General) : Mr. R.L. Moss
Senior Health Surveyor (Food and Liquor) : Mr. A.L. Layton
Senior Health Surveyor (Public Buildings) : Mr. K. Watt
Senior Health Surveyor (Meat) : Mr. G.F. Jeffries
Senior Health Surveyor (Land Usage) : Mr. B. Devine
Senior Health Surveyor (Research & Special Projects): Mr. W.G. Jolley

R.S.W. Lugg,
B.Sc., M.B.B.S., M.P.H.
Director

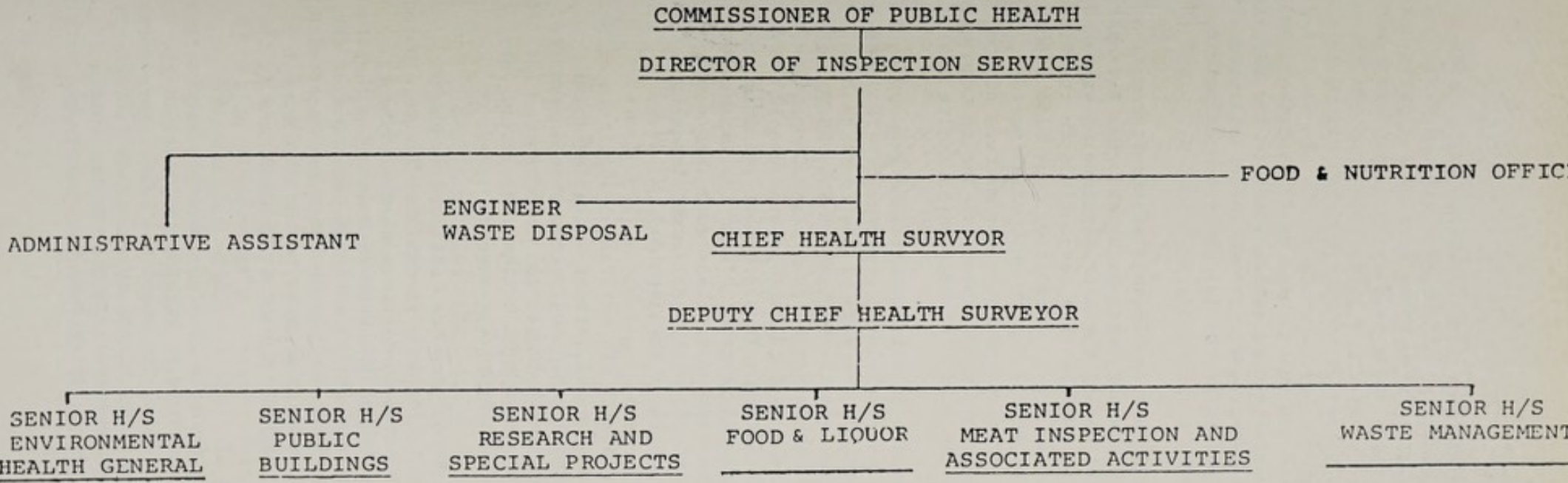


S.B. Hansen,
B.Eng.Ch., M.I.E. Aust.
Waste Engineer

J.R. Edinger,
B.Sc. A.R.A.C.I.
Food and Nutrition Officer

R.C. Zehnder,
M.R.S.H., M.A.I.H.S.
Chief Health Surveyor

INSPECTION SERVICES BRANCH



INSPECTION SERVICES BRANCH

1. INTRODUCTION

The Branch was officially named and inaugurated on 17 September 1982, formalising existing arrangements between senior staff in the Department who were concerned in various aspects of enironmental health, and providing a suitable structure for the co-ordination and efficient performance of their functions.

The organization chart of the Branch (opposite) reflects those previously existing arrangements which, with minor changes, had operated from September 1981. The Chief Health Surveyor, Engineer - Waste Disposal, and Food and Nutrition Officer are responsible to the Director of Inspection Services for normal Branch activities, but also report directly to the Commissioner of Public Health on special matters. During the year these senior officers and the other members of the Branch have been welded into a capable environmental health team which has served the Department and the public of Western Australia well.

A feature of the Branch's approach to environmental health issues is the close liaison which is maintained with local government. The Food and Nutrition Officer regularly attends meetings of the Local Health Authorities Analytical Committee and the Engineer - Waste Disposal regularly attends meetings of the Refuse Disposal Zone Committees, comprising representatives of the various metropolitan local authorities. The Chief Health Surveyor in his report refers to the difficulties currently facing local government, and the impact this has on the work of the Branch. The various sections under his control all have a greater or lesser involvement with local authorities, some of which is referred to in the reports of the sections.

Close liaison is also maintained with the Australian Institute of Health Surveyors (W.A. Division) on a range of matters including local authority administration, health legislation, professional practice, and the organisation of the Annual Health Surveyors' Conference. The 37th Annual Conference, held over three days in October, was again very successful and proved to be a highlight of the year.

A vital concern shared by the Branch and the Institute is the development of professional education in environmental health. During the year members of the Branch attended meetings of the Advisory Committee for Environmental Health of the Western Australian Institute of Technology and the Environmental Health Advisory Committee of the Technical and Further Education Division of the Education Department. Members also provided assistance in other ways to the development of units in environmental health subjects taught at W.A.I.T. and at the Bentley Technical College.

Related to the question of environmental health education is the renewed interest which has been taken in the W.A. Examination Board of the Royal Society for the Promotion of Health. The Board has been rather dormant in recent years since the phasing out of the examinations it formerly conducted, but it may have a valuable role to play in the future in advising on environmental health qualifications both within and outside

the State, standards of post - qualification training and experience, and other matters relating to the professional practice of health surveying. A working party on the future role and activities of the Board was set up to examine these questions, and has met several times under the chairmanship of the Director of Inspection Services. The Chief Health Surveyor and representatives of the W.A. Division of the Institute are also members of the working party.

At the end of the year the Honorary Secretary/Treasurer of the W.A. Examination Board, Mr. F.G. Skeels, retired from the Department after 15 years of honorary service to the Board. His place has been taken by Mr. B. Devine, a Senior Health Surveyor with the Branch.

In what follows the Food and Nutrition Officer, Engineer - Waste Disposal and Chief Health Surveyor report on the work of the Branch in their areas of responsibility.

FOOD AND NUTRITION

1. GENERAL COMMENTS

1.1 This report will be my final one as I retire in February 1983.

In retrospect it is now quite clearly established that the whole concept of food regulations has undergone a radical change. From the early 1900's to the early 1970's regulations were based on compositional standards. Such standards stated the percentage composition of the food product which could be determined by analysis. A deficient product sold by fraudulent malpractice could bring about legal action against the vendor.

A relatively sudden change brought about by the advent of stepped up advertising claims for foods of a wide and varied nature brought about an immediate reaction from consumer groups. State and Federal Health Departments, Trade Practices and Business and Consumer Affairs Bureaus. This necessitated a swing to stricter labelling legislation in the Food Regulations. Some progress has been made as is evidenced by date marking, ingredient labelling, lot identification, energy yield and protein statements, polyunsaturated declarations, no added sugar, etc. In relation to the prescribed "no added sugar" energy labelling statements, the legal loop-hole exists whereby the food manufacturer can add maltose, maltose-dextrins, dextrose and also fructose and glucose resident in fruit purees, extracts, nectars or juices to various food products in relatively high amounts and still make the claim "no added sugar", as sugar is legally defined in the food regulations as sucrose which is derived solely from cane sugar. There is remedial action being adopted to form a new regulation for sugars and sugar products.

To illustrate the labelling swing in legislation some 510 labels were examined for conformity with the food regulations over the past year.

Through the system initiated in this Department in 1980 and the subsequent evolvement of a detailed regulatory check sheet, this Department was successful in recommending to the National Health and Medical Research Council a proposal for a uniform Australia wide system for labels approval by the adoption of the Western Australian format and procedures. The Committee consisting of all States and Territories food officers will form the National Clearance System for Food Labels Committee. This should prove to be a great advance in uniform packaging and reduce packaging costs to both multi-nationals and Australian food companies. However, the system cannot operate efficiently unless regular and frequent meetings are held. I sincerely hope that such a Committee will be formed and put into operation with meetings on a regular basis. If State and Federal funds are limited then an approach should be made to industry for funding as this National Clearance System could save them millions of dollars in packaging costs.

1.2 There has been a sudden increase in the number of product recall manuals forwarded in to the Department by various companies who have now realised that unless voluntary action is adopted by them, then mandatory legislative action will be adopted by the Department. This was made quite clear to industry by the Minister in his speech to the Council of Australian Food Technology Associations Conference held in Perth 1982.

The need for product recall procedures was again highlighted by the massive recall operations involving many companies occasioned by the clostridial contamination of imported Canadian and U.S.A. canned salmon. The identification of the various batches or "lots" embossed on the cans which distinguished the faulty cans from the good cans should serve as an important warning reminder to those food manufacturers who have taken the lot identification legislation lightly and have not identified their product runs.

1.3 The draft Uniform Food Act is receiving attention from the Food Legislative Committee of the Health Act Review and should be read for the presentation to the spring 1983 sitting of parliament.

1.4 Uniform Food Regulations made under the draft Uniform Food Act by all States, Territories and the Commonwealth should be ready for implementation after the enactment of the Uniform Food Bill, probably in late 1983 or in 1984.

1.5 The usual surveillance of all shipments of desiccated coconut into Western Australia was maintained and three shipments totalling 37,455 kg were rejected as mentioned in the report of the Food and Liquor Section.

1.6 Meetings were attended of the National Health and Medical Research Council Food Standards Committee and the Working Party on the Fruit Juice Standard.

2. SAMPLING PROGRAMMES, INVESTIGATIONS AND ALLIED WORK

The number of routine food samples taken by the Food and Liquor Section was maintained at the same level as for 1981, being 3487 as against

3527 samples -- a difference of only 40 samples. However, there was a marked increase in liquor outlets inspection and spirituous beverage sampling, when 1172 country and city outlets were inspected and 7775 samples taken. Beer was sampled routinely for the first time as a straight sample and new apparatus was used for on the spot alcohol content. Full details are given in the Food and Liquor Inspection report.

Other items of particular interest are detailed hereunder:

2.1 Pesticides and Toxic Residues in Food Surveys

The National Health and Medical Research Council "Market Basket Survey" for 1982 was conducted using State and Commonwealth Officers to purchase food as specified in the "shopping list". The foods were carefully packaged and forwarded to the Australian Government Analyst for examination and comparison with other States' samples.

2.2 Orange Juice and Orange Fruit Juice Drinks

Parameters for the analysis of orange juice were established in 1971 and routine sampling procedures and examinations have been carried out ever since. This Department was the first in Australia to adopt specific sampling procedures and established analytical parameters. This year, the Trade Practices Commission adopted action against Eastern States vendors of orange juice who were selling sub-standard juice, often with a juice content of only 60%. We had in the past rejected Eastern States orange juice on many occasions as being sub-standard and taken appropriate action. Our parameters for analysis are now accepted in the Eastern States.

A Working Party for the preparation of a revised standard for orange juice was convened by the National Health and Medical Research Council food Standards Committee. I attended at the meeting in Sydney as an expert advisor to the Working Party. A draft standard has now been prepared including "standardised orange juice" prepared from concentrates or other juice sources and forming the base for the other fruit juice drink products.

It is of great importance to Western Australian producer companies who trade fairly according to the prescribed regulatory standards, that Eastern States juice products are adequately "policed" so that they do not market inferior products at a cheaper price in this State to the detriment of the local suppliers and the defrauding of consumers.

2.3 Labelling of Spirituous Beverages

Considerable discussion with industry took place on the declaration of alcohol content by volume on the labels of wines, cider, perry and beers. The regulation was gazetted on 30th July to come into force on 1st January 1983. Only products bottled after this date must bear the percentage alcohol, so that bottlers and vintage wines would not be inconvenienced.

2.4 Date Marking of Bread

Amendments to the date marking regulations were made to allow the bread industry to operate what was considered to be a more practical date marking system.

2.5 Reduced Alcohol Beer

Discussion took place with the Swan Brewery in relation to a beer with an alcohol content between 1.15% and 3.5% by volume.

2.6 Meat Inspection Fees

The regulation for fees payable to Local Health Authorities operating in country abattoirs after much discussion including a Cabinet Sub-Committee was finalised.

2.7 Sugar in Foods

A draft standard is being evolved for a specific standard for Sugars and Sugar Products. Also, the National Health and Medical Research Council Nutrition Committee is investigating the use of sugar as such in the Australian Diet.

Sugar, like salt is receiving considerable attention and investigation for its role in the Australian diet.

2.8 Children's Cosmetics

Action was adopted to ban the sale of named brands of children's cosmetics due to high contents of lead and cadmium determined by analysis, under Section 338C of the Health Act.

2.9 Goats Milk

Sampling of goat milk for microbiological examination was carried out, the samples being taken from commercial milk producing herds. Consideration is being given for the pasteurisation of goat milk at State and Federal levels. There is considerable opposition from producers against pasteurisation.

2.10 Cadmium in Foods Survey

Samples were collected and analysed for cadmium content of fish, chicken, meat, cocoa and chocolate, oysters and mussels. The results were forwarded to the National Health and Medical Research Council Food Standards Committee to assist in establishing a realistic valid figure for cadmium content in these foods.

2.11 Ingredient Labelling of Foods

There is difficulty in reaching an Australia wide agreement on the interpretation of this regulation. This is in part due to the vagueness and general nature of this regulation itself. A particular case in point is the ingredient labelling of bread where different States except South Australia and Western Australia, have different interpretations as to what should appear under the ingredient listing on bread labels. The National

Clearance System for Clearance of Food Labels Committee if and when constituted should be of immeasurable value in reaching agreement on all phases of ingredient labelling.

2.12 Therapeutics Substances Legislation

The time honoured system of combining Food and Drugs is now impracticable. Both the fields of food and therapeutic substances have expanded so greatly in the last decade that it is essential that new legislation be implemented for Therepeutic Substances. A draft Act has been developed by the Pharmaceutical Services Branch after agreement to proceed was decided at a Food and Drug Committee and when finalised and gazetted will be administered by the Pharmaceutical Services Branch under the supervision of the Principal Pharmacist. This will take some of the pressure and work-load off the Food and Liquor Section.

2.13 Pesticides Residues on Food

A complete revision of the pesticides residues on food was carried out, resulting in excess of some thirty pages of amendments. This is the most difficult of all regulations requiring wide chemical and analytical expertise apart from the usage and other associated requirements. It is to be sincerely hoped that some simpler method of amendment can be achieved in the future. Antibiotics are now included in the Schedules.

3. FOOD REGULATIONS

3.1 Four meetings of the Food and Drug Advisory Committee were held during 1982.

3.2 The following items received special consideration:

Prescribed Antioxidants
Claims
Dried Fruit
Mixed Dried Fruit
Food Additives
Fish and Fish Products
Liquid Egg and Liquid Egg Products
Ice Cream and Related Products
Baking Compounds
Cocoa and Cocoa Products
Meat and Meat Products
Canned Meats
Goat Milk
Milk
Cream and Cream Products
Meat Inspection Fees
Artificial Sweetening Compounds
Cheese
Essences
Flours, Meals and Bread
Labelling
Marzipan
Yoghurt

3.3 The following regulations and amendments to regulations were gazetted in final form.

A.01 Date Marking - special amendment for bread.
A.06 Prevention of Contamination of Food - Aflatoxins.
A.07 Pesticide Residues on Food

J.02 Cheese

G.02 Olive Oil and Edible Oils

O.06 Nut Paste (Now Nut and Nut Products)

Q.01 Wine
Q.03 Cider and Perry
Q.04 Beer, Ale, Stout and Reduced Alcohol and Reduced Calorie Beers
Meat Inspection Fees - Scales of Fees for Country Abattoirs.

3.4 The following regulation is at drafting stage:

A.05 Artificial Sweetening Substances (Aspartame).

4. APPRECIATION

My sincerest thanks and gratitude are tendered for the assistance given generously to me by the Inspection Services Branch. In particular the Chief Health Surveyor, Mr. R.C. Zehnder for his support and encouragement and Messrs. A.L. Layton and R.A. Nutt of the Food and Liquor Section for their participation in sampling programmes and their efforts adopted where necessary to effect remedial action in any particular food problems.

My thanks are also tendered to the officers of the Government Chemical Laboratories for their prompt and efficient analytical work and advice given on samples submitted for examination. My particular thanks are tendered to Mr. Ron Gorman, Director, and Mr. Frank Uren, Chief of Food and Industrial Hygiene Section for their guidance and advice.

As I now retire, my personal appreciation is tendered to the Commissioner Dr. J.C. McNulty for a working relationship extending over two decades during my industry and governmental working days.

To my successor, Mr. Michael P. Jackson, formerly of the National Health and Medical Research Council Food Standards Committee and its associated Sub-Committees, I wish him well in his new position and I am certain he will be of great use and value to the Department.

WASTE MANAGEMENT

Solid Waste

Regular inspection showed generally satisfactory and improved methods of operation and management of sanitary landfill sites and transfer stations.

Liquid Waste

The year saw a great leap forward in the control and management of septic tank effluents and industrial liquid wastes. The sites at Warton Road and Gnangara which are located on or near Underground Water Pollution Control Areas were closed as were six other sites which had little or no control of volumes and composition of the waste.

There now exists only three sites in Perth for biodegradable waste and one site for non-biodegradable waste. These sites are all manned and strict control is exercised.

Through surveys done by this Department in conjunction with the Metropolitan Water Authority and Department of Conservation and Environment, volumes and composition of the majority of liquid waste in Perth are now known and it is thus possible to treat special waste either before leaving the producer's premises or at the disposal site. A cabinet sub-committee and its working committee has almost completed drafting of proposed Liquid Waste Regulations under the Health Act and it is hoped that once they are introduced in 1983 they will provide the final step to control disposal of all liquid waste not covered under the Rights in Water and Irrigation Act.

Waste Exchange

The waste exchange operated by the Public Health Department since 1980 has continued to expand. Major achievements have been the almost total elimination of waste oils, drycleaning fluids and other liquid hazardous waste which previously was indiscriminately dumped.

Many other hazardous materials such as laboratory chemicals and pharmaceuticals are also being eliminated from the waste stream through the waste exchange.

HEALTH SURVEYING

INTRODUCTION

One of the features of the 1982 period was the consolidation of organisational changes effected late in 1981. These changes were introduced as an interim measure to overcome the difficulties being experienced in providing a satisfactory service to meet increasing demands. These difficulties arose mainly as a consequence of normal population growth over a period of years not being matched with proportionate increases in staff resources.

The restrictions placed on local government activities by the economic situation is probably a further factor which contributed to the situation.

By the reorganisation of duties and the reallocation of priorities it was possible however to meet most demands made during this period. Regardless of this achievement, it can be anticipated that if there is a continued limitation on staff increases, crisis situations will occur in the future. These could develop to such proportions as to necessitate a complete reorganisation of the environmental health services now provided by local government and the Public Health Department.

In the previous year's report, mention was made of the retirement of a number of senior officers and the resultant impact of the loss of experience and knowledge on the functions of the Branch. In an endeavour to overcome the dearth of expertise created by this event, it was agreed to recruit experienced officers from outside the Service and this move has already had beneficial effects.

Other staffing matters worthy of comment relate to the introduction of graduate trainee officers in lieu of unqualified personnel and the appointment of the Department's first female Health Surveyor.

The year under review was not notable for any major change in activities but as has been previously expressed, it was mainly a period for consolidation of new concepts. A brief commentary on the various activities of the different health surveying sections is presented hereunder by the individual section leaders.

In conclusion, on completion of my first full year as Chief Health Surveyor, I wish to record my deep appreciation to all officers for their continued support and application to their duties during a most difficult time of readjustment.

FOOD AND LIQUOR SECTION

Food General

Investigations of marketing of food products for compliance with the Food and Drug Regulations continued during 1982 with regard to wholesomeness, compositional standards and additives and labelling.

Sampling

Routine and special food investigations continued throughout the year. A total of 3,487 samples for bacteriological and chemical examination (Appendix I), plus 4,791 miscellaneous non food samples (Appendix II) were submitted for determination.

Investigations and Special Activities

Investigations and assessments of State-wide food complaints and co-ordination of related activities resulted out of 377 complaints being received (Appendix III).

Market Basket Survey (National)

Four seasonal sampling programmes were effected, involving a selected variety of foods from specific areas, for determination of pesticide and metal residuals.

Mercury Content in Fish

The sampling programme to determine the mercury content of fish and shark continued and relevant data shared with the National Health and Medical Research Council.

Organoleptic Examinations

Food, particularly fish, where through an introduced foreign taste or by tainting could be considered suspect, was subjected to organoleptic testing to determine its marketability.

Food Vending Machines

A number of applications for approval of food vending machines were presented for departmental approval during 1982. A potato chip vending machine was the only one considered suitable, provided modifications were effected to facilitate proper cleansing.

Food Hygiene Advisory Service

A continuing service which includes liaison with architects and builders involving schools, Parliament House, Q.E. II Medical Centre, Fremantle Wharf and other government authorities and private installations at local authority request. The service includes plan and specification examinations, on site inspections and general advice.

Food Legislation

All legislation involving food is continually under review and legislative changes recommended where necessary.

Food Hygiene Regulations

Final draft proposed amendments involving the Ventilation and Extraction Systems Regulations have been completed.

Model Food Act

The food section has national involvement in the preparation of draft specifications for food handling premises, together with participation on a N.H. & M.R.C. working party concerning the proposed Uniform Food Hygiene Regulations.

Food and Drug Regulations

Work is continuing on draft regulations involving the processing of oysters and other shellfish.

Frozen Food Transport

During 1982 some problems were experienced with the transport of frozen foods into country areas, especially to the hotter northern and central areas. The main areas of concern were temperature fluctuation, freezer unit breakdown and dust penetrating the foodstuffs within the vehicle through faulty door seals. Remedial action was taken where necessary.

Microbiological Status of Foods

Regular buying, sampling and recording sampling conditions of various foods throughout the State continued during 1982 to determine the microbiological status of foods with results furnished to the N.H. & M.R.C.

Fish Identification

In conjunction with the State Health Laboratory Services Forensic Division and the Western Australian Museum, the development of a library is well advanced, using the iso-electric focusing method of protein band patterns of an extensive range of local and imported fish types. When completed, this will enable positive identification of all fish sold in Western Australia.

Poultry Processing Surveillance

Regular sampling of product and surveillance of major poultry processing establishments continued throughout the year. The achievements of this programme are reflected in the marked downturn in food borne food poisoning outbreaks from this source.

Imported Foods

Routine examination of imported foods involved officers of the food section at Fremantle Wharf, Perth Airport, Kewdale Rail Terminal and various depots receiving containerized food products throughout the metropolitan area.

Samples drawn for analysis:-

Chemical	925
Bacteriological	1,306
TOTAL	2,231

Fish Imported:-

Total weight 4,688,681 kg
Fees raised for inspection of fish - $13,627-55

Containers of fish discharged at Fremantle:-

436 Containers

Condemnation of Fish and Other Foods

Fish

Squid	23.2 kg
Anchovies	6,000.0 kg
	6,023.2 kg

Foods

Dried Prunes	1 box
Dried Apricots	12.5 kg
Cheese	10.0 kg
Desiccated Coconut	37,455 kg
Chinese Food	160 cartons

Canned Salmon

U.S.A. and Canadian canned salmon were subject to an Australia-wide recall following advice from the Commonwealth Department of Health that cases of Botulism resulted from the consumption of this product.

A State-wide recall of all brands in 220 gram cans was co-ordinated which involved local authorities, retailers, wholesalers and State distributors.

A total of 1,305 cans were destroyed under supervision.

Desiccated Coconut

Routine sampling resulted in the condemnation of 793 bags of desiccated coconut for excess levels of Sulphur dioxide.

Anchovies

300 cases (6,000 kg) were condemned and destroyed due to fractures in all cans.

Prawns

The food section conducts microbiological sampling and physically examines all imported prawns, on behalf of the Commonwealth Government, at Fremantle Wharf and Perth Airport.

Perth Airport

Previous imports of food by air were restricted to sample shipments only. In the past two years regular consignments of fish and oyster have arrived by aircraft.

All consignments are sampled and are not released until a favourable bacteriological and/or chemical result is received.

Quarantine

All foods subject to quarantine control are examined by departmental officers with close liaison with the Quarantine Department, which enables strict quarantine controls to be maintained.

Wharf Procedures

With a complete change in the method of handling of imported foods there is now no conventional discharge of this type of cargo at Fremantle Wharf. All items are containerised in refrigerated containers, in the case of perishable goods, and are not opened until they are transported to places of storage.

Although this entails increased travelling of officers to supervise the unloading, the time between the opening of the container and the placing of the goods into cold storage is reduced to an absolute minimum.

Livestock Export

All wharf areas used during the loading of live sheep are kept under surveillance to ensure that satisfactory standards of cleanliness are maintained.

There were 96 vessels loaded with live sheep during 1982. Although this was 17 ships fewer than 1981, the increased size of the ships now used enables a greater number of sheep to be transported per load.

Liquor

The noral surveillance of liquor outlets continued during this year with approximately 1,300 licensed premises visited.

Liquor Outlets Inspected

	Town	Country	Total
Hotels	197	121	318
Taverns	172	42	214
Ltd Hotels	25	8	33
Winehouses	23	-	23
Cabarets	34	-	34
Restaurants	223	22	245
Theatres	4	-	4
Clubs	222	60	282
Packets	-	1	1
Canteens	2	-	2
Aust. Wine Lic.	-	-	-
Function Permits	-	2	2
Catering	-	-	-
Others (R.A.S.)	14	-	14
TOTAL	916	256	1172

Spirits Tested	Imported	Australian	Total
Whisky	2213	105	2318
Brandy	90	1037	1127
Rum	702	544	1246
Gin	522	521	1043
Vodka/Ouzo	65	1173	1238
Other Spirits	778	25	803
TOTAL	4370	3405	7775

Imported spirits tested were 56.21% of the total.
Australian spirits tested were 43.79% of the total.

Various Liquors Submitted to the Government Chemical Laboratories for Determination of Spirit Strength

	Imported	Australian
Whisky/Bourbon	1	
Brandy		4
Ouzo		2
Wine		3
Beer		4

Complaints Investigated - 1982

The following complaints were investigated:-

Watered, Adulterated Beer

Hotels 6
Taverns 3

Legal Action - 1982

(i) Below standard beer.

Hotel - fined - $50.00
costs - $76.20

(ii) Absence of blue dye.

Hotel - fined - $50.00
costs - $76.20

Bar, Coolroom, Hygiene, Blue Dye Provision - 1982

98 dye orders were served on licensees to provide blue dye to drip trays.

51 verbal were also made for the above.

32 requests were made to provide alternative storage for exposed food found in beer coolrooms.

3 unbranded carcases found in beer coolrooms.

3 requests were made relating to the cleansing of coolroom floors, walls and ceilings.

34 requests were made to improve the general cleanliness of bar areas.

60 requests were made to replace/recover glass trays.

22 requests were made to repair glasswashers.

9 requests were made to replace damaged jugs.

35 requests were made to clean temprites.

4 requests were made to cease storing chemicals in beer jugs.

1 dog removed from bar area.

MEAT SECTION

The meat industry continues to be in a depressed state throughout Australia, drought in the Eastern States being the main contributing factor. Fortunately, the prolonged drought experienced for the past seven years in Western Australia has finally broken but it will take a number of years for the stock numbers to return to some normality and slaughtering figures are still depressed.

The most important issue relating to the meat industry during 1982 was the Royal Commission into the industry which was brought about by the meat substitution scandal within the export trade.

Mr. Justice Woodward stated in his report that it is unrealistic at this stage to expect that any final Australia-wide plan for a single meat inspection service has any prospect of universal acceptance by the Commonwealth, the States and Territories, let alone by industry and the unions concerned.

Mr. Justice Woodward's ideas are that the best that can be achieved is a commitment by the States to the need for a single service, and the establishment of interim arrangements which represent a move towards, and which leaves the way open for, a single service under single control. In any such arrangement the States should have an involvement equal to that of the Commonwealth.

Plans of a proposed State/Commonwealth Joint Authority have been developed in Victoria which Mr. Justice Woodward stated have considerable advantages.

Preliminary discussions have been held in this State between officers of the Department of Agriculture, Public Health Department and the Department of Primary Industry with a view to arriving at a solution which is acceptable to all parties.

Fees

A good deal of the discussion of a unified system revolves around the question of fees. The strongest opposition came when works objected to paying dual fees for meat designated for the local market killed at an export abattoir.

This situation exists at Robbs Jetty, which is a State owned and financed establishment. In 1976 the Commonwealth placed a levy on all meat being processed at an export works regardless of whether it was designated for the export or local market. This results in the product for the local market, processed at a State owned establishment, being subject to higher costs.

The Woodward Report also states that pig producers object to paying export levies for slaughtering at export works when very little pig meat is exported.

Country Abattoirs

Inspections of these premises increased during the year. Where necessary, Departmental Officers have spent periods of from one to two weeks at works which had reached a stage of needing considerable upgrading. During these visits the standards of meat inspection were also monitored to ensure uniformity of standards throughout the State.

Smallgoods Monitoring Programme

This programme has continued to prove successful. Comparison of results of equipment swabs and product sampling have shown improvement in hygiene and food handling practices since monitoring commenced.

Random sampling for species identification in smallgoods at frequent intervals has resulted in one prosecution for the use of horsemeat.

Illegal Slaughter

This continues to a sporadic problem. All complaints are investigated, which resulted in two successful prosecutions.

Abattoir Inspections, January - December 1982

52 abattoirs operating at December 30.
None changed ownership.
None closed down.
48 had Departmental work orders served on them.
4 were ordered closed till work completed.
Approximately 190 inspections were carried out.
Majority visited four times during the year.

Abattoir Data

Registered Local Works	52	
Registered Export Works	11	
Registered Local Works with no inspection	11	(Inspection pending at 2)
New Abattoirs	2	

Meat Imports, January - December 1982

Carcase Lamb	-	44,548	
Cartons Lamb	-	600	
Carcase Beef	-	1,425	
Hindquarters Beef	-	1,000	
Cartons Beef	-	28,813	
Carcase Veal	-	113	
Cartons Veal	-	2,219	
Bags Pork	-	1,098	
Cartons Pork Offal	-	100	
Cartons Poultry	-	42,595	
Carcase Roo	-	30	Tonnes
Bulk Roo	-	394	Tonnes
Rabbits	-	6,025	Pair
Cartons	-	200	
Bulk	-	3	Tonnes
Buffalo Cartons	-	10	
Deer Carcases	-	40	

Sampling Programme, January - December 1982

Total Samples	-	6,081
Comprising:-		
Staff Handwashes	-	2,378
Meat Samples	-	853
Smallgoods	-	581
Chicken	-	334
Serological	-	214
Faecal	-	104
Equipment Swabs	-	556
Moore Swabs	-	327
Effluent Samples	-	380
Meat Meal	-	354

RESEARCH AND SPECIAL PROJECTS SECTION

Mosquitoes

The control programme introduced in the northern areas of the State has been enhanced by the subsidised purchase of two LECO U.L.V. fogging machines by Pilbara local authorities. Additionally a further officer attended the National Mosquito Vector Control Course in Mildura during the year.

Metropolitan Fly Control Campaign

This was continued in the new format, utilising mainly television and radio coverage. This year 18 local authorities contributed financially to the campaign and an encouraging public penetration rate was obtained.

Pest Control Unit

Officers of the unit worked a greater number of overtime hours during the year due to increased demand for services by various Government departments.

Routine fly control inspections carried out by officers of the section are as follows:-

Metropolitan abattoirs	60
Railway truck washing yards	48
Skin drying sheds	32
Water Board treatment works	46
	186

An additional load was placed on the section early in the year when assistance in mosquito control was given to flood affected local authorities in the south of the State.

Assistance given to the M.W.S.S. & D.B. included midge control at reservoirs and a successful 1080 rat baiting campaign in sewers.

The following is a table of treatments conducted during 1982:

DETAILS OF PEST CONTROL TREATMENTS

379	Cockroach
219	Mice
119	Rat
256	Redback spider
90	Ant
12	Flies
37	Bee
34	Flea
9	Pidgeon lice
91	Termites
27	Spiders
73	Pidgeon
147	Midge
11	Biting insects
9	Mosquito
41	Silverfish
4	Bed bugs
1	Bird
1	Moth larvae
1	Spitfires
13	Crickets
13	Wasps
13	Possums
1	Weevil
1	Tick
2	Book lice
1	Centipede
1	Moth
4	Cat

Caravan, Holiday and Temporary Accommodation

During the year departmental officers visited in excess of 90 caravan parks throughout the State. Additionally, there was a continuing involvement in examination of caravan park proposals for various areas throughout the State. The section also continues its role of complaint investigation on behalf of the Department of Tourism.

Rottnest Island

Departmental officers have regularly visited the island during the year, mostly during summer months and particularly during holiday periods. Some upgrading of food handling premises has been achieved and discussions held relating to the upgrading of water storage tanks.

Eyre Highway

Inspections of the Eyre Highway were again carried out during the year in conjunction with the local authority health surveyor and officers from other Government departments.

Epidemiology

The main involvement of this section in epidemiological work to date has been in association with the Australian Encephalitis Programme funded from Federal/State funds. It was the function of this section to manage the 1981/82 funds and to submit the 1982/83 budget estimates for that programme.

In a more practical sense, the section contributes to Australian Encephalitis research with the management of the Sentinel Chicken Programme from which serological information pertaining to A.E. virus activity is obtained. Sentinel chicken flocks were maintained at 15 locations in the North West and Pilbara, which were attended by local authority Health Surveyors and various mining company personnel. A total of over 1,400 serum samples were collected which in the year yielded eight sero-conversions to either M.V.E. or Kunjin antibodies at two sites. A further four sero-conversions have been obtained from 800 samples taken by the University of Western Australia in the Ord River area.

In each case where sero-conversions occurred, the local authority was notified to increase mosquito surveillance and control measures if appropriate.

PUBLIC BUILDINGS SECTION

In spite of economic conditions, public building plan approvals have shown an increase over the previous year. Roller skating rinks appear to be on the decline, with indoor cricket premises becoming the current popular alternative.

During the year a State-wide exercise was conducted on certain nights in order that public buildings could be checked during occupancy. In order to encourage local authorities to become involved, the Department offered the assistance of its own officers specialising in this field. Many discrepancies were found and eventually rectified.

Liaison has continued throughout the year with other departments whose activities are associated with public buildings with beneficial results. Perhaps the most important being the extensive review of the Public Buildings Regulations now almost complete.

Swimming Pools

During the year nine public swimming pools were closed due to the presence of Naegleria, with several others being closed due to high bacterial counts or lack of maintenance.

The routine inspection of public pools by officers of the section has continued with advice and assistance being given where needed.

This year saw the opening of the State's largest artificial swimming pool at Bibra Lake Wonderland.

Whilst there were some problems initially, the installation is now operating satisfactorily.

Hospitals

Although there was only limited construction of new hospitals during the year, considerable additions, alterations and general upgrading of premises have taken place.

COMMUNITY WASTE MANAGEMENT

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.

With the formation of the Waste Disposal Committees in 1976 and the reorganisation of the zone system, an objective was to formalise the establishment of regional councils for the purpose of community waste management. To achieve this, an amendment to the Local Government Act was necessary and in 1981 the Act was amended, making it possible for zones to form regional councils. Both the Eastern and Western Zones proceeded with the formation of regional councils and the Eastern Zone should obtain the Governor's approval early in 1983.

The City of South Perth undertook an eleven month trial with a modular rotary type incinerator at its Collier Reserve landfill site. The unit, Talos 65T model, was supplied by the Italian firm Tecnitalia. While the trial provided much interest to all in the waste management field, the Council did not proceed to establish an incineration facility.

The City of Perth embarked on a recycling programme with recovery at source. A three month pilot study was carried out in the Carlisle ward. Householders were approached to separate their recyclable paper, glass and metal from normal refuse. The pilot study proved successful and the Council has decided to extend the resource recovery programme throughout the municipality.

Activities of the Branch in the areas of solid waste disposal, liquid waste disposal and waste exchange are dealt with in Mr. Hansen's report.

ENVIRONMENTAL HEALTH

(General) Section

The section suffered extreme staff shortages throughout most of the year due in part to the provision of two officers for service in country areas and the use of officers for relief purposes in other sections of the Department. This situation has been eased by the provision of extra staff and the appointment of a permanent Health Surveyor in one of the areas formerly served by a Departmental officer.

Of further assistance in the matter of staff numbers has been the transfer of certain areas of responsibility to another section.

A service is still provided for the Lower Murchison by a Departmental officer and this is expected to continue on a basis of two weeks in the area every six weeks.

The section was heavily involved in land subdivision, effluent refuse,

septic tanks and associated matters prior to a rearrangement of sections during the year. This reduction of workload, plus staff increases, has allowed more involvement in other areas.

One particular area is by-laws and amendments submitted by local authorities. The additional time available for examination of submissions and closer liaison with local authority officers has resulted in a greater understanding of by-law making procedure and resulted in improved standards of legislation.

Employment of the Department's first female Health Surveyor has proved opportune insomuch that it became necessary to investigate certain aspects of beauty salon operations. Enquiries are still in progress.

Apart from the above, investigations have been carried out into pesticide levels in bores, waterway pollution, toxicity of treated pine logs, examination for development proposals (such as Argyle Diamond Venture), provision of public toilet facilities in T.A.B. premises, asbestos content of rainwater collected off asbestos roofs and general tank maintenance, psittacosis, construction camps, fibreglass fixtures such as urinals and hand basins, examination and amendment of existing legislation.

An officer from the section was made available to assist local authorities in the South West of the State during floods early in 1982.

Appeals to the Commissioner of Public Health are now examined on a complaint basis and appellants advised of the likelihood of their appeal being successful or otherwise. This system appears to operate satisfactorily, one appeal only actually being heard by the Commissioner during the year.

The formation of a new health region was successfully concluded during the latter part of 1982 with the appointment of a Health Surveyor to the Leonora area. At the end of the year negotiations were in progress for the formation of another region based in Meekatharra and utilizing an officer of this section.

Septic Tanks

The trend of previous years where a reduction in the number of approvals has been noted has been followed in 1983. This may be attributed to decreased activity in the building industry and an increase of area under sewer due to expansion in the metropolitan area and introduction of new schemes in the country. The trend is in line with Departmental ideals that the septic tank may one day be completely eliminated.

Approvals for the year are:-

Metropolitan	2,460
Country	2,659
	5,119

Much time and effort was expended during the year in experimental and investigatory work into the operation of and possible improvement of treatment of sewage by the septic tank and in the disposal of the resultant liquid waste. Co-operation with officers of other Departments has been excellent, resulting in the formulation of several new ideas which it is

hoped will be established on an experimental basis during the coming year.

Land Appraisals

Land appraisals on behalf of the Town Planning Board have shown a slight overall decrease over the previous year. This may be attributed in some way to the introduction of more stringent sewer provision conditions for subdivision purposes in the metropolitan area.

Officers of the section have spent a greater proportion of time on investigations into country areas than normal where some quite large subdivisions have been examined.

Appraisals carried out are:-

Metropolitan	274
Country	148
Total	422

In addition, a total of 36 appeals were investigated on behalf of the Hon. Minister for Town Planning.

30073—13

APPENDIX I

FOOD SAMPLES 1982

FOOD SAMPLED	CHEMICAL	BACTERIO-LOGICAL	ELECTRO-PHORESIS	SEROLOGICAL
Alcoholic Beverages				
Wine	1			
Apple Cider	6			
Bread	11			
Breast Milk	59			
Baby Foods (Canned)	54			
Cereals	4			
Cheese		36		
Chocolate	7			
Cocoa	3			
Coconut (Desiccated)	240	498		
Coffee	2			
Confectionary	17			
Crustaceans				
Fresh	530	72		
Canned	14	11		
Dietary Formula	1	18		
Eggs	15			
Egg Crepe	1			
Fish				
Fresh and Frozen	872	118	35	
Canned	9	26		
Frog's Legs		25		
Fruit Juices	54			
Fruit				
Fresh	4			
Canned	4			
Dried	6			
Game Birds	12			
Ginger	1			
Goat's Milk		7		
Honey	24			
Meats				
Fresh	143	3		3
Smallgoods	3	6		
Canned		1		
Tripe	63			
Milk	1	2		

APPENDIX I (Cont'd.)

FOOD SAMPLED	CHEMICAL	BACTERIO-LOGICAL	ELECTRO-PHORESIS	SEROLOGICAL
Molluscs				
Fresh	130	665		
Canned		10		
Bottled		2		
Pasta	3			
Peanuts	1			
Peanut Oil	1			
Peanut Paste	3			
Prepared Foods	6	16		
Poultry	114	439		
Rape Seed Oil	2			
Rice		1		
Sandwiches		26		
Soya Sauce	4			
Sugar	2			
Tea	10			
Vegetables				
Fresh	2	1		
Canned	1			
Vitamin Tablets	2			
Water				
(Potable)	20	121		
Miscellaneous Items				
Cosmetics				
Eye Shadow Powders	8			
Makeup Kits	6			
Cooking Ware	1			
Meat Meals		2		
Plastic Boots	1			
Plastic Containers	1			
Powder - White	2			
- Brown	1			
Stock Foods	1	14		
TOTAL	2483	2120	35	3

APPENDIX II

MISCELLANEOUS SAMPLES 1982

SAMPLE	BACTERIAL	CHEMICAL
Baby's bottle		1
Baby bottle teats		5
Baby pram (dye)		1
Bleach		2
Dairy coffee alternative		1
Fabric softener		1
Food swabs		2
Food premises - swabs	9	
Human faeces	88	
Miscellaneous		6
Novelty erasers		2
Poultry		
Processing establishments		
Cloacal swabs	3600	
Effluents	216	
Poultry farms		
Swabs	796	
Effluents	2	
Water supply	14	
Feed	14	
Soil Samples		4
Tampons		1
Toilet Cleaner		1
Vehicle and cigarettes		10
Water	3	6
Water (Ocean) Rottnest	6	
TOTAL	4748	43

APPENDIX III

FOOD COMPLAINTS 1982

FOOD	NUMBER
Baby bottle	1
Beer	2
Biscuits	3
Bread	37
Cakes, Pastries and Pies	15
Cereal	6
Champignons	3
Cheese	3
Chicken	12
Child's Makeup Kit	3
Chinese Meals	5
Coffee	1
Confectionary	5
Cool Drink	7
Crab Meat (Canned)	2
Date Marking	5
Dessert	1
Duck	3
Edible Fats and Oils	3
Fish	12
Fish (Canned)	9
Fish Paste	1
Flour	1
Food Handling	12
Food Premises	30
Fruit (Canned)	3
Fruit (Dried)	2
Fruit (Fresh)	3
Fruit (Juice)	6
Herbs	1
Honey	1
Icecream	6
Ices	2
Infant Food	3
Jam	3
Liquor	2
Margarine	1
Mayonnaise	1
Meat (Canned)	4
Meat and Meat Products	25
Milk	12
Milk (Goats)	3
Mixed Seafood Meals	5
Mussels	5
Pasta	1
Pizza	2
Popcorn	1
Prepared Meals	23

FOOD	NUMBER
Rice	3
Soya Flour	1
Soya Sauce	1
Spreads	1
Sugar	2
Tea	1
Tomato (Tin)	1
Tomato (Paste)	3
Vegetarian Pie	1
Vegetables	3
Vegemite	1
Vegetables (Canned)	9
Vitamin Pills	1
Water	1
Water (Mineral)	1
Wine	4
Yoghurt	1
TOTAL	332

Appendix X

KIMBERLEY HEALTH REGION

R.M. Spargo
Cit (W.A.), J.P. M.B.B.S. M.P.H.
Director

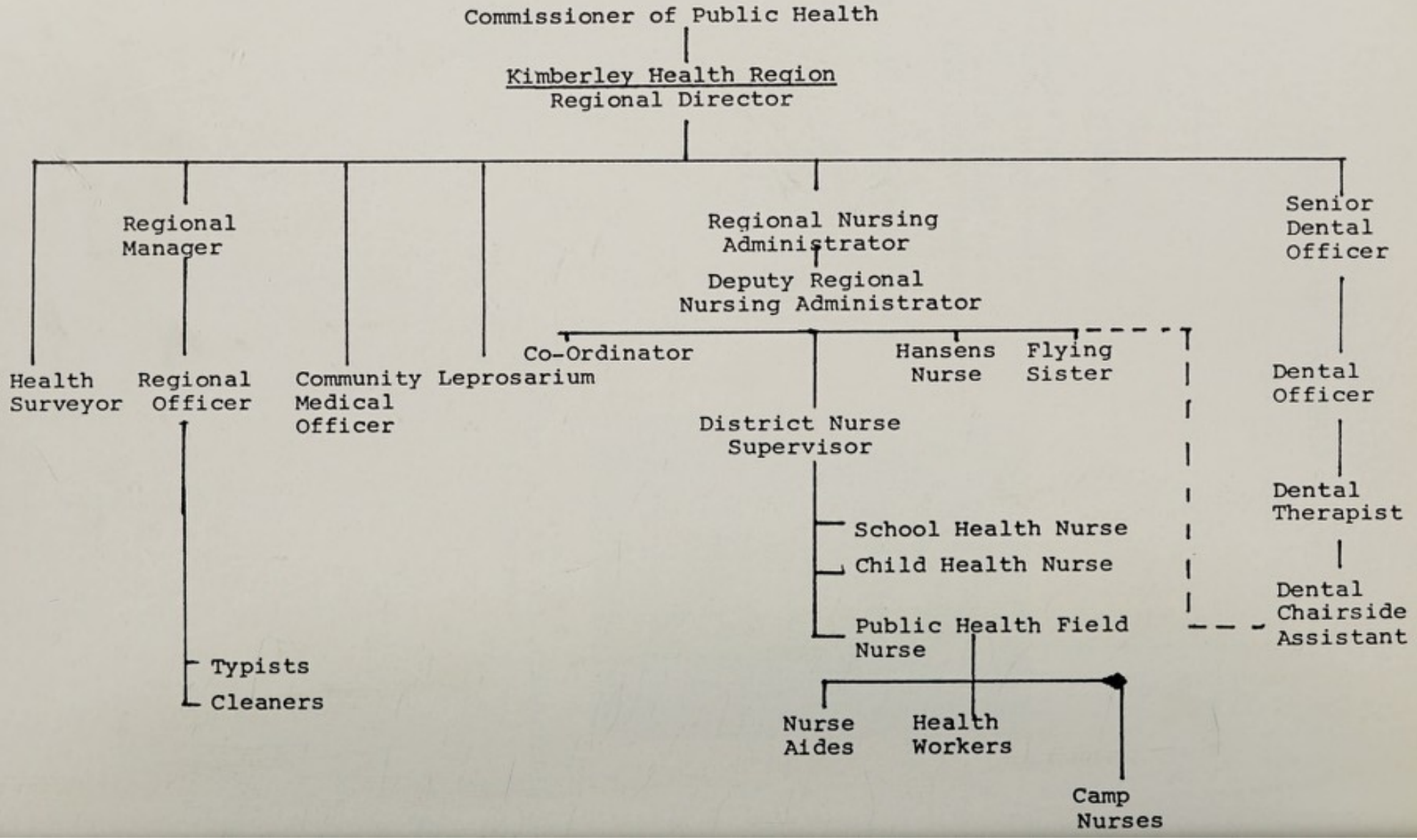
SENIOR STAFF

Director : Dr. R.M. Spargo
Regional Nursing Administrator :
Mrs. P. Humphris
Senior Dental Officer : Mr. W. Evans
Regional Manager : Mr. J. Altimira

COMMUNITY MEDICAL OFFICERS

Dr. L. Anderson
Dr. P. Schindler
Dr. H. Saddler
Dr. N. Wong
Dr. D. Oneill

KIMBERLEY HEALTH REGION - ORGANIZATION CHART



KIMBERLEY HEALTH REGION

In April, 1980 the Kimberley became the first regionalized Public Health Branch.

Staffing situation at the end of 1982 is shown in Table 1. There was an improvement in staffing levels during the year.

Doctor H. Saddler was appointed as Community Medical Officer based at Halls Creek, serving communities in the S.E. Kimberley. The use of Dr. Saddler's private aircraft, facilitated health care services to these widely separated Aboriginal Communities in this area.

Health Clinics were built and completed for both the Mindi Boogana and Mullen Aboriginal Communities and a third unit of nurse accommodation was completed for the Bidyadanga community.

During 1982 the administration of the Leprosarium at Derby became the responsibility of the Kimberley Public Health Region.

A Dental Officer Mr. P. Shipway was based at Fitzroy Crossing.

TABLE 1

STAFF AS AT 31/12/82

CATEGORY	APPROVED ESTABLISHMENT	ACTUAL INCUMBENT
Nursing		
Intinerant Health	42	38
C.H. Programme	5	4
Child Health	3	3
School Health	2	3
Health Workers	26	26
Community Medical Officers	6	6
Dental Officers	5	6
Dental Therapists	4	2
Dental Chairside Assistants	11	9
Health Surveyors	2	2
Administrative/Clerical	9	9

TABLE 2

REGISTERED CLIENTS OF ABORIGINAL DESCENT - KIMBERLEY AS AT DECEMBER, 1982

AGE GROUPS	MALE	FEMALE	TOTAL
0-4	758	778	1,536
5-14	1,498	1,335	2,833
15-19	537	505	1,042
20-49	1,706	1,724	3,430
50-64	470	442	912
65+	291	237	528
UNKNOWN	27	20	47
TOTAL	5,287	5,041	10,328

Number of Client Encounters in Kimberley for the period year ending 1982.

Age	0-5	6-14	15-19	20-49	50-64	65+	Unknown	Total
All Races	15757	10086	2704	14577	7540	5803	58124	114591
Aboriginal Decent	15503	9983	2687	14142	7406	5428	57466	112615

FLYING SISTERS

The Victorian Section of the Royal Flying Doctor Service facilitates an important contribution to the delivery of health and disease care services to isolated communities in the Kimberley. Aircraft operate from bases at Wyndham and Derby.

TABLE 4

R.F.D.S. (VICTORIAN SECTION)

PATIENT STATISTICS KIMBERLEY (1982)

CLINIC CONSULTATIONS	HINTERLAND TO HOSPITAL EVACUATION	HOSPITAL TO HINTERLAND REPATRIATION
Aboriginal Descent 5501	Emergency 394	549
Non-Aboriginal 719	Routine 1019	

TABLE 5

ABORIGINAL PERINATAL, NEONATAL, POSTNEONATAL AND INFANT MORTALITY

KIMBERLEY, 1982

ALL BIRTHS	317
STILL BIRTHS	9
LIVE BIRTHS	308
DEATHS	
NUMBER:	
1ST WEEK	4
PERINATAL	14
NEONATAL	5
POSTNEONATAL	3
INFANT	8
RATES PER 1,000 BIRTHS:	
PERINATAL (TOTAL BIRTHS)	44.16
NEONATAL (LIVE BIRTHS)	16.23
POSTNEONATAL (LIVE BIRTHS)	9.74
INFANT (LIVE BIRTHS)	25.97

(These infant deaths are not corrected for infants who died outside Western Australia.)

TABLE 6

ABORIGINAL MORTALITY BY AGE AND SEX, KIMBERLEY, 1982

AGE CATEGORIES	MALE	FEMALE	TOTAL
0+	4	4	8
1-4	1	1	2
5-14	-	-	-
15-49	14	8	22
50-64	12	10	22
65+	15	16	31
COLUMN TOTAL	46	39	85

This table shows the breakdown of Aboriginal mortality in the Kimberley by age and sex. From this table, the proportional mortality ratio age 50 years and over (the P.M.R. 50+) for the Kimberley Aboriginal population in 1982 was 62.35%.

ABORIGINAL HEALTH WORKERS

The approved establishment for this category of staff is now thinly stretched in the Kimberley. In part the result of a no-growth policy, in part consequent upon the many independent Aboriginal Communities which have evolved. Some have only a part-time health worker others have no Aboriginal Health Worker.

Training of Health Workers is in-service. The concept of the Achievement Record has now been introduced. Here background information in regard to health and disease matters is broken down into core categories, the prerequisite to obtaining specific health skills. The Achievement Record becomes a record of the Health Workers tested proficiency in that background knowledge. Related specific health skills within each core category indirectly act as a catalyst to the community from which each health worker comes to expand their health awareness.

Workshops are held regularly throughout the Kimberley. Each year the Health Workers plan and organise a combined Kimberley - Pilbara Health Workers Conference. This year the Conference was held in Broome.

The Staff Development Unit is involved at all levels of Health Worker training in selecting appropriate Achievement Records for individual Health Workers, planning the teaching for each individual and setting goals for the completion and testing in proficiency for each core category. This is complemented by the practical encouragement and training given to each Health Worker by the Field Nurses on a daily basis. A number of Health Workers throughout the Kimberley are also achieving experience in the Mt. Lawley General Education Programme, some at the advanced level. One Health Worker is undertaking the Diploma of Health Education as an external student at the Claremont Technical College. Time is set aside during each working week for tutoring in these activities.

ALCOHOL AND ALCOHOL RELATED PROBLEMS

Encouragement and support continues to those community based groups who would assist persons with alcohol related problems. Three Health Worker items are currently seconded to Milliya Rumurra in Broome, to allow for Alcohol Counsellor positions there. Similar community support groups are evolving in other major centres in the Kimberley, for instance Derby and Wyndham.

These groups will serve an essential function, in the maintenance phase, of any formal alcohol programme that evolves within the region.

For the future a Kimberley centre serving a regional function needs to be developed for the rehabilitation phase of any alcohol programme. The movement out of the Kimberley of Aboriginal patients to southern urban facilities is not optional management. A prerequisite to organization of any regional rehabilitation phase effort is an optimally functioning maintenance phase system in each major centre in the Kimberley.

SEXUALLY TRANSMITTED DISEASES

These should be seen as a by-product of the structure and changing social function of society in the Kimberley today. The Aboriginal population is an integral part of that social structure.

Many young adults in the Aboriginal population have sought freedom from traditional cultural restraints, which were significantly influenced by wider social attitude. Greater mobility, forced integration, some financial independence and the greater use of alcohol as a lubricant for group interaction, has facilitated the altered behaviour patterns observed. The result has been that the Aboriginal population has entered into their first era of measurement of sexual ratio aged 15-49 years which is causally related to the S.T.D. rates observed.

TABLE 7

Confirmed cases of S.T.D. Kimberley 1982 - 630

Unlike so many other infections the sexually transmitted diseases have nowhere been controlled. The health care system needs to continue to direct its efforts to the prevention of congenital syphilis, the prevention of the spread of syphilis non-venereally, and the prompt detection, treatment and necessary follow up of individual cases. This will prevent those sequellae which would result in premature death or residual disability, including infertility.

The Venereal Disease Co-ordinating Committee has met quarterly in different centres in the Kimberley. Our thanks are extended to Mr. John Edwards the Regional Administrator for the Kimberley, who acts as chairman, and Doctor Maurice Gollow the Director of the Venereal Disease Control Branch, whose enthusiasm and vigour has had a significant impact upon these meetings. The format of the meetings have gradually changed to allow for the meetings to be public, and when possible, to be held in Aboriginal Communities. For instance during the year meetings were held at Oombulgurri and at the Junjuwa Community at Fitzroy Crossing.

Our opinion is that there is considerable utility in these meetings with the gradual increase in community awareness and knowledge of the sexually transmitted diseases. This is manifested in the increased numbers of persons having examinations for these conditions which can be seen from tables (8) and (9) that relate to work done in the Wyndham East Kimberley Public Health District.

TABLE 8

CLIENTS TESTED FOR N GONORRHOEA INFECTION

	AGE IN YEARS						
	0-9	10-14	15-19	20-29	30-39	40+	TOTAL
Tested	19	8	186	607	229	110	1159
Positive	8	1	33	61	38	22	163

TABLE 9

CLIENTS HAVING BLOOD TESTS FOR TREPONEMAL INFECTION

	AGE IN YEARS						
	0-9	10-14	15-19	20-29	30-39	40+	TOTAL
Tested	19	20	121	329	174	111	774
Sero-reactive	-	1	1	5	2	3	12

DENTAL HEALTH

During 1982 the Broome Dental Clinic became a Private Practice Clinic. This allowed for a Dental Officer to be based at Fitzroy Crossing.

A major effort was made this year to extend a dental service in the Kimberley to communities not having ready access to a facility based service. As part of an Outreach Programme, Dental Officers have stepped up itinerant visits to hinterland communities. This year one heavy duty van has been remodelled and equipped for this purpose. It is the intention next year to obtain a second such dental van. A problem hitherto has been the poor utilization of dental services by the Aboriginal population except on an emergency basis.

This is as much the result of attitude and behaviour, as the result of limited options for dental services in the past. An objective of the Outreach Programme is to increase the utilization of Dental Services by the Aboriginal population.

A successful aspect of this programme has been the introduction of supervised tooth-brushing in the schools. The favourable outcome in terms of improved paradontal condition is clearly evident.

To facilitate the Outreach Programme, and to go some way to increasing the expectations of the Aboriginal population for elective utilization of dental services, where ever possible, surplus dental infrastructure is being installed in those discrete and isolated communities.

As funds permit this infrastructure will be upgraded. The opportunity exists in these communities for the training and employment of Aboriginal Chairside Assistants on a categorical and contractual basis.

The appointment of Mr. W. Evans as Senior Dental Officer has greatly facilitated the Outreach Programme.

HEALTH SURVEYING

There are two Departmental Officers based on Wyndham and Derby. Each is responsible for the environmental health standards in two local authority areas.

The Kimberley presents difficult problems with its widely separated communities, all of which are undergoing considerable development. A particular problem has been the number of independent Aboriginal communities which have evolved, currently at varying stages of development in terms of service infrastructure and with varying community capacity to manage that infrastructure. For the future we would look to the appointment of a third Departmental Officer to concentrate upon the special needs of the Aboriginal Village concept.

HANSEN'S DISEASE

Leprosarium

The Leprosarium is a specialised facility at Derby which accepts patients with leprosy or leprosy related problems from the Kimberley and when necessary from other parts of the State.

TABLE 10

ANALYSIS OF ACTIVE LEPROSY ADMISSIONS BY ORIGIN, SEX, AGE AND LEPROSY TYPE 1982

Registered Number	Origin	Sex	Age	Classification
New Admissions				
1240	Kimberley	Female	36	LLs
1241	Pilbara	Male	70	BB
1242	Kimberley	Male	16	LLs
1243	Pilbara	Male	42	BB
1244	Pilbara	Male	57	B.T.
1245	Kimberley	Male	10	LLs
1246	Kimberley	Male	11	LLs
1247	Kimberley	Male	27	LLs

TABLE 11

LEPROSARIUM PATIENT CATEGORIES BY SEX

CATEGORY	MALE	FEMALE	TOTAL
Patients as at 1st January, 1982	11	9	20
ADMISSIONS			
New (Multibacillary	6	1	7
New (Paucibacillary	1	-	1
Bacillary Relapse	-	-	-
Disability	11	2	13
Kimberley Origin	15	3	18
Other than Kimberley Origin	3	-	3
Aboriginal Descent	18	3	21
DISCHARGES			
Patients as at 31 December, 1982	7	5	12
Multibacillary	5	2	7
Paucibacillary	-	-	-
Disabilities	-	-	-
Social Placement	2	3	5
Kimberley Origin	6	5	11
Other than Kimberley Origin	1	-	1
Aboriginal Descent	6	5	11
Non-Aboriginal Descent	1	-	1

TABLE 12

DERBY LEPROSARIUM

ADMISSIONS AND DISCHARGES FOR 1982

MONTH	ADMISSIONS							DISCHARGES									Inmates remaining in Leprosy		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			1					1	10	10	20
FEB.								1			1					1	9	10	19
MARCH	1	5	6				6										15	10	25
APRIL					1	1	1	1			1					1	14	11	25
MAY	3		3				3	5			5	1			1	6	12	10	22
JUNE		3	3				3	2			2	2			2	4	13	8	21
JULY	1		1				1	5			5					5	9	8	17
AUG.		2	2		1	1	3	2			2					2	9	9	18
SEPT.	1		1				1	1			1	1			1	2	9	8	17
OCT.	1	1	2				2	1			1					1	10	8	18
NOV.								2	1		3					3	7	8	15
DEC.												3			3	3	7	5	12
TOTAL	7	11	18	1	2	3	21	21	1		22	7			7	29			

During 1982 a decision was made to review each registered patient in the Kimberley, at the leprosarium, in conjunction with the detailed clinical records which are kept there for each patient.

For those patients having a history of low resistant, multibacillary leprosy with or without relapse, a combined schedule outpatient drug regime is implemented, using Acedapsone and Clofazimine. Dosage used is such, as to allow administration to each patient by the Health Care team.

Responsibility for outpatient drug treatment has been removed from the individual patient to overcome the problems attendant upon poor compliance.

By 1984 the review of all registered cases should be completed.

TABLE 13

REVIEW OF REGISTERED PATIENTS 1982

	Male	Female	TOTAL
Admitted	14	2	16
Not Admitted	41	25	66
Total	55	27	82

DAPSONE SENSITIVITY TESTING

Each multibacillary patient admitted to the Leprosarium has biopsy specimens sent for Dapsone Sensitivity Testing.

This work has previously been carried out per courtesy of the Leprosy Research Unit, Malaysia. In 1982 the State Health Laboratories in Perth made the necessary technical arrangements to undertake this important work, setting up a mouse foot-pad inoculation system for the determination of Dapsone resistant mycrobacterium leprae. Each experiment begun in 1982 is still in progress.

TABLE 14

DETAILS OF LEPROSY REGISTER, KIMBERLEY, DECEMBER 1982

On Treatment	219
Surveillance only	197
Lost to surveillance	14
Out of Region	27
Deceased during 1982	23
N.T. Registered Patients managed by Kimberley	16

FIGURE 1

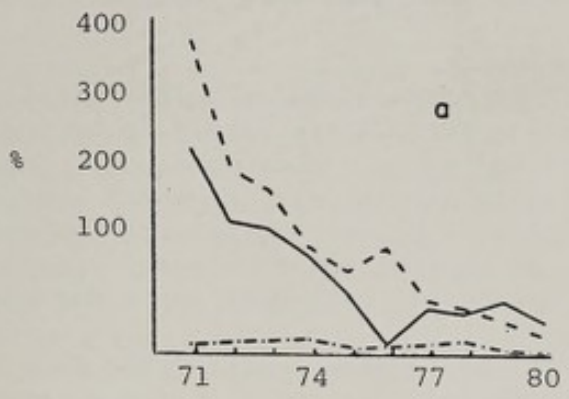
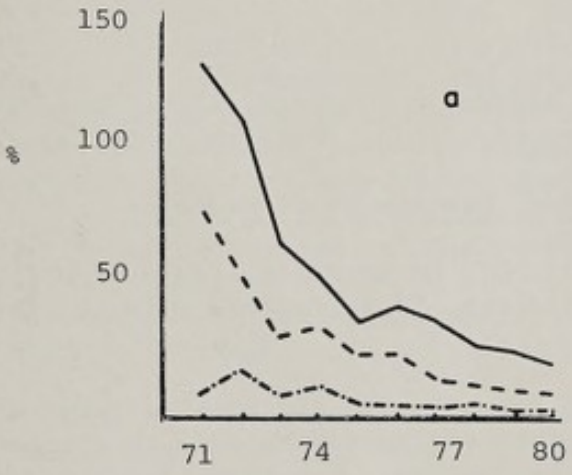


FIGURE 2



Admission rates for Aboriginal infants figure (1) and children 1-5 years figure (2) for gastroenteritis (----), lower respiratory tract infections (-.-.-.-.) and other infections (———) in the Kimberley from 1971 to 1980.

In an analysis of State-wide hospital Morbidity Statistics for the Decade 1971-1980 (2) the admission rates for Aboriginal infants and toddlers to hospitals in the Kimberley were examined.

Examination of figures (1) and (2) shows the very clear decrease in the frequency of admissions to hospital for these critical illnesses of Aboriginal infants and toddlers. For instance for gastroenteritis in infants figure (1) there is a sharp decline from 393 percent per annum in 1971 to 47% in 1980, whilst other infections fell from 260 percent per annum in 1971 to 24% in 1980. With the under-five group figure (2) the rates for gastroenteritis fell very sharply from 78% per annum in 1971 to 9% in 1980 whilst other "infections" declined dramatically from 132 percent per annum in 1971 to 20.5% in 1980.

Three points should be made here. Firstly during the period under study, a State Government Department only, was responsible for Health care services in the Kimberley. Secondly in the Kimberley the health care system followed a policy which ensured the early admission to hospital for

even mildly ill Aboriginal infants and young children. Thirdly here is a clear demonstration of the impact of those interventions which health care systems are involved with and which have an impact upon hospital admission rates.

We cannot ascribe such favourable change to any single intervention, rather many interrelating factors are likely to be involved. Improvements in shelter, sanitation and water supply continue. There is an increasing capacity of Aboriginals to participate in health concerns, as their information set in regard to background factors and direct precursors of health problems, increases. This also allows for more effective utilization of the disease care system of the wider society.

There is a progressively increasing contribution from Aboriginal Health Workers evolving, with their involvement in the extensive training programme which has been developed for them. Of great importance has been the favourable impact of the network of nurse based health care systems dispersed throughout the Kimberley.

RESEARCH ACTIVITIES

The Kimberley Health Region is involved in the on-going programmes of a number of research groups. Joint research activities include:

University of Melbourne, Department of Medicine

Collaborative work with Dr. Kerin O'Dea, formerly of the Baker Medical Research Institute, Prahran, Victoria, now with the General Hospital, Heidelberg, Victoria.

As stated in previous reports, the aim of this research program is to understand why Aborigines are so susceptible to diabetes when they are subjected to rapid urbanisation. Non-insulin dependent diabetes has both genetic and environmental components. With this in mind, our research goals are two-fold (i) to determine the metabolic characteristics which define genetic susceptibility and (ii) to understand the mechanisms by which particular aspects of Western lifestyle (related to diet and exercise) act to trigger diabetes in susceptible people.

In previous studies we have established that Aborigines exhibit mild glucose intolerance and insulin resistance (hyperinsulinemia and hyper-triglyceridemia) even when young, healthy and lean.[2] We have suggested that these metabolic characteristics may have been advantageous for Aborigines as traditional hunter-gatherers by encouraging efficient energy storage ("the thrifty gene"). However, they may also be the metabolic characteristics which predispose these people to obesity and diabetes when traditional lifestyle is abandoned.[4] Supporting this suggestion, we have data demonstrating that both glucose tolerance and insulin sensitivity are improved following temporary reversion to traditional hunter-gatherer lifestyle.[5,6]

In 1982 we conducted a field study which was the culmination of 6 years of research into these questions. The urbanisation process was reversed in a group of middle-aged Aboriginal diabetics from Mowanjum Community, Derby, and for 7 weeks they lived as hunter-gatherers in their traditional country North-East of Derby (Pantijan). The diet ranged from largely

seafood on the coast to mixed traditional (kangaroos, birds, fish, yams, honey) inland. This diet was low to moderate in carbohydrate, high in protein and low in fat with high proportion of polyunsaturated fat.

During the 7 week period the subjects were physically active. They all lost weight and their diabetes improved dramatically as assessed by striking improvements in glucose tolerance. The abnormalities in plasma lipids (triglycerides) were completely normalised. Thus, all of the metabolic abnormalities associated with diabetes were either completely reversed or substantially improved by a mere 7 weeks of traditional lifestyle (low fat diet, weight loss, increased physical activity). In addition, we documented a highly significant increase (50%) in bleeding time which is usually interpreted as indicating a reduced risk of thrombosis. This increase in bleeding time was associated with increased levels of arachidonic acid in plasma and a diet rich in arachidonic acid. We are currently analysing a wide range of bush foods in terms of their lipid composition.[7,8]

These data suggest that the traditional diet may directly protect against occlusive vascular disease as well as diabetes. This question is under active investigation. The public health implications of these findings are enormous. Diabetes is both preventable and reversible. The people who participated in this study were impressed that they could take responsibility for the treatment of their own diabetes - that they didn't need doctors or drugs provided they adhered to several important principles :

(1) diets low in fat and refined carbohydrate
(2) regular physical activity
(3) weight loss in the obese, and prevention of weight gain in the lean.

We are developing a Diabetes Education Program directly from the results of our research with the Kimberley Aborigines. This program, which is already in preliminary form, emphasises the relationship between lifestyle and health, using diabetes as an example. Doctor O'Dea receives research support from the NH & MRC and the Australian Institute of Aboriginal Studies.

Department of Obstetrics and Gynaecology, University of Adelaide and Division of Human Nutrition, CSIRO

Earlier published work on the trace element status of Aboriginal people in the Kimberley Region has been referred to in previous Annual Reports. From evidence based on the zinc, iron and copper content of blood plasma and hair it was suggested that dietary iron and especially zinc might be inadequate for normal growth of children and might explain, in part, the retarded growth rate of the Aboriginal children in coastal and inland settlements. An intervention study was therefore proposed to test the effects of supplementary zinc on the growth and health of children in the Region and funds were sought to carry out the work. Sufficient funds have only recently been obtained from CSIRO to mount the study which will now proceed, but in the meantime further work was carried out which has confirmed and extended the previous findings.

New work in 1982 at the same four coastal missions previously studied, confirmed that mean plasma levels of zinc and iron were seriously depleted

in the 220 aboriginal children aged five to fifteen years who were examined and that hair zinc was also low. Evidence suggestive of low zinc intakes came from estimates of urinary zinc excretion which was below the normal caucasian range in more than half of a group of 50 boys studied at one of the Missions. Preliminary work was also carried out on the zinc content of circulating lymphocytes. This work was supported by the Channel 10 South Australian Childrens Medical Foundation.

Two estimates of dietary nutrient intake were made, one by 24 hour recall in 120 children in three of the settlements and one from foodstore records in two of these settlements. This data indicated a diet marginally low in zinc, iron and copper, of doubtful status in relation to vitamin A and vitamin C but containing adequate protein.

Measurements of the Vitamin A content of the plasma showed 40% of 148 children studied to have less than an adequate vitamin A status by normal clinical standards.

Measurements indicative of body protein reserves were carried out on 38 Aboriginal boys at one of the missions and showed 15 of them carrying reduced cell mass for body length, a finding consistent with overall observations of low plasma albumin values in 25% of children. There was also evidence of expanded extracellular volume.

The intervention study about to begin will provide an unequivocal test of whether the low rate of growth and reduced cell mass of Aboriginal children in the region are consequences of an inadequate zinc supply. Two further possible outcomes of a primary zinc deficiency are the lowered vitamin A status and the high susceptibility to infectious disease found in the region and these may also respond to zinc.

<u>Gastroenterology and Nutrition Research Unit, Princess Margaret Childrens Medical Research Foundation, Perth</u>

1. Childhood Gastroenteritis

Our earliest studies have shown clearly that diarrhoeal diseases are much more frequent causes for hospital admission of Aboriginal children than for non-Aboriginal children of the same age. We have now investigated which micro-organisms cause gastrointestinal infections to be such common reasons for admission of Aboriginal children to hospital.

Known bacterial enteric pathogens, such as Escherichia coli, Salmonella and Shigella were much commoner in Aboriginal children than in non-Aboriginal patients or in Aboriginal children without diarrhoea. Intestinal parasites were found in about one-quarter of Aboriginal children whether they had diarrhoea or not, emphasising the importance of faecal-oral transmission of micro-organisms as major sources of infections in Aboriginal children.

In order to get a clearer idea of the sources of gastrointestinal infections in Aboriginal communities, the epidemiology of enterotoxigenic Escherichia coli (ETEC) a major cause of infectious diarrhoea, was studied in two remote Kimberley communities. Serial surveys were done of the same symptomless individuals during different

seasons and showed that isolations were much more frequent in the wet, monsoonal summer than in the dry winter season. All E. coli were isolated from apparently well children aged 5 years or less; in addition, clearance of ETEC carriage without treatment occurred in all individuals within 3 months of isolation. A recently proposed method to identify Toxigenic E. coli by sero-grouping would have identified only 3 of the 58 strains found in this study. This points to the need for more reliable, simple assays to identify enterotoxigenic, diarrhoea-causing organisms.

In the course of this study, Dr. R.J. Berry devised a new method to identify toxigenic strains of E. coli by combining the established suckling mouse assay with a "diarrhoea score" system which is incorporated into the assay. This has helped make the assay for the heat-stable toxin simpler and more reliable. This method is now being applied in research projects and epidemiological surveys of diarrhoea in children in Western Australia.

Lactase deficiency in Aboriginals

The intestinal enzyme, lactase, is required for digestion of lactose, the sugar of milk. After weaning, lactase activity declines in all mammals and most human groups; the main exception is predominantly white European races who can mostly tolerate milk into adult life.

Studies of lactose intolerance in full-blood Aboriginals in the Kimberley were undertaken by Associate Professor Gracey in collaboration with Dr. Jennie Brand and Dr. Ian Darnton-Hill of the Commonwealth Institute of Health, Sydney University. The breath-hydrogen test (a "breathalyser" method to detect expired hydrogen) was used to detect malabsorption of lactose in 45 full-blood Aboriginals and 37 non-Aboriginal controls. 84% of the Aboriginals were malasorbers and two-thirds developed symptoms after being given a loading dose of lactose.

Aboriginal children are not genetically deficient of lactase and the age of onset of this decline in lactase activity is not yet known. Early results of a study of Aboriginal primary school children in the Kimberley done in late 1982 suggests that lactase activity declines in most of them by the time they have entered school.

Nutrition of Aboriginal Children

A survey team from the Princess Margaret Children's Medical Research Foundation completed work on a large, cross-sectional anthropometric survey of Aboriginal children up to 2½ years of age in the Kimberley and all other non-metropolitan regions of the State. Analysis of the results has been done with the assistance of Mr. Brian Murphy of the Raine Medical Statistics Unit of the University of Western Australia.

There was a general decline in growth rates starting in the second half of the first year of life; 14% of infants and 22% of older children were underweight; 12% of subjects were stunted (i.e. shorter than normal for their age). However, very few subjects were severely malnourished; this may have been due to the protective influence of prolonged breast-feeding even in unsatisfactory living conditions which prevail in many Aboriginal communities in the Kimberley.

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5. Donald B. Cheek, Richard M. Smith and Randolph M. Spargo
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Appendix XI

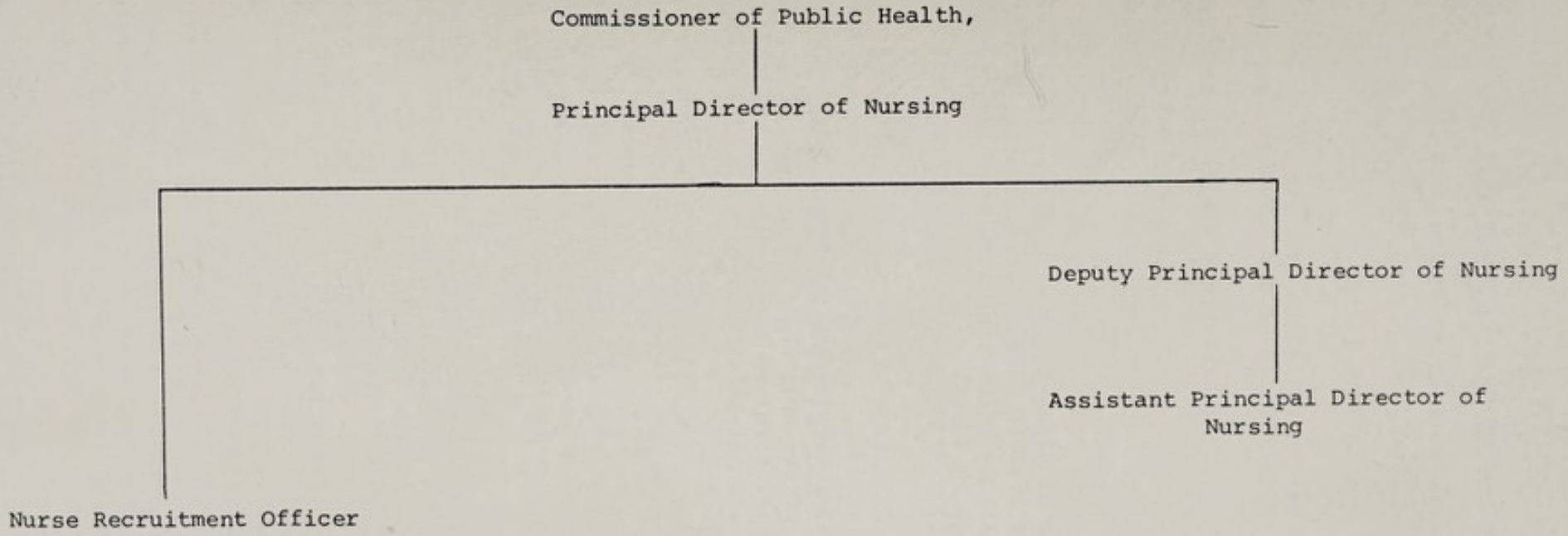
NURSING ADMINISTRATION SECTION

Miss E.L. Bohan,
I.S.O., F.C.N.A., D.N.A.,
Principal Director of Nursing

SENIOR STAFF

Principal Director of Nursing :
Miss E.L. Bohan
Deputy Principal Director of
Nursing : Miss C.J. MacDonald
Assistant Principal Director of
Nursing : Miss M.R. Squire
Nurse Recruitment Officer :
Mrs. G. Clark

NURSING ADMINISTRATION SECTION - ORGANIZATION CHART



2.6 Plans for extensions to, or remodelling of existing Nursing Homes

17 sets of plans were examined and advice given as necessary.

3. MIDWIFERY NURSES' REGULATIONS (1982)

These Regulations were gazetted in 1982.
95 home births were notified, and the premises, subsequently visited.

Those mothers who elect to have their babies at home come from a broad stratum of society.

4. EMERGENCY NURSING SERVICE

It was possible to allocate Registered Nurses from the Emergency Nursing Service to relieve nursing staff shortages in the following locations: Royal Flying Doctor Service, Port Hedland and Kalgoorlie, 31 weeks, La Grange 5½ weeks.

5. NURSE EDUCATION

5.1 The Helen Bailey Scholarship of $5000.00 was awarded to Miss Lilian Dixon of the Holyoake City Centre (W.A. Institute on Alcohol and Addiction) to pursue further knowledge in the treatment of alcohol-related problems in centres in the United States during 1983.

5.2 Nursing Scholarships

In keeping with a long-standing policy to encourage and sponsor nurses to undertake study for tertiary level qualifications, the State Minister for Health granted 10 Scholarships to the following:

Miss Annette Buchanan
Miss Mary H Cameron
Mrs. Catherine Doran
Mrs. Marion Morrissey
Miss Gilian J O'Hara
Mrs. J. Patterson
Mrs. S.L. Senior
Mrs. Janet Woollard
Mrs. Merilyn Waldock
Mrs. Susan Sharpe

NURSING SECTION

1. STAFF

The absence of Miss Mary Ruth Squire (who is mainly responsible for the compliance with the Regulations of Private Hospitals and Nursing Homes) on four months leave, necessitated relief for that period.

Accordingly Miss Margot Bray was seconded and she maintained very well the necessary continuity of supervision in this area. That she was able to have the support from time to time of experienced Community Nurses, was very helpful.

2. PRIVATE HOSPITALS REGULATIONS 1970 (HEALTH ACT)

2.1 These Regulations relate to 110 Nursing Homes and 19 General and General and Midwifery Hospitals. Included in 164 inspections were investigations of 29 complaints which all related to Nursing Homes.

2.2 Nursing Homes Closed:

Annesley, Mt. Lawley	22 beds
Deloraine, Mt. Lawley	20 beds
Victoria, Claremont	21 beds
Total :	63 beds

2.3 New Nursing Homes (registered)

Cunningham, Busselton	24 beds
Gracewood, Manning	40 beds
Warwick, Warwick	38 beds
Italian Community, Marangaroo	40 beds
Total :	142 beds

2.4 Extensions to existing Nursing Homes

Rowthorpe, Bentley, 18 beds increasing from 142 to 160 beds
Shoalwater, Shoalwater, 10 beds increasing from 45 to 55 beds
Leighton, West Perth, 20 beds increasing from 45 to 65 beds
Valencia, 5 beds increasing from 40 to 45 beds.

2.5 Revision of Public Health Regulations 1970

The revision of these Regulations is proceeding, but difficulties have been experienced in deciding the staffing component.

5.3 Nursing Seminars

Once again the College of Nursing Australia, W.A. State Committee in conjunction with the Margaret Beard Memorial Project, has conducted Seminars for the benefit of nurses working in hospitals and the community in the following areas:-

Albany	27-28 March 1982
Broome	3-4 July 1982
Northam	9-10 November 1982
Pt. Hedland	1-2 May 1982

During the year the staff of the Nursing Section have had their share of pressure and much credit is due to them for continuing quality of performance. The co-operation of staff of other Sections has always been forthcoming and has been appreciated.

Appendix XII

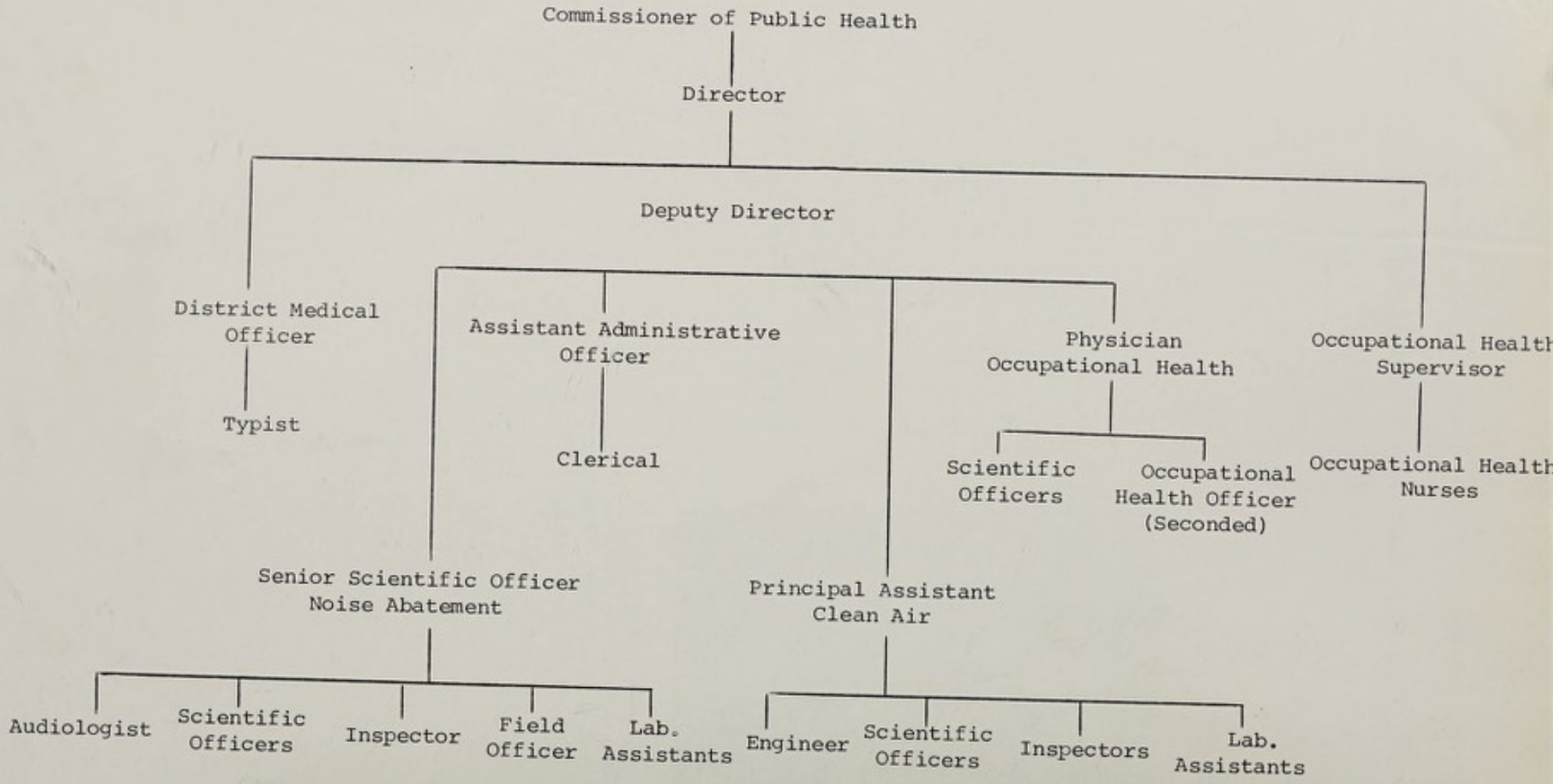
OCCUPATIONAL HEALTH, CLEAN AIR AND NOISE ABATEMENT BRANCH

F. Heyworth
M.B., Ch.B., L.M.S.S.A. (Lond),
M.R.C.P., F.R.A.C.P., D.I.H. (Apoth),
D.I.H., (Conjoint) F.A.C.O.M.

SENIOR STAFF

Director : Dr. F. Heyworth
Deputy Director :
Dr. P. Psaila-Savona
Principal Assistant, Clean Air :
Mr. R. Powell
District Medical Officer :
Dr. R. Gillett
Physician, Occupational Health :
Dr. K. Wan
Scientific Officer, Noise Abatement:
Vacant
Scientific Officer, Occupational
Hygiene : Mr. G. Taylor

OCCUPATIONAL HEALTH, CLEAN AIR AND NOISE ABATEMENT - ORGANIZATION CHART



OCCUPATIONAL HEALTH, CLEAN AIR AND NOISE ABATEMENT BRANCH

GENERAL

The strains of demand during the previous year have been eased by the filling of staff vacancies and a consequent increased ability to respond to demands with increased efficiency. Grateful thanks should again be expressed to other branches for their continuing co-operation in jointly solving problems and generally helping with provision of services. Public concern regarding workplace, health hazards and effects of chemicals has continued to grow in 1982. Much of the Branch's work involved answering requests for information on toxicity, prevention of health problems, and handling of chemicals, sometimes against a background of industrial disputes. Close co-operation of Occupational Health, Clean Air and Noise Abatement staff was beneficial to efficiency.

The chief role of the Branch in occupational health is seen as steady development and preventive services to further health and safety in the workplace. Since it is not possible for members of the Branch to be always present in the workplace, it is policy to encourage self regulation and self management where possible, aided by suitable advice and assistance. The growth of on-site occupational health services should, in the long term, achieve greater independence and improve the standard of occupational health and safety in Western Australia. An example of the preventive work carried out is exemplified by the Ventilation Board, a joint Board operated by the Mines Department and by the Public Health Department, devoted to the achievement of increasingly lower dust levels and chemical pollutant levels, both within mining environments and also outside the mine sites. The steady reduction in incidence of silicosis in the mining industry reflects this success, in part due to the activities of this Board. Arrangements for respiratory function testing in miners commenced at the metropolitan quarries.

Close co-operation with the Department of Labour and Industry continued. The first regional centre of the Branch at Karratha, which was completed in 1981, was staffed for the first time by a Scientific Officer and it is hoped to appoint a nurse in due course. The Workers' Assistance Commission was set up and Branch representation on this Commission occurred in May. Representation continued on National Health and Medical Research Council occupational health committees. A Code of Practice for the Mineral Sands industry was developed under the aegis of the Radiological Council. Further progress has been made with the complex Hearing Conservation Regulations. It is anticipated that these will be introduced next year. Noise directions to control noise nuisance from entertainment venues were introduced. Noise inspectors regulations to provide for workplace inspectors were developed.

Open abrasive blasting operations were banned by a Governor's Order in certain parts of the metropolitan area on the 1st July 1982. Elsewhere in the metropolitan area routine open abrasive blasting operations are only permitted by the Air Pollution Control Council if the local authority

agrees. A noteworthy development was the installation of a sulphur dioxide and meteorological monitoring station at the Kalgoorlie Regional Hospital. Co-operation with the Department of Conservation and Environment in the Kwinana Air Modelling Study continued during the year.

In August Dr. R. Gillett took up his appointment as District Medical Officer with the Police Department. Dr. Vernon Timbrell, asbestos research expert from the Medical Research Council Pneumoconiosis Unit, Wales, visited the Branch during April. Participatory activities in numerous conferences, seminars and lecture sessions continued.

OCCUPATIONAL HEALTH SECTION

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, 2229 men who entered the mining industry during 1982 were examined and, as required by the Mine Workers' Relief Act, 1932-40, 1182 miners were re-examined.

In the examination under the Mine Workers' Relief Act, 84 miners were found to be suffering from silicosis, 2 from asbestosis and 2 from silico-asbestosis. Three of the silicosis cases were new cases, as against five the previous year.

From the ninth 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	30,200	-	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
1980	4,927	148	1	2
1981	3,781	115	5	13
1982	1,182	84	3	25

The increase in rate of silicosis per 10,000 examinations need not be viewed with concern and must be interpreted with caution. As the number of new cases is now very small, a shift of 1 case either way would have a dramatic change in the rate. Also the number of re-examinees representing the workers who are diehards in the industry is much less than in previous years. The rate of silicosis in these is expected to be higher.

The asbestosis, silicosis registers and a record of mesothelioma cases have been maintained. It is again emphasized that, although it is realised that the registers may be incomplete, and that they can only include known cases, they are nevertheless useful indicators of the annual position. It must also be observed that the figures given in the Registers are not only the cases diagnosed under the above quoted legislation but come from various sources such as the Pneumoconiosis Medical Panel established under the Workers' Compensation Act and Assistance Act.

REGISTERS

Year of Diagnosis	Mesothelioma	Asbestosis	Silicosis
Unknown	10	)	-
Pre 1974	18	)	-
1974	4	) 78	-
1975	9	)	-
1976	6	)	-
1977	9	)	-
1978	13	11	29
1979	7	9	26
1980	18	16	17
1981	18	8	17
1982	23	11	5
TOTAL	135	133	94

Although the Cancer Registry is by Statute responsible for the registration of mesothelioma cases, the Occupational Health Branch continues to keep a record of all mesothelioma cases. While the Registry only registers cases which have been diagnosed in Western Australia, this Branch keeps in addition, a record of all those cases diagnosed in other States and overseas which may have had some connection with Western Australia by virtue of exposure to asbestos in Wittenoom.

Sixty-eight cases of mesothelioma are known to have been associated with blue asbestos at Wittenoom. Two cases are known to have had exposure to asbestos many years ago when they were children living in Wittenoom. Two hundred and fifty nine claims from Australian Blue Asbestos employees in Wittenoom have been accepted by the Pneumoconiosis Medical Panel as cases of pneumoconiosis.

Other Medical Examinations

Medical examinations have been conducted on workers exposed to isocyanates, paints, lead, mercury, pesticides and other occupational hazards. Under the Workers' Compensation and Assistance Act, Occupational Health Physicians have regularly represented this Branch on the Pneumoconiosis Medical Panel to assess claims for disability due to dust diseases. In addition, all chest x-ray examinations performed to monitor industrial exposure are doubly checked independently by both an occupational health and a chest physician.

Collie Coal Mine Health Survey

A survey of the health of coal miners was again conducted in 1982 by the Occupational Health Branch. It is heartening to report once again that there was no radiological evidence of pneumoconiosis and this no doubt is an indication of improved working conditions. The need for continued routine periodical dust sampling is advocated to monitor the effectiveness of dust suppression and good ventilation.

Other Activities

Lectures on Heat and Cold, Chemical Poisoning, Occupational Cancer and Occupational Infectious Diseases were given to students at the W.A. Institute of Technology, while lectures on Occupational Health and Zoonoses were given to the Veterinary Medical Students. Throughout the year, medical officers continued to lend support to the St. John Ambulance Occupational First Aid Course by providing lectures on a regular basis. An invitation to take part in a talk-back programme on radio on the use of pesticides was accepted. An address to the Society of Prosthodontists on the "Health Hazards of Heavy Metals" was given in May 1982.

Branch physicians attended the 10th Asian Occupational Health Conference, the Australian and New Zealand Society Conference in Adelaide and continue to represent the Department on the Occupational Health Committee of the National Health and Medical Research Council. In addition, the Branch is represented by a physician on a number of Departmental and Inter-Departmental Committees and/or Working Parties. These include the Medical Advisory Committee (Radiological Council), the Poisons Advisory Committee, the Medical Advisory Committee on Road Traffic Injuries, the Mesothelioma Committee, the Urea-formaldehyde Foam Insulation Working Party, Wet Abrasive Blasting Cleaning using sand abrasive Working Party and the Solvent Abuse Working Party.

Help has been given throughout the year to many students on research projects. This help varied from supervising a medical student project on Occupational Exposure to Lead to other students attached to this Branch for work experience.

An Australian College of Occupational Medicine was founded this year and the 3 physicians have been honoured by their election as Foundation Fellows of the College.

DISTRICT MEDICAL OFFICER'S REPORT

Year	Medical Consultations	Pre-employment Med. Exams	Periodic Med. Exams	Med. Assessments of Fitness to Drive
1979	5570	371	170	129
1980	6820	249	209	899
1981	6905	374	86	1821
1982	7254	405	121	2587

Due to increased numbers of applicants going through the Police Academy, there is a reflected change in the pre-employment medical examinations.

An appointment system has been instituted with success and the present officer has applied and been approved as a Medical Officer by the Department of Aviation for "fitness to fly" medical examinations.

Health Education lectures to the Police Academy and Inservice Courses have been instituted.

The District Medical Officer acts as the Secretary to the Medical Advisory Committee on Road Traffic Injuries. This body met twice in 1982.

The District Medical Officer acts as a member of the Medical Board convened by the Commissioner of Public Health.

ABATTOIR OCCUPATIONAL HEALTH

An occupational health physician provides consultant service to the Western Australian Meat Commission, Robb Jetty Abattoir, in the operation of its inplant medical facility run by a full-time nursing sister.

Since 1981 the Occupational Health Branch has continued to provide a consulting service to the Meat commission whereas in 1980 an Occupational Health Physician from the Branch was providing an on-site service.

Accident statistics were reviewed at a safety committee meeting in May to identify priorities and areas for attention.

The percentage on workers' compensation is 6.5 which shows a reduction of 1.9 percent when compared with the previous year.

Year	Attendances	Injuries	Lost Time Accidents	Workers' Comp.	% on Workers' Comp.
1979	12,658	2981	390	421	14
1980	16,033	3828	216	412	10.8
1981	12,654	4075	303	343	8.4
1982	12,191	4357	230	281	6.5

GENERAL

The section which deals with pesticide use and the physical working environment has acquired a totally new staff in a period of twelve months. An estimated 6,000 telephone enquiries were answered, of which approximately 60% were from private individuals. Daily call levels are heavily influenced by media reports. Around 50% of all calls were related to pesticides. Increased concern about possible environmental sources of ill health and cancer has taxed information services, which are not entirely adequate. Approximately 100 parliamentary questions were answered.

PESTICIDES

In conjunction with the medical officers and the Pharmaceutical Services Branch, 83 face-to-face examinations for a pesticide operator's licence were conducted. Approximately 20 more examinations for country operators were mailed to Local Authority health surveyors.

Three lectures in each of two Industrial Pest Control courses at Bentley Technical College were given by officers of the section, who as co-examiners also vetted the examination paper.

EDUCATIONAL ACTIVITIES

Approximately 30 lectures on pesticide safety were given, 10 of which were in the country. Groups included CWA/Rotary, Farm Improvement Groups, Primary Industry Association, APB, Agriculture Department, local government parks and gardens staff, CBH and IFAP. The Pesticide Industry and Government Seminar in Canberra and the Australian Veterinary Chemicals Association Conference in Sydney were attended. Monthly meetings of the United Pest and Weed Control Association were attended. Working parties on new pesticide education courses, on transport of dangerous goods and on tractor cab pesticide spray filters were attended. Difficulties were experienced in successfully prosecuting under the Pesticides Regulations, and amendments were suggested. Around 500 information sheets were mailed. Comprehensive new information on herbicides and other pesticides was prepared. A visit to Jerramungup during aerial spraying of locusts was made.

WORKING ENVIRONMENT

Over 250 visits to occupational situations to assess contaminants and stressors were made. Major assistance in measurement and analysis was received from the Government Chemical Laboratories. Office air conditioners, photocopiers, ionisers, possible biohazards and the thermal environment of work situations received attention. Occupational hygiene and pesticide operator surveys were carried out in Esperance, Geraldton, Albany, Kukerin, Northam, Broome, Derby and Kununurra. Gas reticulation safety at the Kalgoorlie School of Mines was examined, and a survey of mercury hazards in Eastern Goldfields goldrooms carried out. Among others, surveys of pesticides in nurseries, tetrabromo-ethane in laboratories, metal plating works and fibreglass works were carried out. 2,000 telephone calls on occupational hazards were dealt with. Clients included other government departments and statutory authorities (Commonwealth and State), private companies, individuals and unions.

Meetings of the Occupational Hygiene Sub-committee of the NHMRC in Sydney and the Australian Institute of Occupational Hygienists Conference in Melbourne were attended. A visit by request to Argyle Diamond Mines was paid.

A major attack on factory exposure to phenoxy herbicides was made.

Detailed design criteria for exhaust extraction were drawn up for several clients.

CONSULTATION AND REVIEW

A high degree of liaison with the Shops and Factories and Construction Safety Branches of the Department of Labour and Industry was maintained, particularly in relation to lead works, the fibreglass industry, epoxy and polyurethane spray-painting, wet sand-blasting and occupational dust, and hydrofluoric acid cleaning of buildings. Similar liaison on rural occupational health was maintained with the Department of Agriculture. Occupational health or safety material for the NHMRC, SAA, AMWSU, Physical Working Environment Branch of the Commonwealth Department of Science and Technology, and Australian departments involved in international liaison with groups such as ISO and OECD was reviewed.

Surveys of uses and amounts used of glycol ethers, 2-nitropropane, pentachlorphenol, creosote, and wood preservatives have been completed. In-office advice to manufacturers, unionists, and government departments and authorities was given. The Poisons Information Centre was assisted as requested.

GENERAL AND ENVIRONMENTAL HEALTH

Urea-formaldehyde insulation queries and follow-ups were the prime focus. The section participated in a working party to formulate regulations to safeguard people in schools and homes from excessive formaldehyde exposure. Assessment, gel preservation treatment and removal of asbestos insulation, and a new type of solar hot water system also received attention.

Participation in a working party, and a survey on the relation of organo-chlorine levels in breast milk to termite treatment took place.

Hydrogen sulphide from algae in the Peel Inlet was an early source of work.

OCCUPATIONAL HEALTH NURSING

The staffing levels of the occupational health nursing section remained at three registered nurses until the retirement of Sr. Wilkinson in February. This was a great loss to the Branch and her knowledge and expertise are greatly missed. From March to the end of the year, the Branch had only two nurses, one at the Perth Office and one at the Kwinana Community Health Centre, who also rendered assistance in the Perth area on one day per week.

Education

The nurses continued to give lectures to outside agencies such as the St. John Occupational First Aid Course, West Australian School of Nursing students in the community module of the Registered Nurses Training Course, trained registered nurses taking a refresher course at the School of Nursing. Lectures were also delivered at the Australian College of Nursing Seminar, the Nurses' Christian Fellowship, and individual factories on diverse subjects such as First Aid Treatment and correct lifting procedures.

Teaching on a one-to-one basis continued on many factory visits, as did counselling on occupational health problems.

The Nurses continued to act as a resource source for management, nurses and the general public.

Health Surveillance

Health surveys undertaken by the Department usually involve the nurses. The biological monitoring of workers exposed to various hazardous substances is undertaken and where necessary continued surveillance is maintained, backed up by visits from the nurses, physicians and scientific officers for the purposes of educating the operator and eliminating the hazard.

The miners' health survey at Collie included the lung function tests on the selected miners.

Audiometric testing undertaken by the nurses included a survey for the Public Works Department, using the Hearing Conservation mobile caravan.

Services performed by the Sister stationed at Kwinana Health Centre:

Treatments	690
Respiratory function tests	168
Blood pressures	542
Audiograms	531
Urinalysis	54

Services performed by Murray Street Staff:

Treatments	54
Respiratory function tests	467
Audiograms	68
Urinalysis	32
Blood pressures	11

Blood tests for:

Lead	444
Red Cell Cholinesterase	147
Organo-chlorines	88
Mercury	15
Bromide	16
Carbon Monoxide (carboxy haemoglobin)	3
Polychlorinated biphenyls	9

Urinary tests for:

Lead	56
Arsenic	15
2,4-D/2,4,5-T	29
Fluoride	141
Mercury	52
Thallium	7
Pentachlorophenol	2
Vanadium	13
Uranium	13

KINETICS/ERGONOMICS

Employers and employees have both shown an increasing awareness for the value of "Human Factors" in the work place. Requests for evaluation and advice on specific work environments increased by 60% during the year. The "office" and Visual Display Units were the basis of the most frequent requests. However, commerce, industry and some professions as well as government departments were among those serviced.

In the first half of the year a series of seminars, directed towards a reduction of back-strain in nurses, were given in New Zealand. This visit was funded by the New zealand Occupational Safety Trust Fund and resulted in considerable interest and discussion.

A W.A. branch of the Ergonomic Society of Australia and New Zealand was established, with D. Kemp as chairman, in November. It is considered that the formation of this branch will speed the dissemination of Ergonomics in Western Australia.

A review for the Library Board of the book handling system was started and it is anticipated that this will continue during the first half of 1983.

Annual Statistics	1982
Verbal advice only	357
Pre-printed or copied information	129
Specific written reports	31
Lectures and seminars presented	16
Workplace evaluations	44
Equipment evaluations	25

KARRATHA OCCUPATIONAL HEALTH CENTRE

The Honourable Minister for Health, Mr. Ray Young, officially opened the first regional office of the Occupational Health, Clean Air and Noise Abatement Branch on Friday September 10, 1982.

The office comprises a suite of rooms and an industrial hygiene laboratory situated within the Community Health Centre, Karratha. The Centre provides an occupational health advisory, training, consultative and surveillance service in the Karratha area which will form the nucleus of a service for the Pilbara Region.

These services commenced on May 5, 1982 and since that time have participated in a wide spectrum of occupational health activity in collaboration with various industries and organisations.

Various small industries in the light industry area are assisted in industrial hygiene monitoring of specific hazards such as sand-blasting.

Close liaison is being maintained with local offices of other Government Departments, including Department of Mines, Department of Transport, Department of Environment and Conservation, Regional Office of the North West, as well as Shires within the Pilbara.

Local general practitioners have been advised of Dr. Wan's visits and his availability for consultation.

APPENDIX I

Noise Abatement (Neighbourhood Annoyance) Regulations

Amended on 16th July, 1982 to enforce stricter control of calibration of sound level measuring equipment and provide for more sophisticated measurement techniques to be utilized in community noise assessment.

Noise Abatement (Noise Abatement Directions) Regulations

Amended on 30th July, 1982 to allow the issuing of a noise abatement direction against the owner or occupier of any premises from which offensive noise, due to musical entertainment, emanated.

Noise Abatement (Appointment of Inspectors) Regulations

Amended on 4th June, 1982 to allow local noise inspectors' authority to be extended to other districts where appropriate.

NOISE ABATEMENT SECTION

The Noise Abatement Section and Hearing Conservation Team were reorganised into one Noise Control Section in November. A new position of Senior Scientific Officer was created to head the Section, but is yet to be filled.

ENVIRONMENTAL NOISE

During the past year the staff of the Section have continued to advise and liaise with the general public, local Government Authorities and other Government Departments on a daily basis. This has been done by both telephone and written communication and by personal contact.

The Section has also continued to supply State representation on the Australian Environment Council's Environmental Noise Control Committee.

The services of State Noise Inspectors were made available to Local Authorities for investigation of community noise complaints and to give advice on the resolution of such complaints. A further 16 local Noise Inspectors and 1 State Inspector were gazetted in the course of the year.

During the year advice and recommendations concerning potential noise problems associated with planned developments were provided.

Work on noise control policy and recommendations for noise control is currently being undertaken through working groups established by the Noise and Vibration Control Council.

Investigations were conducted and reports prepared for both the Noise and Vibration Control Council and the Noise Abatement Advisory Committee.

The Noise Abatement Laboratory continued to provide a calibration service for sound level meters and audiometers. The laboratory staff also provided frequency and statistical analysis of noise and maintenance of the Section's equipment. In all 34 sound level meters and 18 audiometers were calibrated in the laboratory.

During the year amendments were made to the Neighbourhood Annoyance Regulations, the Noise Abatement Directions Regulations and the Appointment of Inspectors Regulations (Appendix I).

HEARING CONSERVATION

General

During 1982 the Section continued its advisory services in hearing conservation to industry and government establishments. The following table summarises surveys performed over the four year existence of the Section.

Year	Preliminary Noise Surveys	Full Noise Surveys	Audiograms
1979	9	6	207
1980	25	42	560
1981	24	38	310
1982	14	49	519

Noise Surveys

As well as surveys in the metropolitan area, work was carried out in Collie, Northam, Paraburdoo and Karratha. Workplaces surveyed included factories, mines, hospitals, computer centres, laundries, aeroplanes, helicopters, buses and entertainment centres.

Of the forty-nine full noise surveys carried out, thirty-seven were for private companies and twelve for government establishments. Most of the private surveys were conducted in response to requests from the management of companies or organisations themselves, although several of these requests were prompted by worker complaints. In two cases the surveys

were requested by Department of Labour and Industry Inspectors. Five surveys were repeat measurements after noise control work had been carried out. Two major surveys were initiated by this Branch: the Collie coal mines and roller skating rinks. The former was conducted to provide noise exposure information for correlation with audiometric data collected during the Collie Coalminers' Health Survey. The latter was to provide information to the Noise and Vibration Control Council so it could assess the need to control the level of music played at rinks. Ten of the workplace surveys did not have workers with noise exposures above the proposed 90dB(A) limit. However, at only three of these, a computer centre, a hospital laundry and a survey plane, were noise exposures below the more protective 85dB(A) limit.

The highest noise exposures measured were received by two local authority workers using a tree chipping machine (Leq_{A8} = 111dB(A)), and the next highest by engineers at a heliport (Leq_{A8} = 108dB(A)). The majority of measured noise exposures were between 85dB(A) and 100dB(A).

Measurements of background noise in audiometric booths were taken for one government establishment and four companies which wished to determine if their facilities met Australian standards.

Audiology

A total of 519 audiograms were taken during the year. Of these, 395 were taken in the audiometry van whilst at Collie as part of the Collie Coalminers' Health Survey. The remaining tests were conducted as part of company or organisation hearing conservation programmes, either at the van, whilst stationed in the Carlisle area, or in the audiometric testing chamber at 57 Murray Street.

With the part-time services of a sessional computer programmer, most of the audiograms taken between 1978 and 1982 have been entered onto the computer. Programs have been developed for statistical routines and reports of the audiometric results which can now be furnished to the requesting parties with a minimum time delay.

A data-logger has also been developed to allow audiometric data collected in the field to be fed directly into the computer. Advice was given to the Workers' Assistance Commission hearing on noise induced hearing loss compensation.

A paper titled 'The Effect of Disco Music on Hearing' was given at an Australian Environment Council Meeting in Canberra.

Education

The Section's education activities have continued with an ongoing programme commenced in previous years, educating management and employees.

The programme involved the Instructor in 34 sessions with groups of employees from 6 companies and 3 government departments.

The data gathering exercise practiced in previous years for the Technical Education Directorate's Working Group has borne fruit, in that the Directorate now carries out its own Hearing Conservation Programme. Consequently, the Section's active participation has diminished, with assistance being by means of specialist advice when required.

The 'Decibel Danger' programme in high schools in which the Instructor participated in previous years was not funded in 1982. The Education Department is in the process of revising the Health Education syllabus and hearing conservation is expected to be included.

Lectures were prepared in a revised 5 day course for audiometric officers run by W.A.I.T. - A.I.D. Other lectures and talks were given to courses for noise inspectors and special interest groups.

Draft Regulations

Continued assistance was given to the Noise Abatement Advisory Committee and Noise and Vibration Control council in redrafting the proposed Noise Abatement (Hearing Conservation in Workplaces) Regulations in the light of comments received from interested parties and developments in research into the effects of impulsive noise. A final draft was sent to Parliamentary Counsel for review in September and it is expected that the regulations will be gazetted in 1983. A sub-committee for recommending audiometric officer approval has been set up and the first candidates were examined in December.

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 (CERL) directional dust guage and the standard New South Wales glass deposit gauges are used in W.A.

Perth Area

At the end of 1982, 20 CERL gauges were sited in the metropolitan area as follows:

City Beach	Perth Airport	Munster (3)
East Perth	Welshpool	Hazelmere
Lathlain Park	Kewdale	Viveash (2)
Rivervale (2)	Maddington (2)	Naval Base
Gosnells (2)	Armadale	

For results see Appendix A.

The results for deposit gauges situated at City Beach, East Perth, Perth Airport, Welshpool and Medina are shown in Appendix B.

Port Hedland

Six gauges were maintained in Port Hedland during 1982 and were located as follows:

Gauge No.	Location
1	Anderson Street, Port Hedland
2	Howe Street, 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 Section's laboratory in Perth. For results see Appendix C.

Cape Lambert/Dampier/Karratha

Eight CERL dust gauges were maintained in the area during 1982 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

Seventeen CERL gauges are processed for the Goldfields Dust Abatement Committee and located as follows:-

Gauge No.	Location
1	Trafalgar Townsite
2	Lionel Street
3	Mafeking Street
5	Lane Street
6	Chesapeake Street, Boulder
7	Burt Street
9	Maritana Street
10	North Kalgoorlie Primary School
11	Killarney Street, Lamington
12	Piccadilly Street
14	Gt. Eastern Highway, West Kalgoorlie
15	Boulder Rifle Range
16	Kambalda Road, Mt. Hunt
18	Brown Hill
19	Bulong Road, East Kalgoorlie
20	West Kalgoorlie
21	East of Trafalgar

For results see Appendix E.

2. Particulate Monitoring

The United States Environmental Protection Authority high volume sampler is used in W.A.

Perth City

Four samplers are sited in the city:

a) Bureau of Meteorology, Hill Street, Perth, sample point 10 metres above ground and 10 metres from the pavement.

b) Queens Building, William Street, Perth, sample point 4.5 metres above pavement.

c) State Energy Commission, Murray Street, Perth, sample point 5 metres above pavement.

d) Occupational Health, 57 Murray Street, Perth, sample point 1.5 metres above ground, 2 metres from pavement.

e) Telecom, Murray Street, Perth, sample point 1.5 metres above the rear of pavement.

Outer Metropolitan

St. Brigid's School, Morrison Road, Midland, sample point is 1.5 metres above the ground, 10 metres from the road.

The collected particulates are analysed for lead by the Government Chemical Laboratories and the Western Australian Institute of Technology.

For results see Appendices F and G.

Bunbury

A high volume sampler was maintained at the Bunbury Port Authority near the harbour and serviced by the Health Surveyors of the City of Bunbury. For results see Appendix H.

Port Hedland

The Department is grateful to officers of Mt. Newman Mining Company who maintained three high volume samplers in Port Hedland during 1982. The samplers are located as follows and the results shown in Appendix I.

Sampler No.	Location
1	Howe Street, near Hospital
2	Swimming Pool, near Shire Offices
3	Stanley Street, South Hedland
4	Port Hedland Airport

3. Sulphur Dioxide and Smoke

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 Public Health Department wishes to thank them all for their most valuable help. For results see Appendices J & 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.

In July 1982 a continuous sulphur dioxide monitor was installed at the Kalgoorlie Regional Hospital, and a summary of the results is presented in Appendix M.

Bunbury

Monitoring of sulphur dioxide was carried out in the Bunbury area in conjunction with the State Energy Commission and the results shown in Appendix N.

4. Oxides of Nitrogen

The sampling site at 57 Murray Street, Perth, has continued to be operated on a 24 hour basis during 1982. For results see Appendix O.

5. Carbon Monoxide

Monitoring for carbon monoxide has continued at 57 Murray Street, Perth. For results see Appendix P.

6. Ozone

Ozone was monitored at 57 Murray Street, Perth, and the results shown in Appendix Q.

7. Lead

Lead was monitored in the city and one outer metropolitan location and the results are shown in Appendix G.

B. SPECIAL INVESTIGATIONS AND TESTING

1. Special Investigations and Testing

Superphosphate Works

Five superphosphate manufacturing plants were tested during the year. For results see Appendix R.

Vineyard Monitoring

During the grape growing season commencing September 1981 and continuing into April 1982, injury was again sustained due to ambient levels of fluoride to which the vines were subjected. Pilot tests for a proposed joint monitoring program with the Agriculture Department were carried out concurrently. The joint monitoring program is scheduled to commence in the 1983/84 growing season. The average monthly fluoride concentrations are shown in Appendix S.

The assistance given by officers of the Department of Agriculture for leaf sampling and the analysis of the leaves by the Government Chemical Laboratories is gratefully acknowledged.

2. 2,4-D Monitoring at Geraldton

Officers of the Section continued to support the Agriculture Department with monitoring and general assistance including the original design and construction of a more appropriate monitor.

3. Source Testing

Source sampling has been carried out at eight works during 1982 using the USEPA source sampling train. A sulphuric acid plant was tested for sulphuric acid mist and sulphur dioxide emissions, all other works chimneys were tested for particulate emissions.

The results are shown in Appendix T.

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 AND EDUCATION

As in past years, numerous enquiries were received by the Clean Air Section from students and the public for information on air pollution and allied matters. Lectures were given to various professional organisations and tertiary educational institutions.

D. COMPLAINTS AND STATUTORY DUTIES

During the year similar numbers of complaints received in past years were again dealt with. The cause of the complaints varied from dust to odours, originating from a wide range of industries and commercial premises.

Routine inspections and special inspection 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 the Air Pollution Control Council, or special sub-committee meetings, were attended by the Principal Assistant or Senior Officers of the Section.

All meetings of the Ventilation Board established under the Mines Regulation Act 1946-1974 were attended by a Senior Officer of the Clean Air Section.

APPENDIX A

DUST TESTING PROGRAMME - PERTH METROPOLITAN AREA, 1982

Mean total dirtiness for the 12 months
period January - December 1982

GAUGE	TOTAL DIRTINESS
City Beach	1.3
East Perth	1.5
Lathlain Park	1.6
Rivervale 1	2.0
Rivervale 2	4.0
Perth Airport	2.1
Kewdale 1	2.9
Maddington 1	7.4
Maddington 2	2.7
Gosnells 2	1.5
Gosnells 3	2.7
Hazelmere	3.0
Welshpool 2	2.3
Viveash 1	1.9
Viveash 2	2.1
Naval Base 2	3.1
Munster 2	1.6
Munster 4	2.4*
Munster 5	2.6
Armadale 1	1.6

* 6 months only

APPENDIX B

DEPOSIT GAUGES - 1982

Deposition (milligrams per sq. metre per day)

Sampling Point	Total Insolubles	Total Inorganic
Belmont	25	10
City Beach	32	13
East Perth	36	14
Welshpool	30	17
Medina	34	16*

* 4 months only

APPENDIX C

DUST TESTING PROGRAMME - PORT HEDLAND 1982

Mean total dirtiness-dust concentration and Mean per cent Iron Ore in total dust from dust gauges for the twelve months period January - December, 1982.

Gauge No.	Location	Total Dirtiness Dust Concentration	Per cent Iron Ore
1	Anderson Street, Port Hedland	9.0	38
2	Howe Street, near Hospital, Port Hedland	5.8	33
3	Spinifex Hill	2.9	10
4	Cooke Point, Port Hedland	1.9	8
5	Leslie Salt, Redhill	3.2	9
6	Stanley Street, South Hedland	1.8	6

APPENDIX D

DUST TESTING PROGRAMME—CAPE LAMBERT/DAMPIER/KARRATHA

Mean total dirtiness-dust concentration and mean per cent Iron Ore in total dust from dust gauge for the twelve months period January - December 1982

Gauge No.	Location	Total Dirtiness Dust Concentration	Per Cent Iron Ore
1	Port Area, Port Sampson	1.8	
2	Immediately S of Port Area	2.9	
3	North of Wickham Town Site	2.1	
4	South of Wickham Town Site	2.1	
5	Parker Pt. Dampier	4.0	14
6	Bowling Club, Dampier	2.8	19
7	Karratha Airport	15.4	5
8	Fire Station, Karratha	18.7	8

APPENDIX E

DUST TESTING PROGRAMME, FOR THE GOLDFIELDS DUST ABATEMENT COMMITTEE, KALGOORLIE/BOULDER DISTRICT

Mean total dirtiness- dust concentration from dust gauge for the twelve months period January - December 1982

Gauge No.	Total Dirtiness Dust Concentration
1	11.2
2	3.6
3	10.1
5	2.7
6	3.2
7	2.1
9	2.7
10	2.8
11	2.3
12	3.4
14	2.8
15	2.7
16	2.4
18	5.2
19	3.2
20	1.5
21	8.2

APPENDIX F

PARTICULATES IN AIR HIGH-VOLUME SAMPLING 1982

All results in micrograms per cubic metre of air

Site	Annual Average	Highest 24 Hour
Bureau of Meteorology	40	72
Cnr. Murray and William Streets	55	96
S.E.C. Murray Street	46	86
57 Murray Street	53	103
Telecom, Murray Street	40	77
St. Brigids School, Midland	46	115

APPENDIX G

24 HOUR HIGH-VOLUME SAMPLING OF AIRBORNE LEAD IN 1982

micrograms per cubic metre

Sampling Site	Jan Feb Mar	Apr May Jun	Jul Aug Sep	Oct Nov Dec
Queen's Buildings				
William Street, Perth 4.5m above pavement	2,2	3,2	2,5	2,4
S.E.C.				
Murray Street, Perth 5m above pavement	1,3	2,6	2,6	1,7
P.H.D.				
57 Murray Street, Perth 1.5m above, 2m behind pavement	2,2	3,2	2,8	2,4
Bureau of Meteorology				
Perth 10m above ground 10m from pavement	0,6	1,3	1,1	0,8
Telecom				
Murray Street, Perth 1.5m above rear of pavement	0,8	1,6	1,3	1,0
St. Brigid's School Midland				
1.5m above ground 10m from road	1,2	2,0	1,6	1,2

APPENDIX H

HIGH VOLUME SAMPLING, BUNBURY

All results in micrograms per cubic metre

	Monthly Average	Maximum Daily Concentration
January	38	55
February	33	36
March	37	50
April	45	61
May	51	67
June	46	56
July	33	59
August	37	45
September	37	51
October	35	39
November	49	58
December	51	71

Annual arithmetic mean : 41
Annual geometric mean : 39

APPENDIX I

HIGH VOLUME SAMPLING, PORT HEDLAND

(All results micrograms per cubic metre)

Howe Street (near Hospital)

	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Monthly average	41	60	118	152	191	74	57	24	43	61	76	41
Maximum daily concentration	68	83	135	227	254	182	93	35	66	95	121	56

Annual arithmetic mean : 76 Annual geometric mean : 59

Swimming Pool (near Shire Offices)

	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Monthly average	51	39	52	41	30	31	32	28	34	42	43	45
Maximum daily concentration	104	67	73	50	41	41	54	35	43	65	52	49

Annual arithmetic mean : 39 Annual geometric mean : 36

Stanley Street (near PWD pressure tank)

	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Monthly average	52	28	21	26	23	25	27	24	27	38	52	29
Maximum daily concentration	92	47	24	38	24	36	41	30	44	52	73	30

Annual arithmetic mean : 31 Annual geometric mean : 28

Airport

	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Monthly average	33	24	27	21	23	19	42	39	-	-	49	36
Maximum daily concentration	83	42	33	27	26	28	88	53	-	-	53	41

Annual arithmetic mean : 32 Annual geometric mean : 28

APPENDIX J

METROPOLITAN SULPHUR DIOXIDE CONCENTRATIONS 1982

All results expressed 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	1	9	23	17	10	7	6	11	12	11	11	7	58 51 50 48 48 45 45	10
BANGANUP	11	8	6	3	3	1	1	2	3	4	9	14	84 53 52 47 47 42 40	5
BENTLEY	1	1	0	3	3	4	3	3	3	3	8	11	28 27 26 22 20 19 19	4
CLAREMONT	8	6	5	3	3	3	3	6	4	8	7	9	30 30 30 28 28 24 23	5
HILLMAN	0	0	1	1	3	3	2	3	1	23	33	35	67 61 56 53 52 51 50	9
INGLEWOOD	6	4	4	3	2	1	1	2	2	9	20	23	47 37 36 34 32 32 30	6
LYNWOOD	4	1	2	1	2	2	2	3	3	4	6	8	28 23 23 18 16 16 15	3
MEDINA	17	26	30	23	21	12	12	11	15	30	38	34	92 90 82 80 74 73 71	22
ORELIA	7	10	17	10	9	2	3	5	21	34	41	31	105 87 85 84 71 68 66	16
ROCKINGHAM	0	0	1	1	2	6	5	2	7	27	33	29	72 65 60 60 56 50 48	9
WATTLEUP	91	46	35	26	15	13	6	10	15	43	91	87	302 257 247 210 169 165 162	40
WEMBLEY DOWNS	6	3	4	3	1	1	1	2	1	2	2	3	18 17 15 15 14 12 12	2

WORLD HEALTH ORGANISATION RECOMMENDED LONG TERM GOALS

Sulphur Oxides - British Standard Procedure Annual mean 60 $\mu g/m^3$
98% of observation below 200 $\mu g/m^3$

APPENDIX K

METROPOLITAN SMOKE READINGS 1982

Site	Annual Average
Perth	6
Bentley	4
Banganup	2
Claremont	4
Hillman	3
Inglewood	6
Medina	3
Orelia	3
Rockingham	3
Wembley Downs	5
Lynwood	3
Wattleup	4

APPENDIX L

KALGOORLIE/BOULDER SULPHUR DIOXIDE CONCENTRATIONS 1982

All results expressed 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
BOULDER Moran St.	40	34	30	19	19	10	14	31	34	63	79	70	239 219 211 184 181 179 177	37
KALGOORLIE Whitlock St.	50	36	28	17	24	15	7	16	14	39	60	64	202 147 146 140 137 132 131	31
LAMINGTON Campbell St.	39	19	28	13	17	9	10	32	36	56	75	96	217 198 195 158 157 156 156	36
LAMINGTON Killarney St.	38	29	35	30	32	23	20	38	19	29	66	51	226 206 206 176 165 154 144	34
BOULDER N. Kalgurli Lease	63	43	34	28	18	12	18	26	28	30	75	77	239 224 206 204 193 189 187	38
3.5 kms West of K.N.S. Stack	44	31	30	17	3	2	-	-	-	-	-	-	238 224 184 178 145 122 115	21

APPENDIX M

SULPHUR DIOXIDE AT KALGOORLIE REGIONAL HOSPITAL

Results in micrograms per cubic metre at STP

MONTH	DATA RECOVERY %	HIGHEST 1 HR. AV.	HIGHEST 3 HR. AV.	HIGHEST DAILY AV.	MONTHLY AVERAGE
JULY*	95.9	1218	593	158	34.4
AUGUST	98.5	1629	1322	311	35.3
SEPT.	97.5	1732	1205	260	42.3
OCT.	98.4	1306	1048	235	47.4
NOV.	98.7	1719	1160	233	63.0
DEC.	98.3	2301	988	171	44.2

*16 days only. Monitor installed 16th July 1982

APPENDIX N

BUNBURY SULPHUR DIOXIDE CONCENTRATIONS 1982

All results 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
Cambrose Ave. Australind	-	-	7	3	2	11	9	2	2	6	5	2	82	66	39	37	30	27	26	5
Bunbury Inner Harbour Sub-station	-	-	1	2	2	1	3	2	1	2	2	2	16	15	12	12	11	10	10	2
P.W.D. Yard Buswell St. Rathmines	-	-	2	4	3	7	5	1	1	1	1	1	52	50	40	36	27	25	23	3
Bunbury Harbour Sub-station Henry Street	-	-	1	1	3	1	5	4	2	2	4	2	64	13	13	12	11	11	11	3

APPENDIX O

METROPOLITAN OXIDES OF NITROGEN CONCENTRATIONS 1982

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	41	31	34	47	64	73	72	65	56	44	42	40	146	11	51

APPENDIX P

CARBON MONOXIDE AT 57 MURRAY STREET, PERTH

Results in parts per million

1982	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Monthly Average	1.1	1.1	0.7	0.6	1.0	1.1	1.3	0.9	0.8	0.6	0.7	0.6
Highest 1 hour Average	7.4	8.1	5.8	8.6	7.4	8.3	17.4	6.7	4.3	4.8	5.5	4.2
Highest 8 hour Average	3.5	4.5	4.3	2.8	3.9	4.1	6.1	2.2	2.3	2.5	2.5	2.3

Yearly Average : 0.9

APPENDIX Q

OZONE AT 57 MURRAY STREET, PERTH

Results in parts per hundred million

1982	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Monthly Average	-	-	-	0.9	0.8	1.2	1.0	1.2	1.6	1.9	1.5	1.8
Highest 1 hour Average	-	-	-	4.4	4.2	4.2	3.6	3.8	5.8	5.9	7.0	7.9
Highest 8 hour Average	-	-	-	3.7	3.3	4.0	3.2	3.3	5.4	4.9	4.5	5.2

Yearly Average : 1.3

APPENDIX R

FLUORIDE EMISSIONS FROM SUPERPHOSPHATE WORKS

Location	Kilograms/hr of Fluoride
Albany	0.12
Bunbury	0.30
Esperance	0.06
Geraldton	0.16
Kwinana	0.18

APPENDIX S

AMBIENT AIR FLUORIDE CONCENTRATIONS MEASURED AT A VINEYARD AS HYDROGEN FLUORIDE, 1981/82 GROWING SEASON

Month	Average Concentrations (HF ug/m^3)
October	0.14
November	0.13
December	0.70
January	0.47
February	0.44
March	0.36
April	0.19
Seasonal Average	0.35

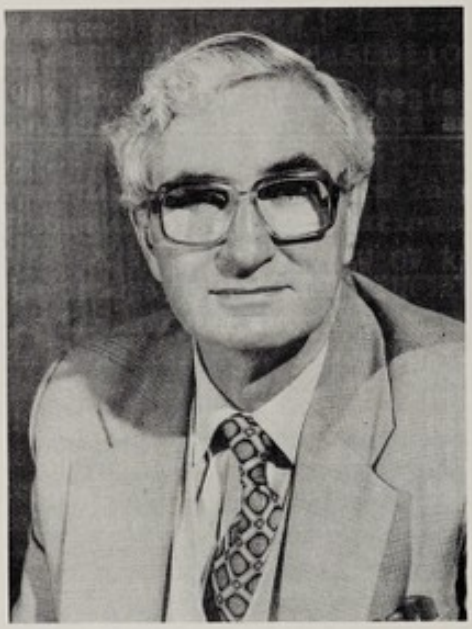
APPENDIX T

SOURCE TESTING

Description of Works	Location	Average Particulate Emission (gram per cubic metre of flue gas corrected to o°C and 1 atmosphere pressure)
Brick kiln fired with oil	Maylands	0.26
Cement Works	Rivervale	0.37
Bitumen Plant	Cannington	0.19
Bitumen Plant	Welshpool	0.64
Bitumen Plant	Osborne Park	0.52
Power Station	Sth Fremantle	0.33
Incinerator	South Perth	0.30
		Acid Mist
Sulphuric Acid Plant	Australind	0.18 gram per cubic metre
		Acid Gases
		6.3 gram per cubic metre

Appendix XIII

PHARMACEUTICAL SERVICES BRANCH

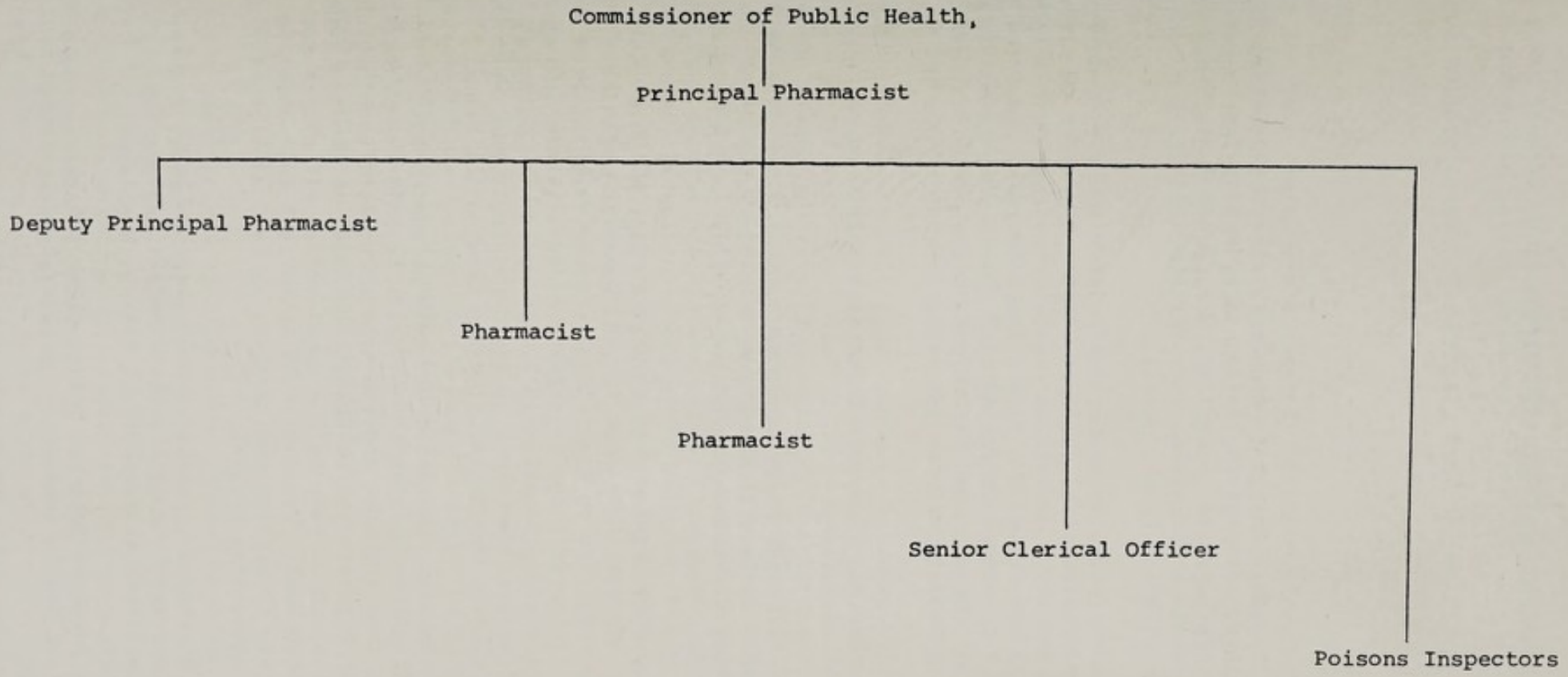


W.M. Griffiths,
B. Pharm., F.P.S. (G.B.), M.P.S.
Principal Pharmacist

SENIOR STAFF

Principal Pharmacist :
Mr. W.M. Griffiths
Deputy Principal Pharmacist :
Mr. G.F. Foley
Pharmacist : Mr. M. Cousins
Pharmacist : Mrs. J.A. Luke
Senior Clerk : Mr. J. Chilby

PHARMACEUTICAL SERVICES BRANCH - ORGANIZATION CHART



PHARMACEUTICAL SERVICES BRANCH

ADMINISTRATION

The Pharmaceutical Services Branch is responsible to the Commissioner for the day-to-day administration of the Poisons Act, Poisons Act Regulations, Pesticides Regulations, certain aspects of Therapeutic Goods, the oversight of pharmaceutical services to government hospitals, and liaison, when necessary, with the Pharmaceutical Council.

The branch provides the secretariat for the Poisons Advisory Committee, Pesticides Advisory Committee and the Pest Control Operators Committee, and also provides representative members on the Interhospital Pharmacists Advisory and Liaison Committee, the Tender Board Advisory Committee for Drugs, the Technical Committee on Agricultural Chemicals, Poison Schedule Standing Committee of the National Health and Medical Research Council, National Therapeutic Goods Committee and ad hoc meetings relevant to Branch matters.

Close liaison is maintained with the Alcohol and Drug Authority concerning supplies of drugs of addiction.

Mr. Bill Griffiths, Principal Pharmacist, Mr. Gerald Foley, Deputy Principal Pharmacist - reclassified to Level 6 - continued their attendances at various Committees associated with the work of the Pharmaceutical Services Branch.

Mr. Michael Cousins, Pharmacist - reclassified to Level 4, continued to collate and prepare the working papers for the Pesticides Advisory Committee, reply to enquiries on pesticides received from industry and the general public and liaise with the Department of Agriculture in regard to enquiries on pesticide uses. He attended 2 meetings of the National Therapeutic Goods Committee on behalf of the Department, and continued as a member of the Pest Control Operators Licensing Examination Board.

Mrs. Joyce Luke, Pharmacist, continued her role in administering the Poisons Act Regulations by replying to enquiries on poisons and hazardous substances received from industry and the general public, examination of labels and packages of poisons. The Branch continued to monitor supplies of drugs of addiction. Mrs. Luke is the confidential officer responsible for communication with health professionals on matters concerning patients in relation to certain controlled medications, as well as licensing and inspection reports concerning poisons.

Mr. Ross Atkinson, Pharmacist, commenced duties in November, 1982 as a poisons inspector to ensure compliance with the Poisons Act Regulations regarding the use, sale and storage of all scheduled poisons.

Mr. John Chilby was promoted from the Public Service Board to the position of Senior clerk in the Branch commencing duties in August, 1982.

Miss Carmel Sheahan commenced in June, 1982 as relieving typist while Mrs. Vicki Burns was on maternity leave.

Miss Sue Pollard commenced in April, 1982 as the Clerical Assistant for the Branch.

POISONS

During the year there were 4 meetings of the Poisons Advisory Committee. The Committee were sorry to lose the services of Mr. Alfred Humphries; Mr. J.M. Watkins was appointed to replace him on the nomination of the Confederation of Industry. Mr. Trevor Ellis resigned from the Committee for employment reasons and was replaced by Dr. G.L. Thompson (Veterinary Surgeon).

The number of new wholesale licenses granted, each involving inspection of premises and a written report, was 22. (Wholesale license holders who changed address also needed an inspection of their new premises and a written report). 324 pharmacies were visited (only one inspector out of a normal establishment of two was available to carry out these duties for nine months of the year, one inspector having ceased duties in January with long service leave and a replacement not having started until November).

121 printed label drafts for poisons were assessed in addition to assessments on pesticide labels and other general enquiries.

Two groups of amendments were gazetted to the Poisons Schedules. Two groups of amendments were gazetted to the Poisons Act Regulations requiring warning statements to be placed on poisons etc. A Poisons Act Notice listing conditions, restrictions and limitations in Seventh Schedule Poisons (the extremely dangerous poisons) was gazetted in April, 1982. A new Carcinogenic Regulatory Notice was gazetted in August, 1982 in accordance with the recommendations of the NH & MRC and the WAPAC: these are designed to protect persons who work with chemicals from hazards of carcinogenic chemicals.

PESTICIDES

The design and development of the computerisation of all the registered pesticides (PESTWA) continued during the year. Repeated delays were caused by mismatching of Western Australian data against the Victorian data held in the system, the lack of a permanently appointed programmer and a support programmer and an instruction manual for the users of the overall system.

It is expected that the system will be largely implemented during the second half of 1983.

During the year there were 11 meetings of the Pesticides Advisory Committee. Pesticide formulations registered as at the 31 December, 1982 were 1349. The number of new applications received was 226; 130 were approved for registration, 74 held awaiting further consideration and 22 applications were withdrawn. 111 applications were received for clearance of new agricultural chemicals or new uses in co-operation with the National Technical Committee on Agricultural Chemicals based in Canberra, 6 of these being new substances and 105 being applications for extensions or modifications of use of previously cleared chemicals.

During the year the Pesticide Operators Examination Board met 23 times to test: 94 applications for Pesticide Operators of whom 75 acquired their licenses; 19 applications for Pesticide firms of whom 15 acquired their registration; 15 applications for Fumigation Operators of whom 14 acquired licenses with 1 fumigation firm applying and being approved for its license.

In October, 1982 the branch provided a member to the Australian Delegation to the Second Government Consultation on International Harmonization of Pesticide Registration Requirements. The Consultation was convened by the Food and Agriculture Organization of the United Nations in Rome and included delegates from 68 countries and 11 organizations such as the EEC. The reduction of losses of food due to pests and diseases is a priority area in the FAO's programme of work.

Appendix XIV

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

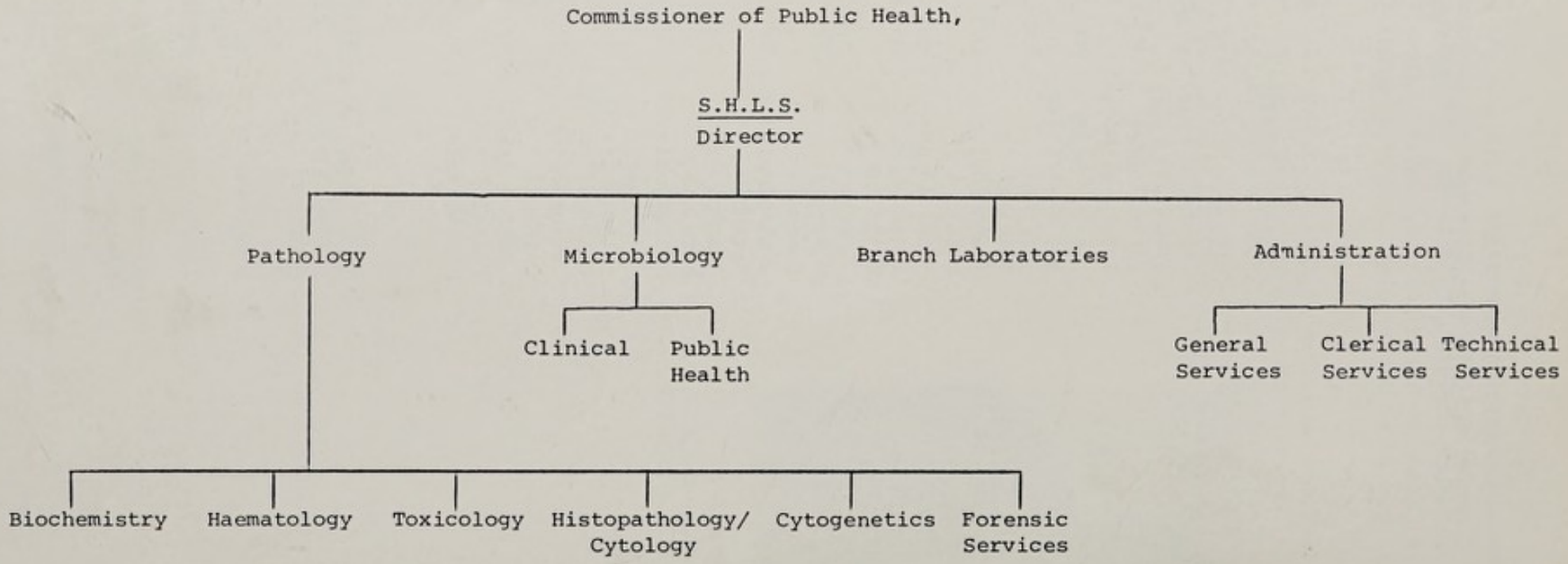
SENIOR STAFF

Director	: Dr. V. Blackman
Deputy Director	: Dr.J.J. Rippey
Principal Technologist	: Mr. A.R. Fergie
Deputy Principal Technologist	: Mr. G.S. Faulkner
Administrative Officer	: Mr. P.E. Payne
Clinical Pathologist	: Dr. H.J Woodliff
Clinical Pathologist	: Dr. A.J.N. Gaman
Immunologist	: Dr. M.S. Stuckey
Pathologist, Cytogenetics	: Dr. M.T. Mulcahy
Microbiologist	: Dr. A. Henderson
Forensic Pathologist	: Dr. D. Hainsworth
Forensic Pathologist	: Dr. J.M.N. Hilton
Forensic Pathologist	: Dr. D.A. Pocock
Clinical Pathologist	: Dr. J. Shapiro
Clinical Pathologist	: Dr. J.A. Pollard
Clinical Pathologist	: Dr. R.J. Glancy
Clinical Pathologist	: Dr. V. Caruso

DIRECTORS AND HEADS OF COMBINED UNITS, NOT S.H.L.S. STAFF

Biochemistry	: Professor D.H. Curnow
Toxicology	: Professor J.W. Paterson
Haematology	: Dr. D.W.G. Kennett
Histopathology/ Cytology	: Professor M.N.I. Walters
Microbiology	: Professor N.F. Stanley

STATE HEALTH LABORATORY SERVICES - ORGANIZATION CHART



STATE HEALTH LABORATORY SERVICES

1. INTRODUCTION

Compared with 1981, when the volume of work over the previous year showed little change, there was once again an upturn in 1982 - of 12.3% in Central areas with a slight decline of 3.4% in Branch Laboratories. The total number of specimens received was 936,340, an increase compared with 1981 of nearly 7%. The causes of increase in Central area work are various, but include the growth in bed occupancy of the Sir Charles Gairdner Hospital. There were increases in volumes of some public health based work - e.g. foods and sexually transmitted diseases.

It might be instructive to compare cost per specimen submitted for analysis over the years. Taking the net costs of the laboratories shown in the annual reports of the Public Health Department - i.e. total cost less revenue, and total specimens analysed, we find cost per specimen in 1976 to have been $9.18 while in 1982 it was $8.65. In other words, there had been a reduction in net cost per specimen despite an inflation rate over the period which must approach 100%. The reason is, of course, the negligible revenue in 1976 compared with nearly $5 million in 1982. The cost per specimen reflects the large number of such analyses that must be done for the public health or forensic reasons free of charge. Many of these are relatively expensive; the cost of an average forensic autopsy exclusive of ancillary testing is practically $500.

The Combined Laboratories comprising the Clinical Biochemistry, Clinical Haematology, Microbiology, Anatomical Pathology with Cytology, Clinical Pharmacology and Toxicology, and Clinical Immunology have continued to flourish. All now express their work loads by the Canadian workload measurement schedule and future annual reports will no doubt reflect this instead of numbers of specimens. This internationally accepted system pays attention not only to raw data such as numbers of tests, but also to their relative complexity, amount of clerical work etc. No present system can competently measure overtime loads unfortunately, which can most easily be expressed in hours paid for this service, but it is possible to assess on the Canadian system additional tasks such as teaching, administration and development work, all essential parts of an active and progressive pathology department. The aim of the system is to enable comparison of a laboratory's present performance with itself at a previous time, and not inter-departmental contrasts.

The Laboratory Users' Management Committee has functioned smoothly in its task of managing the day to day business of the Combined Laboratories and advise the principals of trends and changes. Its sub-committees have been augmented by a Finance Sub-Committee under the chairmanship of Professor Roy Lourens, Deputy Vice Chancellor, with senior accounting representatives of the other principals. For the first time major equipment needs of all the Combined Laboratories were collected, collated and submitted in one budget with great success.

'J' Block continues to approach completion, and is scheduled for occupation from May 1983. Replacement major biochemical and haematological equipment and an electron microscope were ordered during the year for the new building.

Computerisation extended slowly. While the Combined Laboratories are responsible in this aspect the Hospital Services Computing Sub-Committee, the uncombined parts of the laboratory complex, i.e. Branch Laboratories, Cytogenetics, Forensic Pathology and Central administrative areas are responsible to the Public Health Computer Sub-Committee. A small committee was established by the Laboratory Users' Management Committee to advise on computer development in the Combined Laboratories. The chairman is Mr. D.N. Inglis, Director, Health Computing Services. During the year when, for administrative reasons the Health fields, were made distinct from those associated with Hospital and Allied Services, the Laboratories continued responsible to the former area while maintaining close liaison with hospital problems.

Dr. J.J. Rippey was appointed Deputy Director during the year. He had acquired qualifications not only in Pathology and Internal Medicine, but also in Public Health and Tropical Medicine.

There were no major epidemic disease outbreaks during the year that involved excessive laboratory activity. Close surveillance continued of foodstuffs, water and environmental areas. Owing to food substitutions, techniques were adopted to identify species of fish and meat in raw products offered for sale.

After protracted negotiations it was agreed by Cabinet that these Laboratories assumed responsibility for the Eastern Goldfields hospital pathology services which had been centred in the Commonwealth Laboratory at Kalgoorlie. Consequently, those staff that wished were absorbed into the State Public Service and the Commonwealth Laboratory abolished. The branch laboratory at Kalgoorlie set up as a replacement became the regional laboratory for the Eastern Goldfields and neighbouring areas. The staff of this laboratory were the only additions to establishment allowed during the year.

2. ADMINISTRATIVE SERVICES

FINANCE

The net operating cost of the Laboratory Service is funded from the State Consolidated Revenue Fund. Other sources of finance include revenue derived from fees and services, Commonwealth contributions under the former Medibank Hospitals Agreement which are now included as an "Identifiable Health Grant" under General Revenue grants to the State. Rebates of expenditure are also received from Sir Charles Gairdner Hospital for the shared costs of Combined Laboratories.

There were general cost escalations for goods and services and the takeover of the Kalgoorlie Laboratory from the Commonwealth Department of Health on 1 July 1982.

Revenue collections for the period increased by $1.2 million. The additional collections were attributed to a full year effect of

increasing fees to the full scheduled rate (100%) from September 1981. Commonwealth medical benefit schedules were also adjusted by the Consumer Price Index movements in November of 1981 and 1982 by 9.7% and 12.3% respectively.

Cost sharing arrangements from the Sir Charles Gairdner Hospital were continued for the Combined Clinical Haematology and Combined Clinical Biochemistry Services. An amount of $349,000 was reimbursed during the year.

Budget control procedures for expenditure and revenue components for each individual laboratory including the Combined Laboratories, continued to be effective for monitoring laboratory budgetary performance. Accounting changes implemented in September 1981 provide the management information necessary for the analysis of operating cost of each laboratory and related work load variations.

STAFF

Staff changes are shown below:-

Position	Recruited	Resigned	Retired	Services Terminated	Trans-ferred
Deputy Director	1				
Registrar	1	2			
Clinical Pathologist		1			
Microbiologist-Medical	1				
Technologist	16	9			
Laboratory Assistant	45	38	2		
Laboratory Attendant	5	1	1		
Clerk	5	1			
Typist	4	3			1
Data Processing Operator	1	1			
Clerical Assistant	7	3	2		2
Cytotechnician	2	1			
Mortuary Assistant	2				
Animal House Attendant	1		1		
Technical Officer	1				
Gardener	1				
Technical Officer Special	1				
Snr. Laboratory Technologist		2	1		
Telex Operator		1			
Storeman/Driver			1		
Snr. Cytotechnician		1			
Typist-in-Charge			1		
Driver			1		

Important changes of senior staff are as follows:-

Dr. J.J Rippey	-	Deputy Director, commenced 5.1.82
Dr. F. Frost	-	Registrar, resigned 10.1.82
Dr. K.M. Mitchell	-	Registrar, commenced 11.1.82
Dr. M.R. Bucens	-	Registrar, resigned 18.5.82 and commenced as Microbiologist Medical 19.5.82.
Dr. R.J. Glancy	-	Clinical Pathologist, resigned 31.12.82

SUPPLY

The computerisation of general supplies and stationery stock items has been implemented and proven successful for inventory control. Management information is not yet effective and enhancements are currently being made to system programmes in this area.

Reagent and instrumentation issues are planned for conversion to the computerised inventory control system and this is currently under investigation.

SPECIMEN RECEPTION AND BILLING

On 1st March 1982 revised bulk billing procedures were introduced by the Commonwealth Government which called for the assignment of benefit by individual patients of pensioner or disadvantaged status. A combined request/assignment form was instituted to expedite claims on the Commonwealth.

A new series of accession numbers was produced through Cyber computer system which incorporated an alpha check digit for input validation.

WORK VOLUME

Specimens are received in the area of S.H.L.S. Specimen Reception from Branch Laboratories, other Government agencies, referrals from metropolitan laboratories etc. and are identified by accession numbers. Sir Charles Gairdner Hospital specimens go straight to the combined laboratory concerned. During 1982 there were 395,191 requests received in Specimen Reception, identified and distributed to the laboratories.

Requests from the Special Treatment Clinic (V.D. Laboratory) are not numbered in this system.

This work volume represented items being carried out (excluding the V.D. Laboratory) and 426,397 items (or 61.2%) related to chargeable requests for patients billing. Accounts were raised for the value of $5.2 million. Hospital service patient items totalled 36,358 for hospital billing. The major non-chargeable tests are summarised as follows:

Type	%
Hospital In-patient/Disadvantaged	14.8
Public Health Work	3.7
Special Treatment Clinic (Central Laboratories)	3.3
Viral Cultures	2.9
Institutionalised Children	2.8
Referred Other Laboratories	1.7
Alcohol and Drug Authority	1.0
Other Mnemonic	0.8
Prisoners	0.8
Others (including Family Planning, Women's Health Care, Staff Screens, Mortuary cases etc.)	1.7

COMPUTERISATION

General

Developmental work continued throughout the year and substantial progress was made in several areas. The more significant projects and events are outlined below.

Staffing

A Level 4 Technologist position was created and filled. This in turn has led to a more purposeful and effective approach to tasks and consequently more rapid progress.

The vacant item of Laboratory Systems Manager at Health Computing Services has been filled by a permanent appointee.

Use was made of technologists who had undergone training in computer techniques and programming at certain periods.

Projects

The following progress was made on the systems listed:-

(a) Inventory/Supply System - This system was installed, tested and commenced live running in February 1982. Few difficulties were experienced but budgetary information suffered due to data entry errors. The stores management and inventory control aspects are sound.

(b) Clinical Microbiology Reporting System - This system was installed, tested and commenced live running in November 1982. No problems have been encountered.

(c) Pathology Billing Sub-system - Work enhancements designed to increase revenue and cut running costs continued under the control of the Supervisory Committee. It is estimated that his fine tuning has resulted in a considerable saving.

(d) Histopathology - The word-processing capability was upgraded to enable all reports to be handled by word processor. Whilst still retaining the ability to telex direct from the department at any time, telexes are now sent to the Biochemistry computer where they are stored and sent at night.

(e) Haematology and Cytology - These departments have had word-processors installed which enables those departments to have their country reports telexed at night.

(f) Microbiology and Administration - Both offices had word-processors installed and operators trained, resulting in efficiencies of work flow.

(g) Studies were done into computing needs for the Combined Pharmacology and Toxicology Department and also Cytogenetics from which estimates for equipment in the 1983/84 budget have been prepared.

(h) A preliminary investigation was done for a Combined Pathology Data Base to service Histopathology and Cytology Combined Units.

(i) Software specifications were written for a central computerised telexing system to be based on a CS3 network processor/supervisor.

(j) Specifications for the Mycobacteria Laboratory reporting system were completed and the project commenced.

(k) Planning for detailed computer cabling and facilities in 'J' Block was finalised.

(l) Clinical Biochemistry computing capacity was upgraded to extend the life and ability to cope with additional work load.

TRANSPORTATION AND COMMUNICATION

The vehicular fleet consists of 38 vehicles. Twenty replacements were authorised during 1982 where vehicles had travelled 40,000 km or were two years old. Vehicle rotation between city and country centres ensured that maintenance costs were minimised.

Telex report issuing was extended to include the Haematology, Histopathology and Cytology Laboratories. Reports are transmitted by the Biochemistry computer system which utilises the cheaper line rates for night-time transmission. The conversion is working satisfactorily.

3. TECHNICAL SERVICES

MEDIA

Production	1981	1982	% Increase
Plates poured	1,333,637	1,366,444	2.45%
Tubes and bottles	1,353,635	1,429,678	5.61%
Volume (litres)	44,954	45,208	0.56%

The production figure for 1982 (above) shows a slight increase on the 1981 figures.

The conversion of two GX-III Laboratory Attendant items to GX Laboratory Assistant items has resulted in a marked improvement in the efficiency of the two specialised media areas.

At the request and with the co-operation of the Police Department a urine collection kit has been designed for use in the detection of drugs. The kit has been designed in accordance with the new Road Traffic regulations. Production of the kit will also be conducted in the Media Section.

A new 50 litre media sterilizer was installed during the year. Custom built in Sweden for the section, it was commissioned with very few teething problems.

REAGENT PREPARATION

The work load continues to increase with the introduction of new instrumentation throughout the State service, requiring a variety of new reagents. Another trend has been the supplying of more diagnostic kits to the Biochemistry Section.

ANIMAL HOUSE

There was no significant variation in the overall work load of this section. Facilities at the Claremont stables were expanded to contain a wider variety of animals. Animals were obtained in increasing numbers as they became available from the Animal Resources Centre.

INSTRUMENTATION

The trend towards electronics has continued to increase the work load of this area. As in previous years staff have provided a safety and maintenance check of all equipment in the various branches of the service throughout the State.

4. MISCELLANEOUS

LIBRARY

The library has circulated and displayed over 320 journal titles, 116 of which are housed at the State Health Laboratory Services. The total number of journal holdings is 124. Some journals have been returned to the Public Health Department library to make room for current journal issues.

The heavy demand for information has continued, although inter-library book loan requests have dropped by approximately 80% this year.

A corresponding drop in the number of photocopies supplied (approximately 31%) is part of a general trend, due to the restrictions of the August 1981 Copyright Act.

Library statistics are as follows:-

	1982	1981
Reference queries	894	1,014
Computer searches	24	33
Book loans -		
S.H.L.S.	423	431
Inter-library loans	148	766
Total:	571	1,197
Photocopies -		
S.H.L.S.	2,200	3,257
Inter-library loans	434	614
Total:	2,634	3,871
New books	82	105
Books on order	83	66
New journals	7	15
Journals on order	3	1

QUALITY CONTROL

Monitoring of technical performance has been maintained through the past year. Where shortfalls were experienced corrective measures have been taken.

Introduction of alternative Clinical Chemistry controls has been implemented with economies and convenience of a locally produced product.

All problems have been isolated and corrected through the quality control system.

FIRE AND SAFETY

The programme of staff training and testing of alarm equipment has continued. Accident frequency has been controlled within reasonable limits with no prolonged absence of staff attributable to laboratory causes.

IN-SERVICE TRAINING

Regional technologists were recalled to the Central laboratories on two occasions. Liaison with specialist technical personnel to update procedures and discuss difficulties occurred during these periods. This method of maintaining current status of technique throughout the service is proving satisfactory.

Central staff continue to train newly appointed officers with 'on-the-job' programmes. Once again, intake of staff has been intermittent and organised group instruction was found to be unnecessary.

PATHNOTE COMMITTEE

During 1982 a total of seven Pathnotes were produced:-

Haematology	3
Biochemistry	3
Microbiology	1

The 1981 annual report of the Mycobacteria section was produced and distributed during 1982.

Although the number of Pathnotes produced during 1982 was low, the series is still used widely within the Service and is distributed to; other institutions and interested persons on request.

The production of the Pathnote series and other reports has been greatly facilitated by the use of a word processor and a small typesetting machine for the preparation of headings. A more standard and professional product has resulted.

5. BRANCH LABORATORY SERVICE

WORK LOAD

The total number of tests performed in Branch Laboratories during 1982 totalled 282,136 compared with a total for 1981 of 291,926. The major changes were:-

Karratha	-	down	28.6%
Geraldton	-	down	18.4%
Pinjarra	-	down	19.5%
Narrogin	-	down	15.0%
Collie	-	up	10.4%
Bentley	-	up	10.6%

The factors responsible for changing work loads are variable but include recession effects and changes in national policy.

BUILDINGS

The year of 1982 saw the completion of laboratory buildings at Pinjarra and Merredin, and completion of extensions to the Kalamunda laboratory. Extensions to the Osborne Park laboratory and a new laboratory building at Swan Districts Hospital was commenced. The opening of the new

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hospital at Nickol Bay provided new laboratory facilities for the Karratha district.

EQUIPMENT

Installation of ABA 200 Biochemical analyzers at Port Hedland, Albany and Bunbury was carried out. Initial problems with the computer programme tape of the new instruments have been overcome, but faults cannot usually be corrected without entire replacement of appropriate boards and delays in receiving replacements have created problems.

Several semi-automatic haematology cell counters were purchased and have proved to be a great help at laboratories with a high level of haematology. The recent introduction of haematology controls produced by Central Laboratories has proved to be a worthwhile undertaking.

All Branch Laboratories are now equipped with Gilford spectophotometers.

REGIONALISATION

The State Health Laboratory Services assumed the responsibility from the Commonwealth of providing pathology services to the Eastern Goldfields from 1st July 1982. The Eastern Goldfields region, centred on Kalgoorlie, was declared from that date. This brought the number of regions within the State Health Laboratory scheme to six, with a seventh, incorporating the metropolitan branches, administered directly from Central administration.

TRANSPORT

With the changes in operation of Westrail in June and consequent discontinuation of some services, problems occurred in transporting specimens from country towns, to Branch Laboratories. Where possible various commercial couriers are now being used and where no direct transport system is available, specimens are brought by commercial couriers to either Central Laboratories or Bentley Branch Laboratory.

DEVELOPMENTS

The extension of the automatic telexing of reports to include Haematology, Microbiology and Cytology was made and has been well received.

6. COMBINED MICROBIOLOGY SERVICE

PAPERS PUBLISHED

Mr. V.W. Bamford	:	Campylobacter: Experience at State Health Laboratories. Proc. published, Murdoch University (SEM.) Western Australia, December 1982, 90.
Mr. V.W. Bamford	:	A prison outbreak of Campylobacter enteritis, Western Australia. Communicable Diseases Intelligence Bulletin, 82/25 December.
Dr. M.R. Bucens Assoc. Prof. J.S. MacKenzie Dr. J.R. Shellam Prof. N.F. Stanley	:	'Herpesvirus Infections of Man' in Viral Diseases in South-East Asia and the Western Pacific. Edited by John S. MacKenzie, 1982.
Mr. P. Dhu	:	Effect of antimalarial drugs on Naegleria fowleri. Letter published, Medical Journal of Australia (1982), 1,13.
Miss B.L. Dunn Mr. D.J. Hodgen	:	'Atypical' mycobacteria in milk. Journal of Applied Bacteriology, 52, 373-376, 1982.
Mr. G.B. Harnett Dr. M.R. Bucens Mrs S.J. Clay Dr. B.M. Saker	:	Acute haemorrhagic cystitis caused by adenovirus type 11 in a recipient of a transplanted kidney. Med. J. Aust. 1982; 1: 565-567.
Mr. G.B. Harnett Dr. G.R. Shellam	:	Variation in murine Cytomegalovirus replication in fibroblasts from different mouse strains in vitro: Correlation with in vivo resistance. J. gen. Virol. 1982 62 39-47.
Mr. R.P. Hart Mr. J.B. Iveson Mr. S.D. Bradshaw Mr. T.P. Speed	:	A study of isolation procedures for multiple infections of Salmonella and Arizona in a wild marsupial, the Quokka (Setonix brachyurus). Journal of Applied Bacteriology, 53, 1982.
Mr. J.B. Iveson	:	Salmonella in humans, livestock, feral animals and wildlife in Western Australia. Proc. published Murdoch University (SEM.), W.A., December 1982, 96.

Mr. J.B. Iveson Mr. V.W. Bamford	:	Enteric infections in coastal environments in South-Western Australia. West Aust. Health Surveyor, Quarterly, June 1982.
Mr. J.B. Iveson Mr. V.W. Bamford Mr. R.B. Curtis	:	Enteric infections in coastal environments in South-Western Australia. West Aust. Health Surveyor, Vol. 4, No. 3, 31.
Mr. J.B. Iveson Mr. P.D. Jelinek Mr. D.A. Franklin	:	The recovery of Salmonella from sheep that died during transportation by ship. Aust. Vet. J. Vol. 58, April 1982.
Dr. M.R. Bucens Prof. J.S. Mackenzie Dr. J.S. Shellam Dr. G.R. Stanley Prof. N.F. Stanley	:	(1982). Herpesvirus infections of man. In: "Viral Diseases in South-East Asia and the Western Pacific", J.S. Mackenzie, ed. Academic Press, Sydney, pp. 675-684.
Dr. J. McCluskey Mr. T.V. Riley Dr. E.T. Owen Dr. D.R. Langlands	:	Reactive arthritis associated with Clostridium difficile. Aust. N.Z. J. Med. (1982) 12, pp. 535-537.
Dr. D. McGechie Dr. T.B. Teoh Mr. V.W. Bamford	:	Campylobacter enteritis in Hong Kong and Western Australia. A chapter in the book 'Campylobacter: Epidemiology and Pathogenesis and Biochemistry, M.T.A.'
Dr. P.A. Phillips Mr. G.B. Harnett Dr. M.M. Gollow	:	Adenovirus type 19 and a closely related new serotype in genital infections. Brit. J. Vener. Dis. 1982, 58:131.
Mr. T.V. Riley	:	Synovial fluid. Lancet, 1 p. 972.
Mr. T.V. Riley Dr. K.T. Karthigasu	:	Chronic Osteomyelitis due to Clostridium difficile. British Medical Journal 1982, 284, 1217-1218.
Mr. T.V. Riley Mr. R.A. Bowman	:	Detection of glomerular bleeding using a simple staining method for light microscopy. Lancet, Vol. II, 1982, No. 8301.
Mr. T.V. Riley Dr. B.J. Mee	:	A bacteriocin typing scheme for bacteroides. J. Med. Microbiol. 15: 387-391, 1982.

Mrs J. Robinson Mr. D. Peterson Mrs V. Burke Dr. M. Gracey	:	The identification of entero-toxigenic Aeromonas spp. isolated from human faeces and domestic water supplies. Toxicon. Abstracts of the 7th World Congress on Animal, Plant and Microbial Toxins, Brisbane, July 1982.
Miss S. Teal Mrs V. Wymer	:	Streptococcus pyogenes Griffith type 55. Commonwealth Diseases Intelligence No. 82/5.
Miss C.R. Worsley	:	Chloroxylenol and EDTA kill Ps. aeruginosa. Med. J. Aust. 2 (5). 220, 1982.
Prof. N.F. Stanley	:	(1982). Human arbovirus infections in Australia. "Arbovirus Research in Australia", Proceedings 3rd Symposium, Brisbane 15-17 Feb.
Prof. N.F. Stanley	:	(1982). Populations growth, immigration and the quality of the environment - or man's disturbance of natural eco-systems. (Text of address given at ANZAAS meeting, Sydney, 1972). In: "Transactions of the Menzies Foundation", Vol. 4, "Towards a School of Health Research in the Northern Territory", The Menzies Foundation, East Melbourne, pp. 167-173.
Prof. N.F. Stanley	:	(1982). Ecology of Australian arboviruses. Proceedings of the Zoonoses Seminar, Murdoch University Foundation for Continuing Veterinary Education, Perth, December 3-4, pp. 11-46.
Prof. N.F. Stanley	:	(1982). Virus diseases in Northern Australia. In: "Viral Diseases in South-East Asia and the Western Pacific", J.S. MacKenzie, ed. Academic Press, Sydney, pp. 275-282.
Mr F.J. Fenner Prof. N.F. Stanley	:	(1982). A summary of the discussion of suggestions for the future. In: "Viral Diseases in South-East Asia and the Western Pacific", J.S. MacKenzie, ed. Academic Press, Sydney, pp. 703-707.

CLINICAL MICROBIOLOGY (TABLE II A)

Notifiable Diseases

Amoebiasis - 1 case. The cysts of Entamoeba histolytica were found in a patient being examined for employment as a food handler.

Septicaemia -

Blood cultures received	= 2,287	
Number sterile	= 1,953	= 85%
Number infected	= 184	= 8%
Number contaminated	= 150	= 7%

The most frequently isolated organisms:-

1. E. coli	= 44	= 24%
2. Staph. aureus	= 36	= 20%
3. Kleb. pneumoniae	= 13	= 7%
4. Staph. epidermidis	= 13	= 7%
5. Strep. pneumoniae	= 12	= 7%
6. Proteus mirabilis	= 10	= 5%

C.S.F. specimens received	= 794	
Number sterile	= 791	= 99.62%
Number infected	= 3	= 0.38%
Number contaminated	= Nil	-

Organisms isolated:-

1. Escherichia coli	= 1
2. Haemophilus influenzae type B	= 1
3. Streptococcus pneumoniae	= 1

Interesting Infections

Cardiobacterium was isolated from an adult man with endocarditis; this case was fatal.

Clostridium difficile - 49 isolations of which 10 were non-toxigenic.

Clostridium tetani was isolated from a laceration of the skin of an 8 year old boy at Dampier. The child recovered without developing tetanus.

Moraxella lacunata was found in an isolate submitted from Fremantle, originating in a case of conjunctivitis.

Moraxella non-liquifaciens was found in an isolate referred from Darwin.

Strongyloides species was diagnosed by finding larvae in the faeces of a patient with recurrent episodes of septicaemia.

INFECTION CONTROL SECTION (TABLE II A)

Methicillin-Resistant Staphylococcus aureus

In order to prevent the spread of this organism within Western Australia, the Departments of Public Health and of Hospital and Allied Services have formed a committee consisting of all Medical Directors and of all Head Microbiologists to formulate policies.

As a result laboratories isolating methicillin-resistant Staphylococcus aureus forward these isolated to the Infection Control Unit for further sensitivity tests, compile a register, freeze-dry the organism and distribute them to the phage-typing laboratory and various researchers. From the register, weekly updates of current and cleared patients are issued to all teaching hospitals, committee members, the Commissioner of Public Health and others.

In 1982 the following number of isolates were added to the register:-

Sir Charles Gairdner Hospital	10
Royal Perth Hospital	37
Princess Margaret Hospital	10
Hollywood Repatriation Hospital	5
Fremantle Hospital	1
Others (hospitals and Private laboratories)	8

At the end of the year the number of patients and staff known to be carrying the organism totalled 24.

All new ward staff who have worked outside Western Australia are required to be screened for methicillin-resistant Staphylococcus aureus. The Infection Control Unit provides this service to staff from all non-teaching hospitals.

The staff of hospitals and nursing homes (where known carriers were nursed) were screened for methicillin-resistant Staphylococcus aureus: no carriers were found.

Hospital/Hostel surveillance continued.

Spore strip testing of autoclaves for government and private hospitals continued.

A routine surveillance schedule for the Hospital Laundry and Linen Service was instigated. Proposed modifications to procedures were investigated for bacteriological safety.

Testing of Pharmaceuticals

The activities of a variety of disinfectants were tested on behalf of the Government Tender Board and manufacturers. Similarly, bandages, dressing packs etc. submitted by manufacturers and distributors were tested. All were found to be sterile except a batch of cotton buds from which group C Streptococci were isolated.

Blood products from the Red Cross Blood Transfusion Service were investigated for sterility.

Samples of instrument 'milk' submitted by Wanneroo Hospital theatre grew Pseudomonas spp. and Aeromonas hydrophila; a detergent from Busselton Hospital grew Klebsiella pneumoniae and two strains of Citrobacter freundii.

Environmental Survey for Legionnaires' Disease

The following buildings were examined:-

Veterans' Affairs, Rural and Industries Bank (Perth),
Art Gallery and Police Headquarters (East Perth).

Lyophilisation

A total of 682 strains were freeze-dried during the year and incorporated into the Western Australian Culture Collection.

Projects

1. A preliminary study of hotel glass-washers was undertaken at the request of the Licensing Court. The results were unsatisfactory. The health surveyors were to promote correct operating of the washers.

2. The use of microwave ovens to sterilise feeding bottles was investigated. It was found that the sterilising effect was only as efficient as boiling the bottles.

3. Assistance was given to Dr. Jaffrey (Orthopaedic Registrar) who was investigating the role of glove starch in the onset of Staphylococcal osteomyelitis; Dr. Sunderman (Ear, Nose and Throat Department) in a survey of Aboriginal childrens' ears; and Dr. Phillips (State Health Laboratory Services) with Haemophilus ducreyii.

PHAGE TYPING SECTION Staphylococcus aureus

Phage Type 71

The thirteen strains of phage type 71 isolated during the period included four cases of eczema or impetigo. Two of these were infants, but the other two were male adults; one with impetigo of the buttocks from which a beta-haemolytic Streptococcus was also isolated. Another of the cases was a woman of 78 years who acquired a mild infection of a varicose ulcer in hospital and a subsequent eye infection.

Infected eczema in a three year old was associated with phage type 71 over a two month period.

A boy at Busselton had an infected insect bite from which Staphylococcus aureus phage type 71 was isolated. The same type was isolated from his mother and two brothers.

One further strain sensitive to phage 71 was isolated from the tampon used by a young woman at the time of a short but severe bout of vomiting simulating Staphyloccal food poisoning. Unfortunately follow-up tests for this case were not practical.

Other Phage Types

An isolate from a Bartholin's gland abscess was phage type 29/52/80 which is the same as some strains associated with toxic shock syndrome. In this instance the patient was not toxic.

An instance of scalded skin syndrome was associated with Group II strain.

Two experimental phages were investigated and found to be useful in distinguishing between various methicillin-resistant strains many of which were only weakly positive with the international phage set.

No single or dominant phage pattern was found in a set of strains isolated from the sputum of seventeen cases of cystic fibrosis.

Staphylococcus aureus Phage Typing Statistics

Total for 1982 - 5,326 cultures which is an increase of 856 cultures (19.1%) compared with 1981.

MYCOBACTERIUM SECTION (TABLE II D)

A total of 6,973 specimens were received for mycobacterial examination during 1982, as compared with 7,666 during 1981. This includes cultures referred for identification and drug sensitivity testing, homogenates received from guinea pig inoculation, smears for the microscopic examination for M. leprae and biopsies for dapsone resistance testing of M. leprae.

There were 612 isolates of mycobacteria identified during 1982 from human, animal and environmental sources. Whilst the number of isolations of mycobacteria also decreased in 1982 (612) compared to 1981 (832 isolates) it was slightly more than in 1980 (585 isolates). The high number of isolations during 1981 was attributed to the large number of referred cultures due to a laboratory contaminant at a large metropolitan hospital.

M. tuberculosis was isolated from 46 new patients during 1982. There were 39 laboratory reported cases of pulmonary tuberculosis and 7 laboratory reported cases of non-pulmonary tuberculosis, namely genito-urinary - 3 cases; larynx - 2 cases; cervical lymph node - 1 case; and hip abscess - 1 case.

Isolations of other mycobacteria were consistent with the numbers isolated in previous years.

Interesting Cases

M. chelonei subsp. abscessus was identified from two referred cultures from different patients at Fremantle Hospital.

M. intracellulare (serotype 14) was cultured from a 73 year old woman with an inflamed synovium of the finger after a thorn puncture 12 months previously. The organism was identified from a referred culture from St. John of God Hospital.

M. intracellulare (serotype 12) was isolated from a cervical lymph node of a 23 month old girl, and M. intracellulare (non-typable) was isolated from a cervical lymph node of a 2 year old girl. Both isolates were identified from referred cultures from Princess Margaret Hospital.

M. intracellulare (serotype 14) and M. intracellulare (serotype 42) were repeatedly isolated from cultures of sputum from two male patients aged 44 years and 59 years respectively.

A 60 year old man with leukemia died with disseminated atypical mycobacterial disease due to M. intracellulare (serotype 42). The organism was cultured from gastric lavage, urine, liver, lymph nodes, bone marrow, kidney and spleen.

M. kansasii was isolated from a cervical lymph node of a 12 month old boy at Princess Margaret Hospital; repeatedly from the sputum of two men aged 63 and 75 years; and a single isolate from sputum of a 61 year old woman patient at Royal Perth Hospital.

M. marinum was isolated from pus from the hand of a woman; she owned a fish tank, but unfortunately this aspect was not investigated.

M. scrofulaceum (serotype 43) was isolated from a lymph node of an 8 year old girl with cervical lymphadenitis. The organism was identified from a referred culture from the Launceston General Hospital, Tasmania.

During 1982, a total of 492 Split Skin Smears (S.S.S.) (24.2% positive) from 110 patients were examined for M. leprae using a modified Ziehl-Neelsen stain. Of these patients 12 had smears positive for M. leprae and 6 of the patients were new cases.

In addition of Split Skin Smear examination for M. leprae, dapsone resistance testing using the mouse foot-pad inoculation technique was commenced in 1982. A total of 6 biopsies were received from the new patients and another patient with negative S.S.S., but positive biopsy smear. This technique is extremely slow with results taking 12 months to complete.

Isolates from animal sources were received from the Western Australian Department of Agriculture for identification. Of a total of 25 isolates, isolates of M. bovis from bovine origin and 5 isolates of non-pathogens from bovine; and 2 isolates of M. kansasii from porcine origin.

Environmental studies included examination of top soil samples from Derby. The purpose of this was to establish the extent to which the Aboriginal community is exposed to mycobacteria which do not cause disease and which might even stimulate their immunity to tuberculosis and leprosy. Of a total of 24 samples examined, 13 yielded mycobacteria on culture. There were 7 isolates of M. gordonae, 1 isolate of M. intracellulare (serotype 19) and 5 isolates of non-typable M. intracellulare. Seven samples were contaminated with other organisms and 4 were negative on culture.

Concurrently, surface water samples from Derby were also examined. Of 17 samples examined, 5 yielded mycobacteria. One sample yielded a mixed culture of M. scrofulaceum and M. intracellulare (non-typable). Two samples yielded M. scrofulaceum and 1 sample yielded M. flavescens. Three of the samples were contaminated and the remaining 9 samples were negative on culture.

Examination of water samples from rainwater tanks in the Perth Metropolitan area was carried out during the months of May and June 1982. From 33 samples examined, M. gordonae was isolated from 17, M. scrofulaceum from 1 and M. intracellulare (non-typable). The remaining 14 samples were negative

on culture.

A total of 169 drug sensitivity tests were performed on human isolates during the year. All isolates were tested against streptomycin, isoniozid, ethambutol and rifampicin. In addition to these drugs, 21 isolates were also tested against para-amino-salicylic acid, prothionamide, cycloserine, thiacetazone, capreomycin and kanamycin. Of 54 strains of M. tuberculosis tested, 3 strains showed primary drug resistance. One strain showed resistance to streptomycin only, another strain showed resistance to streptomycin and isoniazid, and the third strain showed resistance to rifampicin only.

A significant development in our Mycobacterium Section has been its recognition as a member of the International Working Party on the Taxonomy of Mycobacteria in the chelonei-fortuitum complex. Our representative will be studying strains in association with other acknowledged world experts.

Mycobacteria Isolations from all Sources (Including referred cultures)

Source	No. of Isolations
Human	553
Animal	25
Environmental	33
Quality Control	1
Total:	612

Mycobacteria Isolations from Human Sources (Including referred cultures)

	Species	No. of Isolates
Group I:	M. tuberculosis	209
	M. kansasii	12
	M. marinum	1
Group II:	M. scrofulaceum	10
	M. gordonae	15
	M. flavescens	2
Group III:	M. intracellulare	284
	M. terrae	3
	M. gastri	1
Group IV:	M. fortuitum	5
	M. chelonei subsp. abscessus	5
	M. chelonei subsp. chelonei	3
	Unidentified Group IV	3
	Total:	553

MYCOLOGY SECTION (TABLE II E)

Of the 10,456 specimens examined in 1982 (11,294 in 1981), 335 gave positive results. Details of each section are given in the following report and tables.

Superficial Mycoses

The most common of these diseases in Western Australia is pityriasis versicolor. In 1982 we saw 170 patients with this condition. Lesions are mainly confined to the upper trunk, chest, shoulders and arms, but this year we saw 13 patients with lesions in the groin. There was an unusual case of an 8 year old boy who had diffuse scaling in the scalp without hair loss for over two months, skin scrapings contained masses of Malassezia furfur.

There were 72 cases of erythrasma diagnosed this year, 90% of which were in male patients. There were four cases of trichomycosis axillaris and one case of tinea nigra palmaris in a 10 year old child from Queensland. The causal organism of this latter disease, Cladosporium werneckii, was also isolated from the face of a child from Christmas Island.

Cutaneous Mycoses

Skin Scrapings -

Dermatomycoses continue to be the most common fungal disease seen by our laboratory. Of the organisms causing ringworm, the most frequent species recovered by the Mycology Laboratory were Trichophyton rubrum - 513 isolates, followed by T. mentagrophytes - 248, Epidermophyton floccosum - 203, Microsporum canis - 121, T. tonsurans - 23, and M. gypseum - 14. These fungi cause tinea on all parts of the body, although some, such as E. floccosum, have a predilection for certain areas, in this case the groin area.

A rare manifestation of infection caused by T. rubrum was seen in a 61 year old male who had a granulomatous lesion on the lip caused by this fungus, instead of the usual low-grade scaling.

Trichophyton verrucosum, which is the common cause of human and cattle ringworm in colder parts of Europe is seen infrequently in Western Australia. It is a zoophilic organism and infections are contracted from animal hosts, usually cattle. Our climate enables cattle to remain outdoors all the year, and close animal/human as well as animal/animal contact is minimal so there is less chance of cross infection. There were only 2 patients infected by this organism in 1982.

Trichophyton violaceum, another dermatophyte occurring rarely in this State was isolated only once this year.

Yeasts, in almost every case Candida species, frequently cause dermatomycoses in this State. There were 302 yeasts isolated from the skin this year, of which Candida albicans 196 isolates, was the most frequent, followed by C. parapsilosis, C. tropicalis and C. guilliermondii. The most common area of the body infected was the groin in adult males, 92 infections, and paronychia infections of the finger nails which occurs principally in females who have their hands immersed in water and detergents.

Superficial white onychomycosis occurred exclusively in toe nails. Of the 11 cases seen this year, 9 were female and 2 male; most patients were over 40 years of age.

Ear Swabs

Only 60 ear swabs were received for fungal examination in 1982 and of these 90% grew a fungal pathogen. Aspergillus niger, the commonest cause of these infections throughout the world, was the agent involved in 43% of the cases; 6 different Candida species 24%; A. flavus 20%; and A. Terreus 25%.

Vaginal and Cervical Swabs

Infections were diagnosed in 38% of the 2,797 patients tested for fungal infection. There were 1,013 yeasts isolated, belonging to more than 14 different species. Candida albicans was the aetiologic agent of 85% of these infections followed by C. tropicalis - 3%, and C. glabrata - 1.7%.

Throat and Mouth Swabs

Only 26 mouth and 15 throat swabs were received this year. 73% of the mouth swabs and 67% of the throat swabs grew Candida.

Subcutaneous Mycoses

A phaecomycotic cyst on the finger of a 76 year old male, caused by Exophiala jeanselmei was recorded this year. The fungus occurs in soil and rotting vegetation and infections have been reported throughout the world. This is the first case we have seen in Western Australia.

An Aboriginal patients from Fitzroy Crossing with chronic chromomycosis of the hand due to Cladosporium carrionii was investigated this year. We first recorded his infection six years ago. Serologic testing of this patient's blood showed the presence of antibodies to Cladosporium.

An unusual infection caused by Pityrosporum ovale was recorded in a World War I veteran whose nose was injured in the war, resulting in a deformity. He developed a chronic discharge which yielded this fungus.

A 66 year old woman contracted secondary subcutaneous fungus infection in a traumatic lesion on her face. The fungus, Drechslera spicifera is an airborne fungus which occasionally causes infection.

A nasal polyp removed surgically from a 50 year old man showed the presence of the septate branching mycelium of a fungus which failed to grow in culture. Serology on this patient's blood showed the presence of antibodies to Penicillium; Aspergillus and a range of other fungi gave negative results.

Systemic Mycoses

Systemic diseases caused by strict fungal pathogens are very rare in Western Australia, most of the fungal infections we see should be classified as 'opportunistic'. The organisms causing such disease can be commensals or contaminants and are frequently found in specimens from open sites. For this reason it is important that fungal culture and serology be done in conjunction with each other and that adequate number of specimens are collected to allow a diagnosis to be made, including serum.

There was a decrease in the number of specimens sent for fungal serology in 1982, when the demand for these tests in the rest of the world is steadily increasing.

Candidosis

Systemic candidosis continues to be relatively rare in Western Australia despite the prevalence of cutaneous Candida infections.

Candida albicans was the cause of an oesophageal granuloma diagnosed at necropsy of an 80 year old woman. Candidosis of the larynx was diagnosed from sputum and a throat biopsy of a 76 year old male. C. albicans was obtained from gastric washings, the oesophagus and sputum of an immunosuppressed patient, serology indicated Candida colonization. Oesophageal candidosis was recorded in two other patients.

There were 3 cases where systemic candidosis was indicated serologically but no other clinical specimens were received to confirm the diagnosis. A possible case of allergic bronchopulmonary disease due to Candida albicans was recorded in a 71 year old female.

Candida parapsilosis was isolated from the synovial fluid of a 46 year old male with recurrent left knee effusion.

Aspergillosis

Allergic bronchopulmonary aspergillosis occurs fairly commonly in Western Australia. Sixty two patients had positive serum antibodies to one or more of four Aspergillus species. The species which most commonly cause infection in this State is A. fumigatus but A. terreus, A. flavus and A. niger are also found causing lung infections. All four species were isolated from sputum or lung specimens this year.

A 68 year old female with a suspected aspergilloma had the lingula of her lung removed; an abscess in the resected part was infected with A. terreus and with suspected aspergilloma. She had A. fumigatus isolated from her sputum on 3 occasions and had 3 precipitin bands to A. fumigatus. A. flavus was isolated from the sputum of a patient with persistent cough for 30 years, and from the trans-tracheal aspirate of another patient. A. fumigatus was isolated from a patient with chest opacities and from the lungs of another immunosuppressed patient with fibrosing alveolitis.

Seven other patients with suspected mycetoma of the lung had serum antibodies to Aspergillus, 5 to A. fumigatus, 1 to A. niger and 1 to A. flavus. Unfortunately no other clinical specimens were received to back up the serological findings.

Allergic Bronchopulmonary Disease due to Dreschslera

A patient from the North West of the State with allergic bronchopulmonary disease on x-ray showed cavitation of the right upper lobe. The organism causing his condition proved to be Drechslera hawaiiensis, which was isolated from a needle lung biopsy after fungal serology had indicated this fungus was the probable cause of the disease.

Nocardiosis

Fatal systemic nocardiosis due to Nocardia caviae was recorded in a 28 year old male from the North of the State. This organism was isolated from sputum, and skin swabs during life and from kidney, brain, lung, skin, liver and heart tissue at necropsy. This patient's serum showed the presence of antibodies to Nocardia.

Nocardiosis of the lung due to N. asteroides was treated successfully in a 60 year old male.

Actinomycosis

Actinomyces israelii was isolated from the cervix of a 36 year old female wearing an intra-uterine device. This organism is not considered to be a commensal in the vagina and in recent years it has been found frequently in association with the presence of an I.U.D. in situ. We recorded actinomyces in 5 I.U.D. wearers this year, but it is doubtful if it was associated with a disease process in these patients.

Three cases of actinomycosis of the mouth were recorded in 1982. One was an infection in a 20 year old male following a fractured mandible; the second in a 70 year old male in the form of a chin abscess and third was a tongue infection. Actinomycotic canaliculitis was recorded in a 22 year old female; pleural fluid and pus aspirated from the chest of a 31 year old male contained actinomycotic filaments, and a patient with carcinoma of the caecum was found to have the area infected with Actinomyces.

Farmers' Lung

Eight patients with probable farmers' lung disease were found this year. Their occupations included a farmer who regularly developed symptoms after feeding hay to animals, and an asthmatic with unresolved pneumonia who had previously worked as a baker and a stevedore at a wheat loading terminal. Five of these patients had antibodies to Micropolyspora faeni and 3 to Thermoactinomyces vulgaris.

Soft Contact Lenses

This year 18 soft contact lenses were examined by our laboratory. Nine of these lenses had fungi growing through their matrix, and 5 had muco-protein lipid deposits.

Animal Infections

Aspergillosis in animals this year included 3 cases in dogs caused by Aspergillus terreus, a chicken infected with A. flavus and a lovebird with A. fumigatus.

Zygomycete infections included a horse with equine granuloma and a dog. Cryptococcus neoformans was recorded causing nasal granuloma in a ram and Candida albicans causing infection in a parrot lung.

Dermatophytes identified from animals were Microsporum canis from 2 cats and a dog and M. gypseum from a dog.

PUBLIC HEALTH AND ENTERIC DISEASES SECTION (TABLE II C)

A total of 80,864 specimens were examined by the four sections comprising the Public Health and Enteric Diseases Unit compared with 82,758 specimens in 1981. There was a marginal decrease of samples examined by three sections, however the Food Hygiene Laboratory examined 1,451 more than in the previous year. This increase was due mainly to expansion of surveillance of the smallgoods industry and the increased number of imported foods now being tested.

Surveillance of drinking and recreational waters continued with control measures against free-living amoebae accelerating during the summer months. In the Environmental Section emphasis was maintained on the monitoring of the poultry industry and of cattle slaughtered at Kimberley abattoirs. Studies were also continued on wildlife and water catchment streams.

The Clinical Enteric Unit showed a 9% reduction in specimens examined: this was attributable to the fact that there was no major outbreak of Salmonella food poisoning during 1982. Screening of immigrants, food handlers and follow-up studies of food poisoning cases remained a major function of the Clinical section. Reporting of Salmonella, Shigella and Campylobacter cases on a State-wide basis from all diagnostic agencies involved the preparation and forwarding of 1,271 computer cards to the Australian Department of Health National Reporting Centre.

A summary of the epidemiological findings, statistics of specimens received, and tables of Salmonella, Shigella, Campylobacter and parasite cases for the unit is incorporated in this report.

Clinical Enteric Section

A total of 543 Salmonella cases were diagnosed or reported to the section during 1982 representing a sharp downward annual trend in cases which are summarised in the following table:-

Year	Salmonella case totals, Western Australia
1977	1,036 S. chester outbreak source not proven
1978	993 No major outbreak
1979	1,701 S. muenchen outbreak traced to raw chicken
1980	936 No major outbreak
1981	819 S. senftenberg outbreak traced to smallgoods
1982	543 No major outbreaks
Total: (6 years)	6,028 Approximately 1,050 cases were associated with outbreaks

A total of 69 serotypes were implicated in human infections and the most common serotypes were S. typhimurium (153 cases), S. muenchen (51), S. chester (36), S. infantis (22), S. saint-paul (24), S. havana (18) and S. anatum (15).

Regional Distribution of Salmonella Cases, Western Australia 1982

	Metro.	S.W.	S.E.	Cent.	Pilbara	Kimberley	W.A. TOTAL
Serotype cases	157	58	38	69	81	140	543
Multiple infections	2	2	1	2	7	11	25
Persons	155	56	37	67	74	129	518

Salmonella Food Poisoning Outbreaks

There were no major food poisoning outbreaks, however one minor incident occurred in the Wanneroo area in December due to S. schwarzengrund involving seven cases. A food-handler employed in the preparation of sandwiches and chicken rolls was the most likely source of infection. Additional cases occurred in a second food-handler at the shop involved, a customer and family contacts. Only 2 cases of S. schwarzengrund infection had occurred previously in Perth.

Typhoid and paratyphoid

S. typhi was diagnosed in four patients and S. paratyphi A in three patients.

S. typhi

1. A seaman hospitalised in Perth from a boat which had travelled from Sri Lanka.

2. Family associated cases, the father having returned from Indonesia and transmitted the infection to his 20 month old daughter while in Perth.

3. From a symptomless male South East Asian immigrant.

S. paratyphi A

1. Isolated from an adult male traveller returning from South East Asia.

2. Blood culture of an adult male traveller who had recently visited India.

3. Blood culture of a seaman whose last port of call was in Korea.

Exotic Infections

Salmonella infections not previously diagnosed in Western Australia and infections acquired overseas by travellers or immigrants comprised 16 serotypes, and involved 17 patients.

S. agona - male adult traveller from India.

Salmonella arizonae co-infection with S. typhimurium in a 2 year old child after a holiday on Rottnest Island.

Salmonella cholerae-suis was isolated from a patient with septicaemia.

S. emek - adult male South East Asian immigrant.

S. mbandaka) _ double infection in a male adult on return from South
S. emek) East Asia.

S. enteritidis - adult male following vacation in Bali.

S. hoffit - male adult traveller from Mauritius.

S. houten - male child traveller from the United States of America.

S. javiana - male child South East Asian immigrant.
- female adult traveller from Penang.

S. krefeld - female adult following a visit to Bali.

S. lille - was detected in a family incident involving three children. These were the first human cases recorded in Western Australia. This serotype and the closely related S. bornum strains have occasionally been detected in poultry and animal feed.

S. livingstone - adult male South East Asian immigrant.

S. muenchen - adult female South East Asian immigrant.

S. singapore - adult male South East Asian immigrant.

S. weltevreden - female adult South East Asian immigrant.

S. weltevreden) _ double Salmonella infection in a male adult traveller
S. coleypark) from India.
The patient was also infected with Shigella flexneri type 3.

Shigella Infections

A total of 315 cases were diagnosed in Western Australia during 1982 compared with 294 in 1981 and 302 in 1980. The regional distribution of Shigella cases for 1981 and 1982 are summarised in the following table:-

Shigella Cases	Metro.	S.W.	S.E.	Central	Pilbara	Kimberley	W.A. TOTAL
1982	84	26	19	76	51	60	316
1981	43	13	33	99	51	55	294

By far the most predominant serotype was Shigella flexneri type 2 accounting for 210 isolations (66.5%) distributed as follows:-

Shigella flexneri 2	Metro.	S.W.	S.E.	Central	Pilbara	Kimberley	W.A. TOTAL
	58	20	10	69	34	19	210
% of total (all serotypes)	69%	77%	53%	91%	67%	32%	67%

Campylobacter jejuni Infections

A total of 7,062 faecal specimens were examined for the presence of C. jejuni of which there were 392 isolations from 357 cases. This represents an isolation rate of 5.6% and a case total of 5.1%. C. jejuni was widespread throughout all regions with most isolations occurring in the agricultural South West region.

In October a small outbreak of Campylobacter enteritis occurred in a prison farm 65 kilometres south of Perth. A total of 24 inmates reported sick with acute abdominal pain and watery diarrhoea. C. jejuni was isolated from 9 patients. The farm has a small dairy herd and milk is consumed raw. C. jejuni was isolated from one of the producing cows.

Co-infections with other intestinal pathogens included Salmonella species (14), Shigella flexneri (10), and intestinal parasites (43).

Other Enteric Infections

Yersinia enterocolitica was isolated on two occasions:-

1. from a 41 year old male with diarrhoea residing in the Kimberley; and

2. from a two and a half year old male residing at Northam who had previously been infected with Campylobacter; his recovery was uneventful.

Enterotoxogenic Aeromonas hydrophila was isolated on 8 occasions, 2 in the Metropolitan area, two in Bunbury and 4 in Kalgoorlie.

Plesiomonas shigelloides was isolated from a 23 year old female patient from Collie.

Non-Cholera Vibrio (V. cholerae var. proteus) was isolated from a two year old female child with diarrhoea.

Parasitology Section

A total of 11,658 faecal specimens were examined for the presence of intestinal protozoa and helminths from which 1,499 parasites were identified in 1,390 individuals.

The most common intestinal parasite identified in all regions was Giardia lamblia with an overall prevalence of 57% (58% in 1981) of isolations.

A survey of a selected community group involving children in the metropolitan and south west regions, conducted jointly with the Community Health Services, was responsible for the increased identifications in these regions.

In this survey a total of 704 faecal specimens were examined and 262 individuals found to be infected. Giardia lamblia (187), Hymenolepis nana (99), and Enterobius vermicularis (2) were detected and in addition Salmonella sp. (2), Shigella sp. (7), and Campylobacter jejuni (16) were also isolated.

Parasites identified in routine specimens from South East Asian immigrants on arrival included Hookworm, Strongyloides stercoralis, Trichuris trichiura, Ascaris lumbricoides, Clonorchis sinesis and Giardia Lamblia.

Notifiable Diseases

1. Amoebiasis - 2 cases.

   (a) a 23 year old male on return from India.

   (b) a 50 year old nursing sister returning from Mexico.

2. Ancylostomiasis - 115 cases.

ENVIRONMENTAL SECTION (TABLE II C)

A total of 18,847 samples were examined and 3,378 (18%) yielded organisms of significance in monitoring hygiene.

The specimens examined comprised streams leading into dams, the dams themselves, lakes, rivers and beaches used for recreation, animal feed, livestock, abattoir effluent, sewage and wildlife.

Effluents and Waters

A number of strains of importance were isolated - S. agona, S. paratyphi B and S. sophia. The first named has caused world-wide serious outbreaks of gastro-enteritis, but has so far not established itself in Western Australia. Nevertheless its isolation from human sewage indicates its occurrence in our population without so far causing an outbreak.

In comparison of Salmonella types found in abattoirs from the North and from the South of the State, it was noticed that these types differed and the significance is mentioned further in this report.

The contamination of lakes by Salmonella was found to be seasonal and was related to excretion from the large number of gulls and other waterfowl attracted to the lakes by the public feeding them.

Monitoring of Jarrah forest water catchment streams continued and Salmonella was detected in 365 (13%) of the 2,890 samples tested. The serotypes of the feeder streams reflected slight naturally occurring contamination from wildlife, but not from humans or livestock. No significant contamination was detected at dam sites or in the metropolitan reservoirs.

Coastal Islands

Sampling of water, sewage effluent and fauna was undertaken on nearby coastal islands, viz. Carnac, Garden, Penguin and Rottnest Islands. The quality of water supplies on and of coastal waters near these islands was satisfactory. However, faecal coliforms and Salmonella were occasionally detected in water samples from storage tanks, catchment sumps and sewerage on Rottnest Island.

Cattle, Pigs and Sheep

During seasonal processing, cattle at one Kimberley abattoir were monitored for Salmonella; the excretion rate prior to processing averaged 27% whereas carcass contamination after processing averaged only 6%. Both rates were comparable with results obtained at metropolitan abattoirs. It was of interest that several strains were found which have been implicated previously in foodborne outbreaks in southern urban and agricultural areas.

Serotyping of cultures on behalf of the Department of Agriculture implicated S. adelaide, S. bovis-morbificans and S. typhimurium as the cause of death in drought affected sheep imported from interstate.

S. bovis-morbificans was also isolated from a sick child who had visited a farm where fatalities in infected sheep had occurred.

S. cholerae-suis, a potentially serious pathogen with a high fatality rate in humans, was isolated from two domestic pigs.

Poultry

The Salmonella isolation rate from broilers prior to processing ranged from 0 - 60% and averaged 6%, the same as the previous year.

Campylobacter jejuni was common and rates of excretion exceeded 80%.

S. sofia, an exotic serotype common in Eastern States flocks was detected for the first time in broilers in Western Australia. S. singapore was also isolated for the first time in breeder stock imported interstate. We had no outbreaks of food poisoning this year which could be traced to chicken.

Domestic Pets

Salmonella and Campylobacter were detected at low frequency in imported dogs at the Commonwealth Quarantine Station; however, no exotic pathogens were isolated from cats.

In local pets S. typhimurium was isolated from a dog and also from the owner who suffered from enteritis.

Animal Feed Industry

A wide range of Salmonella serotypes including serotypes common in humans and livestock was detected in 75% of raw feed ingredients and in 45% of finished meals. Salmonella surveillance of meat meals and animal feed is being incorporated in the preventative monitoring measures carried out by the Public Health Department.

Wildlife

In conjunction with the Scientific Survey Party from the West Australian Museum, a survey of Salmonella infections from native rodents inhabiting the Mitchell plateau region of the Kimberley was undertaken. A wide range of naturally occurring serotypes were detected with rates of infection varying widely between different animal species and also seasonally.

No previous Salmonella field studies of native mammals in geographically remote areas of Australia have been undertaken and the study has already assisted in defining natural reservoirs of infection which may be of public health significance particularly among the Aboriginal populations and also in free-range cattle and feral animals which form the basis of the meat industry in tropical areas.

Macquarie Island

Edwardsiella tarda, an opportunistic naturally occurring pathogen was isolated from penguins sampled on Macquarie Island in the Southern Ocean.

These studies of birds inhabiting remote oceanic regions provide information on the natural history of zoonotic infections and are a useful natural sentinel of man induced changes. No Salmonella were detected.

FOOD HYGIENE SECTION (TABLE II C)

Regular monitoring of meat smallgoods, poultry, food-handlers, factory hygiene and imported foodstuffs undertaken throughout the year and the number of samples examined by the Food Hygiene Laboratory exceeded 10,000 for the first time.

Preventative measures were intensified and close collaboration between the Enteric Diseases Unit, Public Health Department, Local Health Authorities, Food Industry and Commonwealth agencies, directly contributed to the prevention of outbreaks and the recent downward trend in case totals, particularly in the metropolitan area.

During the year, however, a total of 193 food samples were tested as a result of 58 alleged food poisoning incidents and 62 samples were examined in response to 24 food complaints. No specific food item was implicated as a source of infection. However, in one incident, S. schwarzengrund was isolated from two food-handlers, a customer and family contacts traced to a sandwich shop. S. schwarzengrund was isolated from the processing area used for the preparation of chicken sandwiches purchased by the customers.

In a further incident, Clostridium perfrigens type A was isolated from cooked fish and patrons attending a restaurant.

Imported Foodstuffs

A total of 2,154 food samples from overseas and interstate sources were examined for both Federal and State Authorities. Details of samples tested and pathogens identified are summarisedin a table.

Samples Tested and Pathogens Isolated from Imported Foods in 1982

Samples	Tested	Number Positive	Source	Isolations
Raw oysters	590	3	Interstate	S. havana, S. waycross, V. parahaemolyticus
Cooked prawns	330	0	S.E. Asia	Nil
Raw prawns	200	2	Malaysia	S. lexington, S. weltevreden
Raw squid	50	0	S.E. Asia	Nil
Cooked mussels	25	0	-	Nil
Other fish	70	2	Asia	S. lexington (lobster meat, Singapore) S. derby, S. saintpaul (raw fish, China)
Frog legs	25	4	India	S. concord, S. matopeni, S. virchow, S. litchfield.
Desiccated Coconut	517	0	S.E. Asia	Nil
Chinese meal	14	1	Interstate	S. weltevreden
Raw pork	70	1	Interstate	S. schwarzengrund
Buffalo meat	35	5	Interstate (N.T.)	S. havana, S. derby S. poona, S. rubislaw
De-boned beef	148	1	Interstate (Victoria)	S. dublin S. typhimurium
De-boned chicken	3	3	Interstate (N.S.W.)	S. agona, S. zanzibar, S. 4,12:d:-
Turkey	20	9	Interstate (N.S.W.)	S. typhimurium
Miscellaneous	57	0		

The isolation of serotypes absent or rarely encountered in Western Australia from imported shellfish, frog legs, prepared Chinese food, de-boned beef and chicken, emphasised the continuing need for regular monitoring and preventative measures in order to minimise the risks of outbreaks due to exotic infections. the detection of the major pathogenic strains, S. dublin in raw beef and S. agona in poultry meat was a source of particular concern. Both serotypes, which cause major international problems in humans and livestock, are not yet established in Western Australia.

Poultry Monitoring

In 1982 a total of 420 samples from major poultry processors were examined by a standard carcass rinse technique and isolation rates in different batches ranged from 0 - 100%. However, the overall annual average of approximately 30% was lower than in previous years and no outbreak or sporadic cases of human infection were traced to the consumption of poultry.

The detection of S. agona, S. zanzibar, S. sofia and S.4,12:d:- in imported de-boned chicken for use in the fast food industry and S. typhimurium in interstate imported turkey, emphasised the continuing need for vigilance in order to maintain adequate consumer safety margins.

During the year investigations were commenced into the epidemiological significance of Campylobacter in foodstuffs and C. jejuni was detected on chicken carcasses prior to retail. a total of 105 carcasses were examined which yielded 80 isolations representing a contamination rate of 76%.

Meat Smallgoods

A total of 4,773 samples derived from meats, processing equipment and food-handlers were examined.

Salmonella contamination rates averaged 12% in raw red meats, and a number of commonly occurring serotypes were detected in raw sausage meats, sausages, frankfurter and hamburger mixes, beef mince, beef trim, pork trim and pig stomach.

Several serotypes including S. bredeney, S. hvittingfoss and S. bahrenfeld which are rarely associated with human infections in southern areas of the State were detected in raw meants derived from the Kimberley region and in addition S. bahrenfeld, S. havana and S. muenchen were isolated from buffalo meat imported from the Northern Territory for the gourmet steak restaurant trade.

Catering Industry

A total of 2,204 samples were tested on behalf of local authorities and the majority of samples originated from restaurants. Reheat testing was undertaken when initial monitoring revealed unhygienic food preparation or handling.

N.H. & M.R.C.

As in previous years, the Food Hygiene Laboratory participated in the National food testing programme and a total of 480 samples were tested.

Shellfish Monitoring

The food Hygiene Laboratory collaborated with the Marine Research Branch in the bacteriological monitoring of mussels and lobsters deployed at pollution monitoring sites in Cockburn Sound. Salmonella contamination was limited to mussels exposed directly to sewerage discharging at outfall sites.

A study of marron collected from metropolitan dam-sites and catchment areas yielded no positive findings.

WATERS SECTION (TABLE II C)

A total of 27,647 samples were examined during 1982; this was a reduction of 1,251 samples as compared with the previous year. The reduction occurred mainly in the numbers of health surveillance survey samples submitted; however, there was an increase of 8% of samples taken to control the purification treatment.

The variation in numbers of samples is summarised in the following table:-

Year	Treatment Control	Health Surveillance	W.A. TOTAL
1979	10,062	5,176	15,238
1980	11,946	12,314	24,260
1981	13,069	15,829	28,898
1982	14,120	* 13,527	27,647

* A total of 5,847 (43%) of health surveillance samples were derived from treated swimming pools.

Examination for Amoeba

A total of 5,775 samples were examined and 1,403 (24%) yielded amoebae of various species. Naeglerie species were demonstrated in 210 (4%) of these samples and pathogenic N. fowleri in 6 (0.1%). These were derived from filter backwash samples, a metropolitan bore and treated supplies at Goomalling, Shackleton, Toodyay and York.

Salmonella Testing

Salmonella species comprising 38 serotypes were isolated from 109 (4%) of 2,962 samples examined. The majority of pathogens were identified from untreated potable sources in the Kimberley and Pilbara region. The prevalence of S. wandsbek, S. wandsworth, S. rubislaw, S. chester, S.lansing, S. treforest and the recovery of Arizona bacteria in these areas suggests that amphibia and birds were the most likely sources of contaminations.

Salmonella were recovered from many potable waters which otherwise satisfied the standards, but some improvement was noted and the total of membrane samples examined represented a State-wide reduction of approximately 30% compared with the previous year.

Aeromonas hydrophila

The incidence of Aeromonas hydrophila in water supplies at Bunbury and in Perth was evaluated in a collaborative study with the Gastroenterology Research Unit of the Princess Margaret Childrens' Hospital.

A. hydrophila was frequently detected in the background flora following membrane filtration - a finding interpreted as a useful indicator of marginal or inadequate chlorination.

SEROLOGY SECTION (TABLE VII A)

Statistics

A total of 94,361 tests were performed on 49,423 serum specimens in 1982. There was a one per cent decrease in specimens received compared with 1981. This was largely due to a mild decrease in bacterial serology and urine pregnancy testing, and the discontinuation of some immune function tests which had previously been performed as a carry-over from a prior liaison with the Department of Clinical Immunology.

Despite a mild increase in the treponemal serology requests there was a significant decrease in the number of serologically diagnosed infections.

New Developments

The Fast Protein Liquid Chromatography (F.P.L.C.) system (Pharmacia), installed in the laboratory in 1982, is now in routine use. Its application at present is confined to rapid IgM fractionation for the Toxoplasma and Treponemal IgM I.F.A. tests.

Antigens suitable for Hydatid and Fasciola immunoelectrophoresis antibody tests have been obtained from European sources. Also, malaria antigen slides, for a malaria I.F.A.T., have been procured from Europe. Antibody tests for these parasites will be available early in 1983.

Tour

The technologist in Charge of the Serology Section, Mr Neill Hodgen, was the recipient of a N.H. & M.R.C. Public Health Travelling Fellowship. On a 14 week tour of European laboratories he studied parasite immunodiagnostic techniques.

Notifiable Diseases

Amoebiasis	1
Brucellosis	4
Cysticercosis	1
Hydatid	2
Leptospirosis	19
Schistosomiasis	1
Syphilis	315
Typhus	1

Cysticercosis - One instance was found in a man who recently toured Africa.

Leptospirosis - Abattoir workers accounted for 3 of the cases; 14 of the total cases came from Bunbury, Harvey, Yarloop area.

Pneumocystosis - Pneumocystosis was diagnosed by fluorescence (performed in London) in a 50 year old Sir Charles Gairdner Hospital patient with fibrosing alveolitis, who was immunosuppressed; another case was a girl with lymphoma and pneumonia.

Schistosomiasis - Schistosomiasis was diagnosed in a 20 year old man normally resident in South Africa who had blood eosinophilia of 23%. No ova were found in the faeces.

Typhus - One case diagnosed serologically from Grassmere, Albany.

SEXUALLY TRANSMITTED DISEASES SECTION (TABLE II B)

Notifiable Diseases

Chancroid	Nil
Gonorrhoea	770
Syphilis	24

Beta-lactamase producing strains of N. gonorrhoeae - 43.

The number of beta-lactamase producing N. gonorrhoeae isolated during 1982 shows a slight decrease as compared to the previous year.

Year	Total Number of N. gonorrhoeae Isolates	Number of Beta-Lactamase Producing Strains of N. gonorrhoeae	
1978	803	8	(1%)
1979	698	15	(2.2%)
1980	623	26	(4.2%)
1981	805	55	(6.8%)
1982	770	43	(5.6%)

Of these 43 cases, 29 were of Asian origin. Of the 4 local cases, 2 were contacts of people who in turn had Asian contacts, leaving 2 patients of apparently genuine local origin.

The Australia wide sensitivity testing programme was continued in 1982. The compiled figures for the whole of Australia showed that in 1981 40% of strains showed high sensitivity to penicillin, falling to 35% in 1982. For the city of Perth figures show a steady fall in penicillin sensitivity: 1981, 50% and 45% for the first and second semesters, falling to 37% and 31% for the successive semesters of 1982.

No penicillin resistant, non beta-lactamase producing strains have been detected.

Dark ground microscopy was performed on 579 specimens and T. pallidum was detected in 24 patients.

VIROLOGY SECTION (TABLE II F)

The total number of specimens received by the Virology Laboratory was 49,183 which is an increase of 8% over the 1981 figure.

The number of specimens for rubella serology decreased further, but the number of specific tests done to diagnose recent infection remained stable.

There was a 16% increase in the number of specimens received for virus isolation. The Echovirus 11 outbreak was largely responsible for this increase.

Enteroviruses

A large community outbreak of Echovirus 11 infections in which 151 cases were diagnosed occurred. The index case presented in March, the epidemic peaked in September (46 cases) and tailed off in December when only 11 new cases were diagnosed. Altogether 236 positive isolations were made from the 151 patients. Meningitis was the most frequent presentation (46%). Other clinical syndromes included febrile convulsions; fever and headache with or without rash; P.U.O.; bronchitis and gastrointestinal symptoms. 57% of patients were less than one year of age and 14% were above 20 years of age.

At the height of this epidemic a nosocomial outbreak occurred in a neonatal nursery of the King Edward Memorial Hospital. The index case was a mother who presented with severe abdominal pain and was diagnosed as having abruptio placentae. She was delivered by caesarian section and no obstetrical abnormality was found. Her baby developed meningitis two days later and within a few days 11 other babies also became ill. One of these babies (a twin) became severely ill with haemorrhagic complications, developed disseminated intravascular coagulation and died. Echovirus 11 was isolated from the brain and liver. Four members of staff were found to be excreting the virus asymptomatically. Strict isolation procedures were introduced and although there were two reintroductions of the virus to the nursery by mothers infecting their babies there were no further secondary cases.

Eleven isolations of Echovirus 17 were made between February and July. Previously there were two isolations of this serotype in 1978 and one in 1979. The clinical syndromes associated with the 1982 isolations were gastroenteritis, meningitis, febrile convulsions and respiratory tract infection.

Respiratory viruses

Influenza A and B - There were 6 isolations of Influenza A virus and 40 cases were diagnosed by serology.

A small epidemic of Influenza B occurred with the peak incidence of cases in August and September. Eighty five were diagnosed by isolation and serology. Tracheitis persisting for several weeks was the presenting symptom in many cases. The last outbreak of Influenza B occurred in 1979.

Respiratory syncytial virus (R.S.V.) - The number of cases of R.S.V. diagnosed by isolation and serology was 159 (41 more than in 1981). The usual seasonal pattern occurred with most cases in August and September.

Parainfluenza - Parainfluenza infections occurred throughout the year although types 1 and 2 did not occur during the summer. The number of type 2 infections (30) was higher than previously experienced.

Herpes Simplex Virus

Isolation of herpes simplex virus continues to be a major part of the laboratory work load with 1,285 isolations being made in 1982 (20% more than in 1981). The majority of isolations are made from genital specimens and the remainder from eye, skin and respiratory specimens.

Four cases of herpes simplex encephalitis were diagnosed on the basis of the clinical history, physical findings and seroconversion to herpes simplex virus (H.S.V.). The C.S.F. of one patient contained H.S.V. antibodies and there was no evidence of a blood-brain-barrier leak. Brain biopsies were not performed on any of these patients. Acyclovir was administered to at least two of the patients. Although none of the patients died they all have severe neurological deficits.

Adenoviruses

There was a marked increase in the number of adenovirus 19 isolations between October and December. Low numbers of this virus and adenovirus 37 were isolated throughout the year. Isolations were again made from eye and genital specimens; occasionally the virus was isolated from both sources of the same patient.

Mumps

The number of diagnoses made by isolations and serology (70) was double that of 1981. Mumps vaccine became available to the public during the year. This highlighted the need for a serological test to determine the immune status of possible vaccine recipients. A fluorescent antibody test was developed to meet this need.

Arboviruses

No cases of Murray Valley Encephalitis were diagnosed.

There were 103 cases of Ross River Virus diagnosed; 75 occurred during March, April and May. There were relatively few cases from the Kimberley/Pilbara areas and an unusually high number from the Perth suburbs. This may have been due to the interest shown in this condition by the media.

Mycoplasma pneumoniae

An outbreak of mycoplasma infection occurred with 179 cases being diagnosed (42 in 1981). The last epidemic occurred in 1979. In October 1981 a new method to detect specific IgM antibodies to Mycoplasma, Chlamydiae and Q fever was introduced as a routine procedure. Sera are tested by the routine complement fixation method with and without pretreatment with staphylococcal protein A to detect IgM and IgG class antibodies respectively.

Hepatitis

There were no significant outbreaks of hepatitis A.

197 new patients were diagnosed as being positive for hepatitis B surface antigen - these included acute cases of hepatitis B and chronic carriers.

Two middle-aged women died of acute fulminant hepatitis in the Sir Charles Gairdner Hospital - one had hepatitis B and the other non A-non B hepatitis. The source of infection could not be determined for either patient.

An enzyme immunoassay kit for the detection of hepatitis B surface antigen was evaluated, but was found to be less sensitive than the radioimmunossay which is in routine use.

Chlamydiae

Chlamydiae trachomatis was isolated from 1,355 eye and genital specimens - an increase of 40% compared with 1981.

Progress was made in the area of antigen production for use in an enzyme immunoassay for the detection of different classes of antibody to chlamydiae.

Rabbit antisera was produced for use in a fluorescent antibody detection system for the presence of C. trachomatis and C. psittaci.

Electronmicroscopy

A total of 518 faecal specimens were examined and yielded the following positive results: 98 rotaviruses, 17 adenoviruses and 1 calicivirus.

Skin scrapings, vesicle fluids and swabs totalled 144. Herpesvirus particles were detected in 18 specimens and poxvirus consistent with molluscum contagiosum in 5 specimens.

Virus in Sewage and Effluent

An investigation is being carried out by this laboratory to determine the survival and movement of human enteric viruses during ground water recharge using effluent from a sewage treatment plant.

This project is being jointly carried out with the Metropolitan Water Authority to determine any potential health hazards associated with this practice.

Viruses and effluent are concentrated by hydro-extraction using polyethylene glycol and groundwater samples are concentrated using ultrafiltration.

7. COMBINED CLINICAL BIOCHEMISTRY SERVICE (TABLE III)

The year was notable for significant recognition of senior staff of the combined laboratory by national and international colleagues and organisations. Dr. Garcia-Webb was asked to chair the scientific programme committee for the 2nd Asian-Pacific Congress of Clinical Biochemistry in Singapore in September. The meeting was most successful. He is now the Honorary Secretary of the Asian and Pacific Federation of Clinical Biochemistry. In the annual conference of the Australian Association of Clinical Biochemists in Adelaide in November Dr. Garcia-Webb presented the prize-winning paper, Dr. Bhagat won the prize for the best examinee and Council instituted a biennial David Curnow Plenary Lectureship to mark his contribution to clinical biochemistry. These awards reflect the high standing and success of the combined service and its association with the University Department of Clinical Biochemistry.

Service

The work load increased by 6.3% over 1981 mainly due to expansion of the Hospital work with the opening of 'G' Block.

With the installation of an atomic absorption furnace, methods for serum aluminium and for blood lead have been developed. The aluminium assay is used to monitor renal dialysis patients and blood lead to monitor occupational exposure. Other new methods introduced include plasma oes-tradiol, plasma progesterone, glycosylated haemoglobin and the pheno-typing of a-antitrypsin, important in the differential diagnosis of infant cirrhosis and adult emphysema.

Late in the year a Technicon SMAC II Auto Analyzer system was delivered. It will replace the aging and relatively slow SMA 6/60s as the major routine workhorse.

Preparations are in hand for the move to 'J' Block in 1983.

Staff

Three new staff positions were created by the hospital in the 'G' Block expansion programme and the blood collection service staff was increased by four part-time assistants.

Teaching, Research and Development

The major research thrusts of the department - biochemical defects in diabetes, thyroxine-binding globulin associations and pulsatile gonadotrophin releasing hormone treatment of infertility - have continued.

Visitors

Distinguished visitors during the year were DR .J. Zatman (Reading, U.K.), Professor Vincent Marks (Guildford, U.K.), Professor Lars Josefsson (Copenhagen), and Dr Frank Neale (Sydney).

Publications

Importance of fasting plasma glucose concentration and obesity in the interpretation of fasting serum C-peptide values.
P. Garcia-Webb, Anne Bonser and D. Whiting.
Clinica Chimica Acta 118 (1982), 323-326.

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Anne M. Bonser and P. Garcia-Webb.
CRC Critical Reviews (in press). By invitation.

Endogenous opiates modulate release of growth hormone in response to electroacupuncture.
P.T. Pullan, P.M. Finch, R.W.M. Yuen and F.E. Watson.
Life Sciences (in press).

Laboratory evaluation of thyroid function in Australian Aborigines.
F. Watson, M. Dick and D. Tha-Khin.
Medical Journal of Australia 1 (1983) 66-69.

8. COMBINED UNIT IN CLINICAL PHARMACOLOGY & TOXICOLOGY (TABLE IV)

Introduction

The Unit is a combined service of the State Health Laboratory Services and the Department of Pharmacology of the University of Western Australia. It provides both quantitative and qualitative analyses of drugs and other chemicals in biological specimens.

Senior Staff

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

Dr. J.M. Potter, M.B.,B.Sc.,Ph.D.
Lecturer in Pharmacology (U.W.A.)

Dr. R.L. Nation, Ph.C.,M.Sc.,Ph.D.
Pharmacologist.

Dr. K.F. Illett, B. Pharm.,Ph.D.
Senior Lecturer in Pharmacology (U.W.A.)

Staffing

The routine analytical work of the laboratory was principally performed by four Chemists, two Laboratory Technologists and a Laboratory Assistant. The University Department of Pharmacology continued to provide the part-time services to the Unit of a Laboratory Technician. During 1982 the work load of the laboratory continued to increase (vide infra). Clinical pharmacology expertise for the Unit was provided by specialist medical staff from the University Department of Pharmacology.

Requests for urgent clinical drug assays and drug screens after hours are catered for by an on-call system. During 1982 there was an average of 25.8 hours per week of overtime worked and this compared with 23 hours per week in 1981.

Work Load

As in 1981, the work load of the Unit has been quantified from the number of specimens received, from the number of analyses performed and from the number of Canadian Work Units produced.

The numbers of specimens received by the laboratory in 1982 are summarized in Table IV. Of the specimens received in 1982, 87% (18,051) were for clinical drug assays and numbers in this category were increased by 17% over those recorded in 1981 (15,400). Overall a total of 20,665 specimens were received in 1982 and this figure was 17% higher than than for 1981.

There were 22,992 analyses performed on the 20,665 specimens received by the laboratory. In each of the twelve months in 1982 there were increased numbers of analyses compared to the corresponding figures

for 1981. Overall, the total of 22,992 analyses performed in 1982 was 20% higher than the figure of 19,208 for 1981.

In 1982 the antiepileptic drugs (carbamazepine, ethosuximide, pheno-barbitone, phenytoin, sulthiame and valproic acid), the antiasthmatic drug theophylline and narcotic scans together accounted for the majority of the analyses performed, being 34%, 20% and 20% respectively of the total assay count; these values were similar to those (37%, 20% and 20%) for 1981. Analyses for tricyclic antidepressants (amitriptyline and nortriptyline, imipramine and desipramine, and nortriptyline alone) and cardiac antiarrhythmic drugs (disopyramide, mexiletine, procainamide and N-acetyl-procainamide, and quinidine) accounted for 1.8% and 3.4% respectively of the total number of analyses. Compared to 1981 there were increased numbers of analyses for theophylline, drug screens, carbamazepine, cholinesterase, ethosuximide and narcotic scans, while there were decreased numbers of analyses for alcohol in clinical specimens, salicylate and disopyramide.

Of the total number of assays performed in 1982, 27.3% were requested from Sir Charles Gairdner Hospital and this represented the major single source of drug assay requests. The other metropolitan teaching hospitals (Fremantle Hospital, Princess Margaret Hospital, Kind Edward Memorial Hospital and Royal Perth Hospital) together accounted for 10.6% of the total assays performed. The Alcohol and Drug Authority, Mental Health Services (including Swanbourne, Graylands and Heathcote Hospitals) and Occupational Health Department accounted for 15.9%, 8.1% and 1.4% respectively of the total assays.

Work load was also measured in terms of Canadian Work Units. As part of regular updating procedures, the Canadian Work Unit Standards were re-evaluated during 1982 and modified where necessary to allow for changes in assay technology etc. There was a total production of 960,854 Canadian Work Units in 1982 and this was 13% higher than the figure of 849,449 for 1981 despite adjustment downwards of assay work units for many analyses.

In summary, the work load of the Unit, as measured by number of specimens received, number of analyses performed and number of Canadian Work Units produced, increased substantially in 1982.

Therapeutic Drug Monitoring

Therapeutic drug monitoring services are offered for 16 drugs and in total these assays accounted for 62% of all assays in 1982.

The number of clinical drug assays for the antiasthmatic drug, theophylline, was considerably greater in 1982 than in 1980 and 1981. During 1982, the on-line theophylline assay service provided for out-patients in clinics at Sir Charles Gairdner Hospital and Fremantle Hospital has continued. This service has proven to be beneficial since it streamlines the individualisation of theophylline dosage regimens and also it has been well received by the patients and respiratory physicians alike.

Clinical assays for the antiepileptic drugs continued to be an important component of the assay services and overall there was a 7%

increase in assays for these drugs in 1982 compared to 1981. One new aspect of the therapeutic drug monitoring service for phenytoin was the provision of concentrations of non-protein bound phenytoin in plasma. The ability to measure these concentrations has proven helpful in controlling drug therapy in patients with suspected abnormal plasma protein binding of phenytoin.

Intermediate and high-dose methotrexate therapy is administered for the control of a number of human malignancies but morbidity is often associated with this form of treatment. Recently, the relationship between plasma methotrexate concentration and clinical toxicity has been defined. A method has been established in the Unit for the analysis of plasma methotrexate and this assay will be used to help guide cancer therapy with this potentially very toxic drug.

Emergency Drug Screens

The screen procedures have been designed to detect commonly prescribed or illicitly used drugs, primarily in patients suffering from known or suspected drug overdosage. During 1982 a total of 1,010 drug screens were performed and this figure was 32% higher than that for 1981.

Narcotic Scans

The narcotic scan procedure detects narcotics and some other drugs in urine. Of the 4,579 narcotic scans performed, 3,506 (77%) were for the Alcohol and Drug Authority. There was a large increase in the number of narcotic scans requested from other organisations involved in the treatment of drug addiction and Cyrenian House was most notable in this respect.

Quality Control of Clinical Drug Assays

For some years the Unit has participated in the international quality control programme co-ordinated by Professor A. Richens from Cardiff University. During 1982 the Unit continued with the theophylline and antiepileptic programmes commenced earlier and, in addition, joined programmes for the tricyclic antidepressants, amitriptyline, nortriptyline, imipramine and desipramine. Furthermore, the Unit participated in the clinical drug assay quality control programme conducted under the auspices of the Royal College of Pathologists of Australasia and the Australian Association of Clinical Biochemists. Specimens were received form this source for assay of theophylline, phenytoin, phenobarbitone, carbamazepine, valproic acid, paracetamol and barbiturates (mixture). Finally, in-house quality control was continued. TheUnit performed well in all of these quality control programmes and they will be continued in order to maintain a high standard.

Computerisation

One of the chemists continued the developmental work of computerisation of patient data and results, which was initiated in 1981. Results of all clinical drug assays and drug screens are now recorded in the computer. It is clear that the Unit must move to a more sophisticated form of computerisation with a larger micro-computer that can be interfaced with various analytical instruments used for drug assays and also the Health Computing Services computer. In this way it will be possible to capture data on-line from instrumentation and achieve the required data storage and retrieval capabilities.

Research and Development

1. A study was undertaken to assess the usefulness of a relatively new and simple pharmacokinetic method of optimizing intravenous infusions of theophylline in critically ill patients. The procedure involves the collection of two blood samples in the first few hours after commencing the infusion and obviates the need to await the attainment of steady state plasma theophylline levels.

2. In Intensive Care Units, the anticonvulsant drug, clonazepam, is commonly administered by intravenous infusion for the control of status epilepticus. It is well known that the related benzodiazepine, diazepam, is extensively absorbed and/or absorbed by the plastic of intravenous infusion bags and giving sets, and this results in a diminished delivery of drug to patients. A study was carried out with clonazepam, therefore, to determine the extent of sorption to the plastic equipment used for intravenous infusions.

3. A method for the simultaneous analysis of HPLC of methotrexate and its metabolites 7-hydroxymethotrexate and 2,4-diamino-N^{10}-methylpteroic acid has been developed. The assay will be used to guide high dose methotrexate therapy in cancer patients and a clinical evaluation of the assay has commenced.

4. Ultrafiltration methods have been established for quantifying free (i.e. non-protein bound) levels of plasma phenytoin to assist in therapeutic monitoring in patients with suspected alterations to their degree of plasma protein binding. The methods have also been applied to the monitoring of theophylline levels in selected patients at the Fremantle Hospital.

5. The anaesthetic agent, althesin, is commonly stored in plastic infusion bags from which it is administered intravenously to patients in Intensive Care Units. A preliminary investigation revealed a loss of potency of althesin when stored in this way and therefore a prospective examination has been initiated to assess the period of time for which the anaesthetic can be kept in plastic infusion bags prior to its administration to patients.

6. Work has begun on an evaluation of pharmacokinetically-based method of establishing patients' acetylator phenotypes. Knowledge of acetylator phenotype can be used clinically to help predict dosage and the possibility of toxicity with some drugs.

7. The pharmacokinetics and cardiovascular effects of cimetidine have been studied in critically ill patients receiving the drug by intermittent intravenous infusions for the prophylaxis of stress-induced gastric erosions.

8. Chloroquine is used in the treatment of rheumatoid arthritis and the Unit provides a therapeutic drug monitoring service for this drug. An important artefact in measurement of plasma chloroquine levels has been detected. The problem results from the storage of whole blood prior to plasma separation and it will be the subject of further investigations.

9. A vacuum ultrafiltration method for measuring free levels of disopyramide in plasma was compared to traditional equilibrium dialysis and applied in an investigation of the extent of anticholinergic side-effects from this drug in patients at the Sir Charles Gairdner Hospital.

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9. COMBINED CLINICAL HAEMATOLOGY SERVICE (TABLE V)

Organisation of the Service

With the opening of 'G' Block, departmental establishment has been expanded by 4½ positions - two technologists, two laboratory assistants and a part time clerk-typist. Total non-medical establishment is now:-

Medical technologists	21 (1 post vacant)
Laboratory Assistants	7
Laboratory Attendants	1
Secretarial & Office Staff	3½
	32½

Expansion of accident/emergency facilities and increased admissions of acute surgical patients at this centre has increased the work load, for "out-of-hours" is now essentially limited to routine blood counts, basic coagulation tests and blood grouping and cross matching. Proposals to place one technologist on an afternoon shift roster to relieve the work load on the "out-of-hours" technologist during the early hours of the evening have been approved by the Laboratory Users' Management Committee and await the final agreement of the H.S.O.A. to amended conditions of employment.

Work Load

The laboratory work load is now recorded using the Canadian Work Units Schedule. In July 1982 the work unit values of a variety of tests were amended in accordance with the 1982-83 edition of the Canadian Health Department schedule of laboratory work units. The new values would be expected to give a reduction in total work units of between 11% and 19% for the same work load. Thus the absolute figures for work units are not directly comparable between the periods prior to and since July 1, 1982.

Summary of results comparing activity between 1981 and 1982 are as follows:-

	Tests	Samples	Units
1981	261,589	85,680	2,794,640
1982	264,156	88,948	2,559,502
% change since 1981	+ 1.0%	+ 3.8%	- 8.4%

These results show that while there has been a decrease in the total number of work units for 1982 compared with 1981 this is consistent with the effects of the reassigned values recommended in the Canadian schedule, and that the total work load of the department remains fairly stable. The increase in both the number of samples received and tests done during the year confirms that there is continuing steady growth in activity within the department. However, the work load has not increased during the year to the extent anticipated with the opening of 'G' Block, because full expansion of hospital in-patient capacity has not yet been achieved.

The main source of work continues to come from Sir Charles Gairdner Hospital as shown in the following table:-

	% of tests done	% of samples received	% of work done based on Canadian work units
S.C.G.H. - I.P.	57.0	50.0	55.3
O.P.	19.8	24.4	15.8
S.H.L.S. - Country & G.P's	17.1	20.3	20.7
- Surveys	1.2	1.1	1.5
U.W.A.	0.3	0.4	0.3
Other	4.5	3.8	6.4

The pattern of work within the laboratory remains essentially unchanged but increased hospital admission for acute trauma and emergencies, the expanded intensive care facility and centralisation of many neurosurgical operations at this hospital has increased demand for blood and blood banking. This demand has been satisfactorily met.

Despite initial "teething" problems, replacement of the outmoded Coulter blood counters in the routine laboratory in June with a new Coulter S plus II counter has been of great value in providing rapid and efficient results. It is now normal for reports on routine samples received in the morning to be returned to the wards by midday or early afternoon. Installation of a word processor within the department during the year has similarly enabled a more efficient and rapid return of results on haematological samples to most other metropolitan and country branches of the State Health Laboratory Services. Operation of the word processor and forwarding results through the telex terminal in the Histopathology Department occupies the part-time departmental clerk-typist almost fully.

Purchase of a laser nephelometer during the year enables rapid estimation of a number of proteins in body fluids by an immunoprecipitin technique. Initial developmental work indicates that this should be a valuable method for quantitation of various coagulation factors in plasma, especially for factors associated with the fibrinolytic pathway. Because previous techniques for these factors were generally cumbersome and non specific, assessment of this aspect of haemostasis has often not received adequate attention. This deficiency can now be corrected.

The department continues to organise a regular distribution of quality control samples and "test and teach" cases to all branches of the State Health Laboratory Services and several other laboratories. The value of this programme organised by Dr. H.J. Woodliff has been seen in a consistent improvement of blood banking standards throughout the State during this year. Where necessary, "refresher" experience for technologists is arranged at the central laboratory.

Staff

During the year, Dr. F. Cordingley, Registrar within the department, successfully passed the primary examination for the F.R.A.C.P.: he continues as a trainee for the F.R.C.P.A. qualification. Not surprisingly under present economic circumstances, there has been relatively little turnover of staff during the year.

Dr. Anne Chester attended the Scientific Meeting of the Australian Society for Medical Research in Canberra in December 1982. Dr. D. Kennett attended the joint meetings of the Haematology Society of Australia and the Royal College of Pathologists of Australasia in Dunedin, New Zealand in August 1982 and Dr. H.J. Woodliff attended a scientific meeting of the Royal Australasian College of Physicians in Darwin.

Visitors

Visitors to the department included Dr. M. Garson, Cytogeneticist, St. Vincent's Hospital, Melbourne; Dr. Khelid Hassan, Haematologist, Kuala Lumpur, Professor J. Metz, Institute of Medical Research and Department of Pathology, University of Witwatersrand, and Professor Hassig and Dr. W. Handchef, both of Berne, Switzerland. These visits provided a useful opportunity for exchange of ideas.

Papers Published

Dr. Anne Chester and Dr. Patrick Crawford.
In vitro coagulant properties of Australian venomous snakes.
Toxicon vol. 20, 1982.

Dr. H.J. Woodliff and Mr. J. Cale.
The Lovibond Haemoglobin field kit (submitted).

Dr. L.E. Dougan, Dr. C.D.T. Holman and Dr. H.J. Woodliff.
The epidemiology of primary myelofibrosis in Western Australia (submitted).

10. HISTOPATHOLOGY AND MORBID ANATOMY (TABLE VI A)

Whilst there has been a moderate increase in autopsies there has been a slight decline in the number of surgical biopsies examined at the Central Laboratories. There has been a considerable decline in the number of frozen section examinations carried out at the Central Laboratories and this seems to be in continuation of a trend noted the previous year. A possible explanation of these figures could be that they reflect a drop in work following the introduction of health charges for hospital patients in 1981.

The Bunbury laboratory in its second year of histopathology showed an increase in all aspects of this work.

Members of the Central Laboratory staff participated in the work of the Combined Laboratory in Cytology and Electron Microscopy and in Immuno and Histo-chemistry.

Pathologists took part in the teaching of both undergraduate and postgraduate students. A number of case studies were reported in the literature. Facilities for the reporting of the morphology of semen analyses have been transferred to Histopathology.

Pathologists from the Central Laboratories helped out at the Princess Margaret Hospital for Children on a part-time basis so as to maintain the service there during the absence of the P.M.H. staff pathologist over a 12 month period.

Dr. V. Caruso was elected as a member of the W.A. State Committee of the Royal College of Pathologists of Australasia.

During the year, analysis of seminal smears was taken over from the Cytogenetics Unit.

Staff

Dr. J.J. Rippey commenced as Deputy Director of the State Health Laboratory Services in January 1982 and worked in Histopathology, participating in all its activities, during the year.

Dr. K. Mitchell was appointed as a Senior Registrar in Histopathology in January 1982.

Dr. R. Glancy resigned with effect from the end of 1982.

Equipment

A total of three word processors are now housed in the department for the production of reports and for the telexing of results to the various Branch laboratories.

An LKB Historange ultramicrotome and knife maker obtained during the year for the production of ultra-thin sections from resin-embedded tissues.

Photographic apparatus for photomicrography and also for photographing gross specimens was acquired and brought into use.

This new equipment considerably extended the efficiency and scope of the department.

Conferences

Dr. J. Pollard and Dr. J.J. Rippey attended the International Congress of the International Academy of Pathology in Sydney during October 1982. Dr. Rippey presented a paper and chaired one of the sessions.

Visitors

Professor C. Isaacson, Professor J. Metz, Dr. C. Sinclair-Smith and Dr. G. Harloe, all from South Africa, visited the laboratory during the year.

Publications

Ojeda, V.J., Mitchell, K.M., Walters, M.N-I. and Gibson, M.J. (1982)
Primary colo-rectal linitis plastica type of carcinoma: report of two cases and review of the literature.
Pathology, 14, 181-189.

Ojeda, V.J. and Glancy, R.J. (1982)
Parapineal germinoma (atypical teratoma).
Test and Teach No. 32, Pathology, 14, 118, 219.

Mitchell, K.M. and Shilkin, K.B. (1982)
Renal oncocytoma.
Pathology, 14, 75-80.

Matz, L.R., Finlay-Jones, L.R.,Waters, E.D., Blackwell, J.B., Joyce, P.R., Kelsall, G.R.H., Shilkin, K.B., Cullity, G.J., Williams, K.E., Matthews, M.L.U. and Armstrong, B.K. (1981)
The Rye classification of populations based series of Hodgkin's disease patients in Western Australia.
Pathology, 13, 267-276.

Jacobs, G.H., Berson, S.D., Skikne, M.I., Rippey, J.J. and Jacobson, J.N. (1982)
Chordoid sarcoma of the hand.
S. Afr. Med. J., 61, 630-633.

Jacobs, G.H., Rippey, J.J. and Altini, M. (1982)
Prediction of aggressive behavior in basal cell carcinoma.
Cancer, 49, 533-537.

Rippey, J.J. and Bender, S. (1982)
Premalignant melanoses and malignant melanoma of the oral mucosa.
Jl. Dent. Assen. S. Afr., 37, 573-578.

11. COMBINED CYTOLOGY SERVICES (TABLE VI B)

The unit continues to function well as a combined department, with valuable contributions from the Sir Charles Gairdner Hospital, the University and State Health Pathology elements.

The past year has seen some changes most of which have consolidated and improved the efficiency of the unit.

There have been increased personal contacts by senior members of the unit with users of the service in the community in both country and metropolitan centres, with ensuing improvement in communications and service. The service is involved in the survey into cervical cytology in Western Australia organised by Dr. B. Armstrong of the N.H. & M.R.C. Unit in Epidemiology.

The unit has instituted a SNOP system of filing cases and diseases. This has the potential to be of great value for public health, clinical service and also research as well as eventually providing for staff economies when computerised. The follow-up system for quality control in cervical cytology screening is similarly labour intensive. Computerisation in this field is regarded as an urgent and necessary change.

Staff

The Combined Cytology Unit comprises 18 staff. At present 14 of these are full-time employees and 4 staff share two positions on a half-time basis is proving effective.

Miss Claire Edwards was promoted to Senior Cytotechnician.

Administration

The employment of a full-time clerical assistant and the installation of a word processor/printer apparatus has greatly improved work flow in the department. Telexing of cytology reports to country laboratories has commenced.

Cytology requests and reports from 1980 and 1981 are now stored on microfiche, courtesy of the W.A. Government Microfilm Bureau; this has resulted in a considerable saving in both binding costs and storage space.

Education

Two trainee cytotechnicians, Mr. B. McGuigan and Miss J. Worrell, successfully completed the first year of the Certificate in Cytology course.

Two cytotechnicians, Mrs. D. Lawrence and Mrs. C. Rankine, successfully completed the first year of the Diploma in Cytology course.

The weekly cytology review meeting continued to be held in 1982.

Mr. V. Williams and Miss G. Digney were invited to Cytotechnologist membership of the International Academy of Cytology.

Work Load

The number of cases and slides examined during 1982 is listed in Table VI B. These statistics show a minor decrease in work load from State Health Laboratory Services and Hospital sources.

Workshops/Conferences

Mr. Williams attended the First Pacific congress in Medical Laboratory Technology held at Christchurch, New Zealand, in August. He presented two papers at the Conference and attended a workshop on work load recording methods conducted by a representative of the College of American Pathologists.

Mr. Whitaker attended the Annual Meeting of the Australian Society of Cytology, Dr. Sterrett, Mr. Whitaker, Mr. Williams, Miss Digney, Miss Edwards and Mrs. Dunn (Cytology, Repatriation General Hospital) presented a seminar on aspects of bronchial brushing cytology and interpretation in August.

Dr. Sterrett participated in a seminar in Kalgoorlie organised by the Cancer Council and the Eastern Goldfields Medical Association. He gave lectures on Aspiration Cytology of the Breast and the Pathology of Melanoma.

Dr. Sterrett attended the 14th International Academy of Pathologists' meeting in Sydney in October.

Visitors

Professor Allan Ng visited the department in December 1982. Professor Ng, an international authority in diagnostic cytology, has recently been appointed Professor of Pathology at Royal Prince Alfred Hospital. His visit to Perth was sponsored by the Cancer Council of W.A. and the A.M.A.

At a seminar in the department on diagnostic cytology, Mr. Williams presented cervical smear findings in a series of cases of Granuloma Inguinale. Mr. Whitaker presented the department experience in aspiration cytology of ovarian cysts and Dr. Sterrett discussed the results of a series of breast aspirations carried out in the department over an 8 year period.

Initial approaches were made by Dr. Keith Randall of Orpington, U.K., a member of the Executive of the British Society of Clinical Cytology, to begin a collaborative study of the value of cell markers in diagnostic cytology.

Several pathologists visited the department through the year to inspect facilities; valuable informal discussions with them were possible. They included Professor Morson of St. Marks Hospital, Professor Boddaert of Ghent in Belgium, Dr. Missen of Guy's Hospital in London, Dr. David Dahlin of the Mayo Clinic and Dr. Metz and Isaacson of the Witwatersrand Institute of Medical Research in South Africa.

Publications

Sterrett G.F., Whitaker D.W. and Glancy J.
Fine needle aspiration of lung, mediastinum and chest wall.
Pathology Annual Vol. 2 : 197 : 1982.

Whitaker D.W.
The future role of the cytotechnologist (abstract).
12th Annual Scientific meeting Australian Society of Cytology, Brisbane (1982).

Whitaker D.W.
Tissue localisation of CEA in the identification of neoplasms of mesodermal origin (abstract).
Proceedings of Medical Laboratory Science
Australian Institute of Medical Laboratory Sciences; 17 (1982)

Whitaker D.W., Papadimitriou J.M. and Walters M.N-I.
The mesothelium: a cytochemical study of activated mesothelial cells.
Journal of Pathology 136 : 291 (1982)

Whitaker D.W., Papadimitriou J.M. and Walters M.N-I.
The mesothelium: its fibrinolytic properties.
Journal of Pathology 136 : 169 (1982)

Whitaker D.W., Papadimitriou J.M. and Walters M.N.-I.
The mesothelium and its reactions: a review. C.R.C.
Critical Reviews in Toxicology 10 : 81 (1982).

Whitaker D.W., Sterrett G.F. and Shilkin K.B.
Detection of Tissue CEA-like substance as an aid in the differential diagnosis of Malignant Mesothelioma.
Pathology 14; 255 (1982)

Williams V.M.
The cytological features of Granuloma inguinale (abstract).
First South Pacific Congress in Medical Laboratory Technology.
Christchurch, N.Z. (1982).

Williams V.M.
Morphological aspects of reptile immunity; the thymus (abstract).
First South Pacific Congress in Medical Laboratory Technology.
Christchurch, N.Z. (1982).

12. FORENSIC SERVICES

FORENSIC PATHOLOGY

The volume of work associated with autopsies and court work increased somewhat during 1982 and the department carried an increasing load of demonstrations and lectures to paramedical groups. These groups included police, ambulance drivers, nurses, dental nurses and fire officers. There was also an increasing number of requests for medical opinions on legal matters relating to the effects of alcohol, drugs and trauma in non-fatal cases.

Conferences

Dr. D. Pocock attended the International Meeting of the Association of Australasia and the Pacific Area Police Medical Officers held in New Zealand in February 1982.

Research and Publications

Dr. Hilton is continuing research in the Sudden Infant Death Syndrome and Dr. Pocock is furthering his investigation into stress factors with the encouragement of the Police Department.

The following papers were published during the year:-

Davis R.E., Icke G.C. and Hilton J.M. (1982).
High serum thiamine and the sudden infant death syndrome.
Clin. Chim. Acta, 123, 321-328.

Landauer A.A., Harris L.J. and Pocock D.A. (1982)
Inter-subject variances as a measure of differences between groups.
Int. Rev. App. Psych., 31, 417-423.

Ojeda V.J., Hilton J.M.N. and Stewart-Wynne E.G. (1982).
Puerperal superior sagittal sinus thrombosis.
Med. J. Aust., 2, 584-585.

Pocock D.A. and Landauer A.A. (1982).
Oxprenolol reduces transient stress (letter).
Med. J. Aust., 2, 13.

FORENSIC BIOLOGY

The number of items received from the Police Department showed little change to the previous year. Much work has been done to develop new techniques and the range of groups identified on bloodstains has been expanded.

During the year 368 meat samples were tested to identify species, using both crossed-over electrophoresis and agar-gel diffusion techniques. Most samples were received from the Health Inspection Branch of the Public Health Department, with some samples from various local authorities. Horse meat was identified in 26 samples and kangaroo meat in 5 samples.

One batch of samples from the Health Inspection Branch was tested for animal species to support a charge that unlawful slaughtering had been carried out on private property.

A number of samples from one pet meat retail outlet showed that most meat sold as beef was, in fact, camel or kangaroo. Further investigation into the pet food industry is anticipated.

The Australian Government Analytical Laboratory sent 93 samples of meat for confirmation of species identity.

This section is investigating iso-electric focusing techniques to test for various proteins and enzymes in meat that identify the different species. It is hoped that eventually these methods will replace the serological techniques and give a more reliable and specific result.

The identification of fish species using iso-electric focusing techniques was introduced mid year as a response to the Barramundi substitution controversy. Since then some 100 samples have been tested. Most of these were fish that had been positively identified so that a reference bank of known species could be established. Whole fish were received through the Public Health Department, Ashburton Fisheries and from the Northern Territory Department of Primary Production. The fish were identified at the W.A. Museum and the W.A. Marine Research Laboratory. Samples are anticipated from other sources including the Meat Division of the Ministry of Agriculture of New Zealand.

Of the 16 samples received from commercial outlets, 9 proved to be substitutions.

Statistics

Police cases	244
Other authorities	28
Total cases:	272
Total items received:	3,042

Species identification:

Meat samples	368
Fish samples	100
Total:	468

Conferences and Visits

Mr. N. Sivewright attended the South Pacific Congress in Medical Laboratory Technology in Christchurch, New Zealand - August 1982.

Mr. A. Feeney attended the Annual Conference of the Forensic Biologists Society, Brisbane - March 1982; and visited the forensic Science Laboratory I.M.V.S., Adelaide - March 1982.

13. CYTOGENETICS UNIT (TABLE VII B)

Work Load

1,872 specimens were investigated. This represents an increase of 5% on the work load of the previous year. 70 specimens were referred for investigation of Fragile X and these were examined in the Research and Development Laboratory.

Teaching

Teaching duties have continued as before.

Visitors

Visitors to the laboratory include Dr. Patricia Jacobs from Honolulu, Dr. Margaret Garson from Melbourne and Dr. L. Atmadji from Indonesia.

Travel

As previously reported, Dr. Mulcahy undertook a two month study tour of laboratories in the United Kingdom and United States of America.

Developmental Work

Clinical Laboratory - Cell synchronization techniques are now being employed in selected clinical cases and a routine for these techniques has been established. As a consequence of an overseas study tour some modifications of standard techniques for tissue culture has occurred, and the turn around time for reporting has been further reduced. Synchronization of bone marrow cultures for leukaemic cytogenetics is being undertaken, but as the number of referrals is small this work is developing slowly.

Publications and Presentations

Cytogenetics in recurrent foetal loss.
Aust. N.Z. J. Obstet. Gynaec. (1982) 22:29-30.

"Genetics" Check Programme of self assessment for the Royal Australian College of General Practitioners, Unit 131, December 1982.

The hazards of tap water.
Prenatal Diagnosis Vol 3 (in press).

Prenatal Diagnosis: Are we testing the right people?
Paper presented at the Congenital Malformations Symposium, Perth, April 1982.

Prenatal Diagnosis in Western Australia.
Paper presented at a meeting of the Netherlands Society of Medical Genetics, New University of Amsterdam, May 1982.

CYTOGENETICS II

Project - Cytogenetic Study of Peritoneal Washings and Ascitic Fluids

This project, started in 1981, was continued in 1982. It deals with the cytogenetic study of peritoneal washings and ascitic fluids collected from patients with known or suspected gynaecological carcinoma. A total of 145 peritoneal washings and ascitic fluids were examined during the year.

Aims of Project

1. To establish the value of chromosome analysis in the diagnosis of malignancy and help determine the prognosis of the disease.

2. To determine if there is a retrograde spread of live malignant cells through the fallopian tubes into the peritoneal cavity in women with malignancy of the genital tract.

3. To determine the viability or otherwise of malignant cells found in the samples by the cytologists.

Findings of Special Significance

1. The clinical and combined laboratory findings on one patient with endometrial carcinoma, stage 1B, supported par excellence the oncologist's theory of retrograde spread of live malignant cells through the fallopian tubes into the peritoneal cavity. Cytogenetically the results were of great interest too, for they appeared to show the primary chromosome abnormality. The tumour stem line was pseudodiploid. Two side lines were detected and so were other aberrations which had occurred subsequently. Chromosomes from a blood culture on the patient appeared to be normal.

2. In another case, positive cytogenetic findings with negative cytology supported the surgeon's diagnosis of ovarian carcinoma.

Other Cytogenetic Work Done

1. Demonstration of Fragile X chromosome:

   110 blood samples were cultured and chromosomes processed and examined for the fragile X chromosome; 4 gave diagnostically positive results.

2. Chromosome Analysis of Transformed Cell Lines:

   Karyotypes were carried out on three transformed cell lines.

3. High Resolution Chromosomes:

   Efforts were made to improve the quality of results obtained by using techniques designed for producing high resolution chromosomes. This work has a definite application in cancer cytogenetics.

TABLE I A

STATE HEALTH CENTRAL LABORATORIES (INCLUDING COMBINED UNITS)

SPECIMENS ANALYSED AND AUTOPSIES PERFORMED

1982

	1982	1981	% Change
* Clinical Bacteriology	55,287	12,067	+358.2
Virology	49,183	45,557	+ 8.0
Mycology	10,456	11,294	- 7.4
Mycobacteriology	6,973	7,943	- 12.2
Sexually Transmitted Diseases	43,494	39,742	+ 9.4
Clinical Enteric Section	12,321	13,543	- 9.0
Parasitology	11,690	11,918	- 1.9
Foods	10,359	8,908	+ 16.3
Waters	27,647	28,898	- 4.3
Environmental	18,847	19,491	- 3.3
Phage Typing	5,326	4,470	+ 19.1
* Cross Infection	14,006	4,012	+249.1
Serology	49,423	50,059	- 1.3
TOTAL MICROBIOLOGY:	315,012	257,902	+ 22.1
Biochemistry (including Radioisotopes)	182,260	171,781	+ 6.1
Toxicology	20,665	17,674	+ 16.9
Haematology	88,948	85,680	+ 3.8
Cytogenetics	1,872	1,784	+ 4.9
Histopathology	16,792	17,429	- 3.7
Cytology	27,300	28,976	- 5.8
Autopsies	1,355	1,271	+ 6.6
TOTAL PATHOLOGY:	339,192	324,595	+ 4.5
GRAND TOTAL:	654,204	582,497	+ 12.3

* First year as a Combined Laboratory: last year figures given separately for the two units - totalling 55,954 specimens.

TABLE I B

STATISTICS - BRANCH LABORATORIES

1982

	1982	1981	% Change
Albany	19,584	21,073	- 7.1
Armadale	5,588	5,752	- 2.9
Broome	5,506	5,290	+ 4.1
Bentley	14,253	12,887	+ 10.6
Bunbury	22,153	21,199	+ 4.5
Busselton	8,776	9,155	- 4.1
Carnarvon	8,437	9,366	- 9.9
Collie	5,265	4,769	+ 10.4
Dampier - Karratha	6,140	8,601	- 28.6
Derby	15,655	17,939	- 12.7
Esperance	5,562	5,707	- 2.5
Geraldton	21,086	25,850	- 18.4
Kalgoorlie (July-Dec '82)	10,599	-	N/A
Katanning	4,551	4,523	+ 0.6
Kalamunda	6,602	2,931	+ 125.2
Kununurra	*	*	-
Manjimup	10,588	11,658	- 9.2
Merredin	8,321	9,290	- 10.4
Narrogin	11,184	13,159	- 15.0
Newman	584	872	- 33.0
Northam	9,287	10,046	- 7.6
Osborne Park	17,769	19,805	- 10.3
Pinjarra	10,375	12,888	- 19.5
Rockingham	12,108	11,775	+ 2.8
Port Hedland	18,218	19,762	- 7.8
Swan Districts	9,896	12,930	- 23.5
Tom Price	3,417	3,838	- 11.0
Wyndham	6,738	6,731	+ 0.1
Wanneroo	3,894	4,130	- 5.7
TOTAL:	282,136	291,926	- 3.4

* Included with Wyndham

TABLE II A

CLINICAL BACTERIOLOGY - SPECIMENS 1982

	1982	1981	% Change
CLINICAL MICROBIOLOGY:			
Queen Elizabeth II Medical Centre	40,382	43,887	- 8.0
State Health Laboratory Services	14,905	12,067	+ 23.5
TOTAL:	55,287	55,954	- 1.2
INFECTION CONTROL:			
Queen Elizabeth II Medical Centre	9,210	N/A	-
State Health Laboratory Services	4,796	4,012	-
TOTAL:	14,006	N/A	-

First full year as a combined laboratory.

TABLE II B

SEXUALLY TRANSMITTED DISEASES - SPECIMENS 1982

	1982	1981	% Change
Specimens for N. gonorrhoeae	40,621	37,897	+ 7.2
Numbers Positive	770	831	- 7.3
% Positive	1.9	2.2	
Specimens for Syphilis (D.G.I.)	579	265	+ 118.5
Numbers Positive	24	19	+ 26.3
% Positive	4.1	7.2	
Other	2,294	1,580	+ 45.2
TOTAL:	43,494	39,742	+ 9.4

TABLE II C

PUBLIC HEALTH ENTERIC DISEASES UNIT - SPECIMENS 1982

LABORATORY SECTIONS	SPECIMENS	STATE PHD/SHLS	COMMON-WEALTH	LOCAL HEALTH	MWSSD	CTWS	PUBLIC HOSPITAL	PRIVATE SERVICE	OTHER	POSITIVE FOR PATHOGENS	TOTALS 1982	TOTALS 1981
CLINICAL ENTERIC BACTERIOLOGY SECTION	Human faeces	10,137	1,150	389			5	102		1,179	11,783	12,951
	Cultures referred (Human)	318	24				96	100		437	538	592
	TOTAL:	10,455	1,174	389			101	202		1,616	12,321	13,543
PARASITOLOGY SECTION	Faeces	11,658								1,499	11,658	11,885
	Skin scrapings	15								1	15	20
	Parasites for identif.	17								13	17	13
	TOTAL:	11,690								1,513	11,690	11,918
FOOD HYGIENE SECTION	Foodstuffs	7,121	447	2,204				4	583	916	10,359	8,908
	TOTAL:	7,121	447	2,204				4	583	916	10,359	8,908
WATERS SECTION	Water supplies (distrib.)	235	2,053	4,484	8,989	3,886				626	19,647	18,986
	Bores and wells	34	83	540	745	75				136	1,477	1,267
	Reservoirs and tanks	57	5	186	287	141				104	676	955
	Swimming pools	267	184	5,396						644	5,847	7,690
	TOTAL:	593	2,325	10,606	10,021	4,102				1,510	27,647	28,898
ENVIRONMENTAL SECTION	Sewerage water & drains	705	128	519	1,527	17		17	1	491	2,914	2,817
	Abattoir & meat process	753		184	3					376	940	802
	Natural waters & soil	1,774		2,175	417	14		3	14	222	4,397	3,772
	Water catchment & supply	63		23	2,894					365	2,980	4,221
	Animals	6,715		140	71			51	91	1,401	7,068	6,737
	Cultures referred (Environment)	55						474	19	523	548	1,142
	TOTAL:	10,065	128	3,041	4,912	31		545	125	3,378	18,847	19,491
	GRAND TOTAL:	39,924	4,074	16,240	14,933	4,133	101	751	708	8,933	80,864	82,758
	1981 for comparison:	38,365	5,092	16,512	14,191	4,974	153	1,254	2,217	9,924	82,758	

TABLE II D

MYCOBACTERIA - SPECIMENS 1982

	1982	1981
Queen Elizabeth II Medical Centre	2,395	2,488
Perth Chest Clinic	533	784
Commonwealth Health Services	496	750
Others	2,850	2,786
Cultures Referred	191	383
Smears for M. leprae	492	475
Homogenates for Guinea Pig Inoculation	10	-
Biopsies for Dapsone resistant M. leprae	6	-
TOTAL:	6,973	7,666
Positive Specimens - Atypical Mycobacteria	385	528
Positive Specimens - M. tuberculosis/M. bovis	227	304
TOTAL:	612	832

TABLE II E

MYCOLOGY - SPECIMENS 1982

	1982	1982	% Change
Total Specimens	10,456	11,294	- 7.4
Total Specimens Positive %	33	30	-
Total Skin Scrapings	6,346	6,357	- 0.2

TABLE II F

VIROLOGY - SPECIMENS 1982

Specimens for Isolation	Positive Isolations	Specimens for Rubella	Specimens General Serology	Positive Serology	Sera for Hepatitis	Survey etc.	TOTAL SPECIMENS
28,674	3,698 (12.9%)	8,622	6,176	592 (9.6%)	5,711	-	49,183

Tests and Results on sera tested for Hepatitis

	Tests	% Positive
Hepatitis A IgM	1,989	10.4
Hepatitis B surface antigen (HB_sAg)	5,711	3.5
Anti-HB_s	1,334	
Anti-HB_c	232	
HB_eAg	347	
Anti-HB_e	347	

TABLE III

CLINICAL BIOCHEMISTRY - CANADIAN WORK UNITS 1982

	1982	1981	% Change
Sir Charles Gairdner Hospital:			
In-patients	1,399,764	1,227,585	+ 14.0
Out-patients	622,688	605,350	+ 2.9
SUB TOTAL S.C.G.H.:	2,022,452	1,832,935	+ 10.3
State Health Laboratory Services	1,023,733	1,045,408	- 2.1
Commonwealth Instrumentalities	78,123	102,349	- 23.7
Surveys, Research etc.	85,586	45,495	+ 88.1
TOTAL REQUESTED:	3,209,894	3,209,894	+ 6.1
Standards, Quality Control etc.	761,025	709,943	+ 7.2
Work Units Technical	3,970,919	3,736,130	+ 6.3
Administration*	185,352	-	-
Development*	205,296	-	-
TOTAL:	4,361,567	3,736,130	-

* NOTE: Allowances agreed in 1982 for necessary additional units for administration and development work.

TABLE IV

CLINICAL PHARMACOLOGY & TOXICOLOGY

SPECIMENS 1982

	1982	1981	% Change
CLINICAL			
Drugs	18,051	15,400	+ 17.2
Alcohol	265	377	- 29.7
Pesticides	704	373	+ 88.7
Miscellaneous	746	519	+ 43.7
FORENSIC			
Drugs	342	377	- 9.3
Alcohol	557	618	- 9.9
TOTAL:	20,665	17,664	+ 17.0

TABLE V

HAEMATOLOGY - CANADIAN WORK UNITS 1982

	1982	1981	% Change
Sir Charles Gairdner Hospital:			
In-patients	1,266,625	1,574,192	- 19.5
Out-patients	361,402	174,521	+ 107.1
SUB TOTAL S.C.G.H.:	1,628,027	1,748,713	- 6.9
State Health Laboratory Services	474,531	631,744	- 24.9
State Health Laboratory Services - Surveys	35,325	39,111	- 9.7
University and Repatriation General Hospital	6,127	1,378	+ 344.6
Other referrals	147,197	-	-
TOTAL REQUESTS:	2,291,207	2,420,946	- 5.4
Quality Control etc.	268,295	373,694	- 28.2
TOTAL WORK UNITS:	2,559,502	2,794,640	- 8.4

TABLE VI A

HISTOPATHOLOGY & MORBID ANATOMY - SPECIMENS ETC. 1982

	1982	1981	% Change
Autopsies			
Central	1,355	1,271	+ 6.6
Bunbury	76	64	+ 18.8
TOTAL AUTOPSIES:	1,431	1,335	+ 7.2
Surgical Biopsies			
Central	16,792	17,429	- 3.7
Bunbury	3,622	3,616	+ 0.2
TOTAL SURGICAL BIOPSIES	20,414	21,045	- 3.0
Blocks Cut (Autopsies)			
Central	20,597	18,932	+ 8.8
Bunbury	858	-	-
TOTAL BLOCKS CUT (AUTOPSIES):	21,455	18,932	+ 13.3
Blocks Cut (Biopsies)			
Central	41,140	42,346	- 2.8
Bunbury	7,574	7,320	+ 3.5
TOTAL BLOCKS CUT (BIOPSIES)	48,714	49,666	- 1.9
Frozen Sections			
Metropolitan	368	457	- 19.5
Bunbury	41	37	+ 10.8
TOTAL FROZEN SECTIONS:	409	494	- 17.2
Seminal Analysis	514	555	- 7.4

TABLE VI B

CYTOLOGY - SPECIMENS 1982

	1982	1981	% Change
SPECIMENS:			
State Health Laboratories	22,941	24,368	- 5.9
Hospital and University Pathology Services	4,359	4,608	- 5.4
TOTAL:	27,300	28,976	- 5.8
SLIDES:			
State Health Laboratories	29,123	31,256	- 6.8
Hospital and University Pathology Services	18,254	19,345	- 5.6
TOTAL:	47,377	50,601	- 6.4

TABLE VII A

SEROLOGY - SPECIMENS 1982

TEST CATEGORY	1982	1981	% Change
Treponemal Serology	40,355	39,699	+ 1.7
Bacterial Serology	3,050	3,633	- 16.0
Viral, Rickettsial, Helminthic & Protozoal	2,742	2,774	- 1.2
Hormone Serology	515	734	- 29.8
Others	2,761	3,219	- 14.2
TOTAL:	49,423	50,059	- 1.3

NOTIFIABLE DISEASE CASES	1982	1981
Syphilis	315	361
Leptospirosis	19	22
Brucella	4	6
Hydatid	2	2
Filaria	2	4
Typhus	1	-
Malaria	-	1
Amoebiasis	1	1
Schistosomiasis	1	-

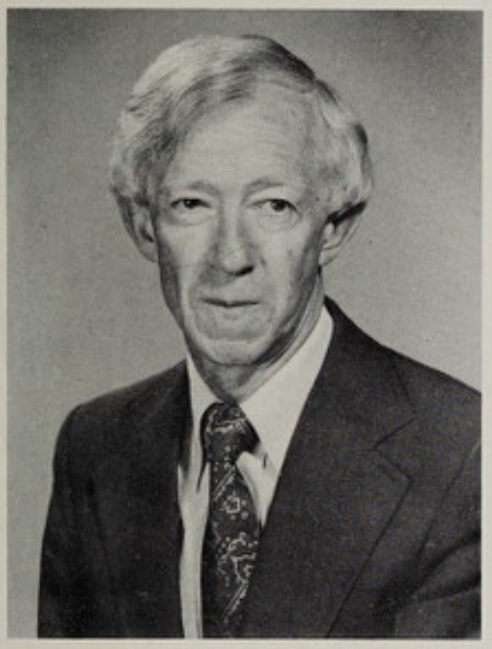
TABLE VII B

CYTOGENETICS - SPECIMENS 1982

	1982	1981	% Change
Chromosome Analysis	1,872	1,784	+ 4.9
TOTAL:	1,872	1,784	+ 4.9

Appendix XV

STATE X-RAY LABORATORY - PHYSICS DIVISION

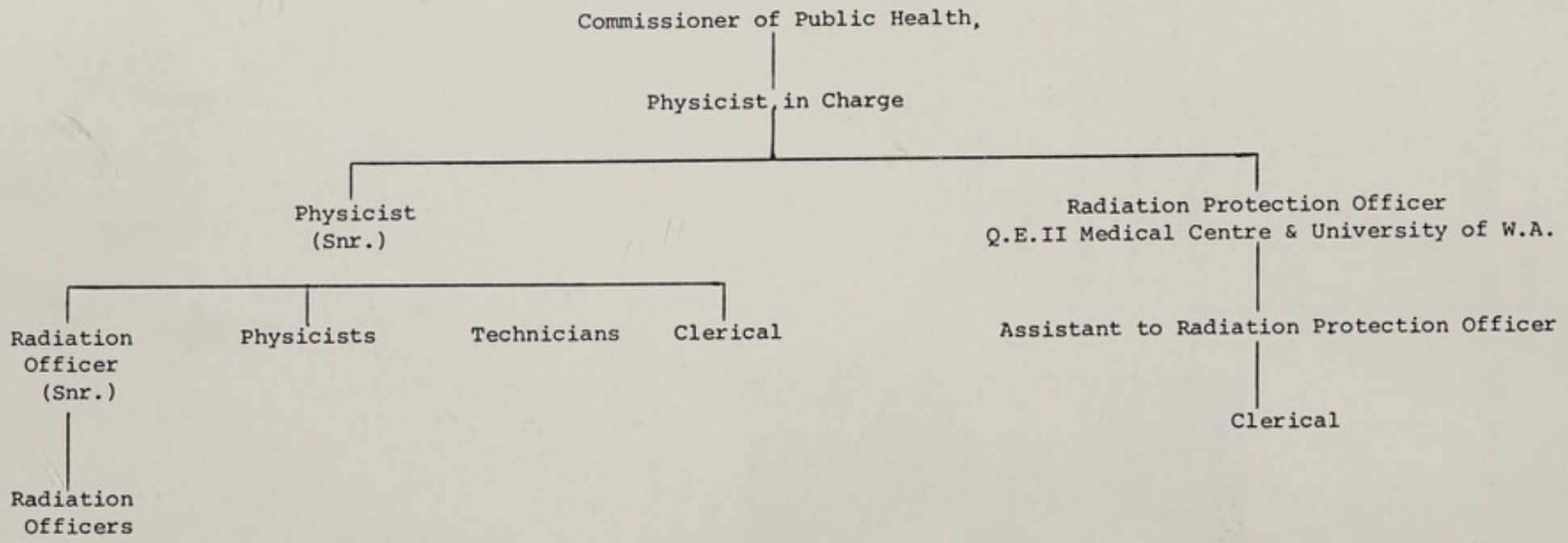


B.E. King,
M.Sc., B.Sc.
Physicist in Charge

SENIOR STAFF

Physicist in Charge :
Mr. B.E. King
Physicist (Senior) :
Dr. B.M. Hartley
Radiation Protection Officer :
Mr. L.M. Davies
Radiation Officer (Senior) :
Mr. B.J. Cobb

STATE X-RAY LABORATORY, PHYSICS DIVISION - ORGANIZATION CHART



STATE X-RAY LABORATORY - PHYSICS DIVISION

INTRODUCTION

The Physics Division of the State X-Ray Laboratory is the branch of the Public Health Department which is concerned with radiation safety. This concern extends to the workplace and to the population at large and encompasses both the ionising and non-ionising radiations. The former includes X-rays and radioactive substances and the latter microwaves, ultraviolet, visible and infra red radiation, including the radiation which can be produced by lasers. If inappropriately or carelessly used all these may be hazardous but when properly utilised the hazard can be kept to a low level commensurate with the benefits to be gained.

The Physics Division provides the necessary administrative and technical support to the Radiological Council, the statutory body appointed under the Radiation Safety Act 1975. The Division administers the system of licensing and registration and provides field staff and laboratory services. A primary objective of the Council and Division is to ensure that use of radiation is in accordance with the Act and Regulations. In addition, the recommendation of the International Commission on Radiological Protection that all radiation exposure be kept As Low as Reasonably Achievable is put into practice.

The work of the Physics Division is described in this report. The Radiological Council makes a separate Annual Report to the Minister for Health and matters which are the direct responsibility of the Council are described in that report.

DIAGNOSTIC USE OF IONISING RADIATION

In 1980, a report of the N.H. & M.R.C. confirmed that radiological procedures were by far the largest single source of man made exposure of ionising radiation to the Australian population. It is therefore appropriate that a significant part of the resources of the Division be devoted to surveillance, radiation protection advice, study of methods of minimising radiation exposure, etc. relating to this area of radiation useage. However, during 1982 pressures from other areas limited the attention which could be given to major hospitals, medical and chiropractic practices. It has not been possible to inspect new installations as quickly as is desirable in order to minimise radiation exposure of the public from non-complying equipment.

In 1982, the number of licences and registrations applicable to X-ray units used for medical, dental and chiropractic purposes rose by a further 5%, the same increase as in 1981. The Radiological Council requires that medical and dental X-ray equipment comply with appropriate Australian and International Standards, and officers of the Division inspect this equipment for compliance with the Standards, particular emphasis being

placed on those aspects of the equipment which influence the radiation dose delivered to the patient. Much unnecessary work is caused to the Division by equipment supplied by major international manufacturers not conforming to these Standards.

Reference is made elsewhere in this report to the considerable educational effort devoted to users of X-ray equipment in medical practices and country hospitals. It has become apparent that this effort and the surveillance of medical use of X-rays would be greatly assisted by the installation of medical X-ray equipment at the Laboratory and the acquisition of a humanoid phantom for X-ray dosimetry.

PERSONAL RADIATION MONITORING

The Division provides a Film Badge Radiation Monitoring Service for recording the dose of ionising radiation received by people using X-rays and radioactive substances. Over 21,000 monitoring films are issued each year to radiation workers and returned to the Division for assessment. The period over which a monitoring film is worn is varied for different occupational groups on the basis of the perceived hazard. With the exception of a few occupational groups, the dose recorded per film is very low and an extended period of monitoring is acceptable. For industrial radiographers, the group receiving the highest doses, the monitoring period is 4 weeks. Statistics for the Film Badge Service are given below:

	Centres	Films	Persons
Dentists	460	2570	*
Chiropractors	29	320	542
Hospital	120	5640	61
G.P.'s	23	520	120
Miscellaneous	14	840	107
Radiologists	23	910	310
Veterinarians	91	2360	304
Industrial	72	4878	13
Laboratories	9	91	71
Teaching	9 (Departments)	497	234
Universities	29 (Departments)	2690	250
TOTAL	879	21316	2012

*In most dental practices film badges are not issued to individuals. A single film badge is used for area monitoring in each X-ray room.

INSTRUMENT & EQUIPMENT CALIBRATION

Most users of radioactive substances and a number of users of X-rays are required by the Radiological Council to have available a calibrated radiation measuring instrument. In addition, a number of service organisations and Shire Councils have microwave monitoring instruments for checking microwave ovens. The careful use of these instruments is a valuable tool in achieving high standards of radiation protection. Some of the instruments, commonly used are incorrectly calibrated when purchased and others deteriorate during use. The Division maintains a service for the checking of these radiation monitoring instruments. 108 monitoring instruments were checked during 1982. This work imposes an increasing workload and the technical staff commenced a programme of improvements in the radiation laboratory aimed at increasing the efficiency of the calibration procedures.

The Division took delivery of a new sub-standard X-ray dosemeter which will replace an instrument that has been in use for over 20 years. The new instrument will be used for the calibration of superficial therapy X-ray apparatus and of other radiation monitoring instruments.

RADIATION PROTECTION PLANNING

There are two major areas of radiation protection planning where the Division assists licensees and applicants in meeting the requirements of the Radiological Council. These are the design of diagnostic X-ray facilities and of radioisotope laboratories. The Division encourages early consultation between its officers and persons proposing to establish these and other radiation facilities. This enables radiation protection requirements to be met in a planned manner avoiding the expense which can be occurred if alterations have to be made at a later stage.

FIELD WORK

Visits to the premises of medical, research and industrial users of radiation throughout the State is a continuing activity. The ideal frequency of visit relates approximately to the level of potential hazard, but in practice, staff availability limits this frequency to less than ideal. Officers have the authority of the Radiological Council through their appointment as "authorised officers" as defined in the Radiation Safety Act.

One Radiation Officer is almost entirely engaged in visits to industrial sites. This became necessary due to the increasing use of industrial radiography associated with the North West Shelf development and to the continuing increase in the number of radiation gauges used in industry. Other radiation officers visit medical, chiropractic, dental, veterinary and other installations. The Division's Physicists also visit some of these installations but during 1982 were more concerned with radiation safety matters relating to the mining and processing of mineral sands. Approximately 398 premises were visited during the year and a total of 29 country trips were made.

NON-IONISING-RADIATION

1982 saw the introduction of two high powered lasers in hospitals one in private medical practice and four in industry. Officers of the Division inspected the lasers and discussed safety measures with their users.

The Division continues to be handicapped by the lack of equipment for analysis of radiofrequency radiation. While the Division has survey equipment for measuring radiofrequency radiation, it lacks the essential equipment to determine the frequency of the radiation concerned which is necessary to enable accurate measurements to be made and possible hazards assessed. The Division is equipped with instruments for measuring low-powered lasers and electronic products which emit ultra violet light. It has become apparent that a wider range of equipment for these purposes, in particular for higher powered lasers will be necessary.

MEASUREMENT OF RADIOACTIVITY

The Division is equipped with sensitive equipment for counting and analysis of radioactive substances using sodium iodide and semi-conductor detectors. Equipment is being assembled for the measurement of radium in water and other samples.

Reorganisation of the equipment and refurbishing of part of the premises was carried out during the year with a view to improving the standard of this work.

EDUCATION

Education of users of radiation continues to place a major demand on the personnel of the Division. The Radiation Safety Course for users of radiation gauges is now run by the Mt. Lawley Technical College with the assistance of the Division's officers. The following courses were given by the Division in association with the organisations shown during 1982:

Radiation Safety-Radiation Gauges (Mt. Lawley Technical College)	4 courses	57 participants
Radiation Safety-Industrial Radiography (Mt. Lawley Technical College)	1 course	9 participants
X-ray Operators - Country Hospitals (Hospital & Allied Services)	4 courses	47 participants
X-ray Operators - General Practice	2 courses	13 participants
Unsealed Radioisotope Training Courses	5 courses	100 participants

Where there is no course available or candidates undertake a self study programme, the Division conducts examinations in accordance with the Radiation Safety Qualifications Regulations. 129 applicants were examined at 20 examinations in 1982.

PUBLIC INFORMATION

1982 brought an intensification of enquiries from the public on radiation safety matters. These can result from publicity about such matters as nuclear tests, microwave ovens, radiation emission by V.D.U.'s and television receivers and the possible risk of exposure to diagnostic X-rays. Many of the questions are the result of quite basic misconceptions on the part of the public about the nature of the various types of radiation concerned. Unfortunately, media coverage of these matters does little to alleviate the misconceptions and may even enhance them.

VISITS OF NUCLEAR POWERED WARSHIPS

There were 8 visits of nuclear powered warships to the Naval Base, H.M.A.S. "Stirling" at Garden Island during 1982. During each visit 4 officers of the Division are "on call" should an emergency arise. Routine monitoring is provided by visiting personnel from the Australian Atomic Energy Commission.

MINING AND MILLING OF RADIOACTIVE SUBSTANCES

Late in 1981, officers of the Division initiated a survey of the Capel township following reports that tailings from the processing of mineral sands had been used as landfill. The main radioactive component of the mineral sand is Thorium and its daughter products can give rise to elevated gamma radiation levels. The survey was completed early in the year and the results communicated to the Radiological Council. The Council recommended that tailings giving rise to elevated radiation levels be removed and this was undertaken by one of the mining companies. Periodic visits to Capel were made during the year to discuss the matter with local people and to follow up the removal of tailings to ensure that radiation levels had been reduced. Visits were also made to a land sub-division which had been the site of a mineral sands treatment plant at Wonnerup, South of Capel, some years earlier. A number of visits were made to a former mineral sands processing plant at Jurien Bay and a gamma radiation survey of the environs of the mine sites at Eneabba was carried out.

From February onwards there was unprecedented media interest in the subject of mineral sands mining and disposal of tailings and this resulted in a far greater proportion of the Division's resources being devoted to this area than would have been the case normally. It is pertinent to add that it was also far greater than was warranted by any risk to health arising from the radiation levels concerned.

In June, officers of the Division joined with representatives of the Chamber of Mines, the Mines Department and the Australian Workers Union to prepare a Code of Practice on Radiation Safety in the Mining and Processing of Mineral Sands. Eleven meetings were held and the Code was completed in August. It was subsequently adopted by the Radiological Council and applied to mining companies operating under the Radiation Safety Act.

RADIATION PROTECTION OFFICE - Q.E. II MEDICAL CENTRE & UNIVERSITY OF W.A.

This section of the Division provides a radiation protection service for the organisations operating on the Queen Elizabeth II Medical Centre site and at the University of W.A. The office is staffed by two physicists and a clerk/typist and assistance with funding is provided by the University of W.A.. The office enables a high standard of radiation safety to be achieved at the two institutions concerned.

STAFF AND FACILITIES OF THE DIVISION

The staff of the Division consists of 5 physicists, 4 radiation officers, 3 technicians and 4 clerical in addition to the staff of the Radiation Protection Office. 1982 was a difficult year for officers of the Division due firstly to temporary appointments being made in the absence of officers on extended leave. Of these, Dr. B.M. Hartley, was on study leave with the French Atomic Energy Commission and Mrs. M. Aerts on maternity leave. The rapid increase in work associated with mineral sands placed the remainder of the staff under considerable pressure for the rest of the year. Notwithstanding these difficulties the staff served effectively and conscientiously and I would like to express my thanks to them for the manner in which they performed their duties in an exceptionally difficult period.

However, it is a matter of concern for the future that it can only be anticipated that pressures from the mining radiation safety area will not abate, that the current increase in the use of non-ionising radiations will continue and that the numbers of medical, dental, chiropractic and industrial X-ray installations will continue to grow at the present rate, and that, overall the demands made on the Division's small staff will further increase. Without a growth in staff commensurate with these demands, the only alternative will be a curtailment of some activities.

The Division suffers from an acute shortage of space to carry out its work and an extension of the building was approved in principle. Unfortunately it was not possible for this to be started during the year but subject to funding it is hoped that it will get under way in 1983.

Appendix XVI

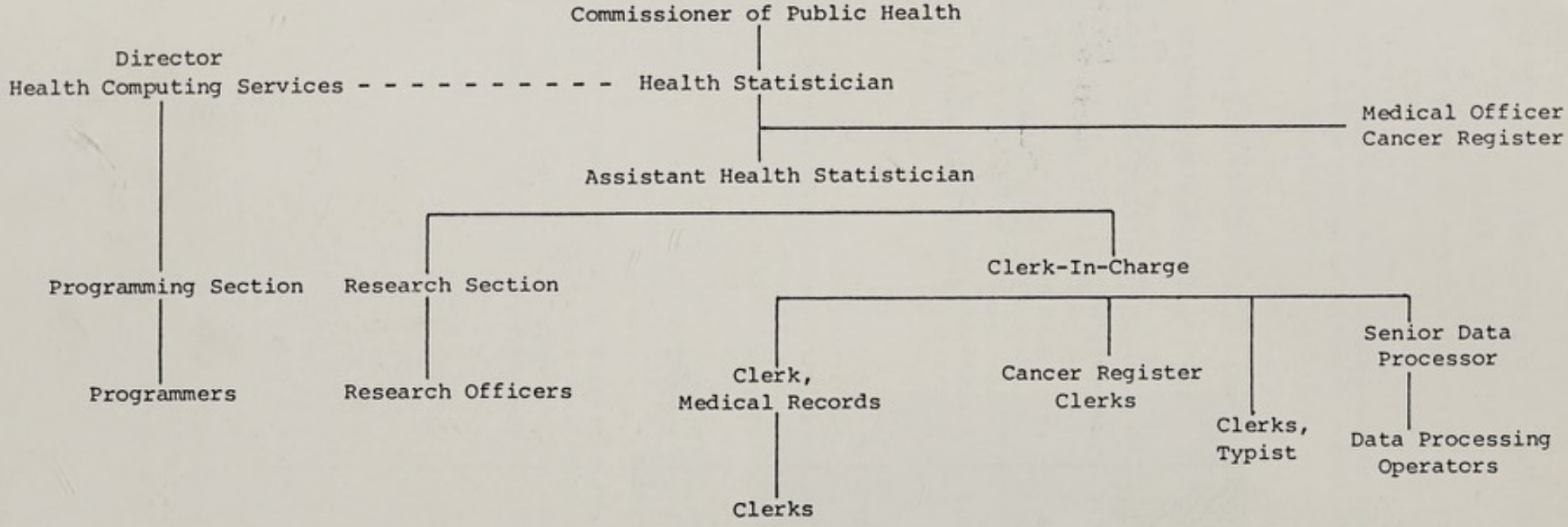
STATISTICS BRANCH

M.M. Lugg,
M.T., B.Sc., M.Sc., Sc.D., M.P.H.,
Dr.P.H., F.H.A., F.A.P.H.A., F.R.S.H.
Health Statistician

SENIOR STAFF

Health Statistician:
Dr. M.M. Lugg
Medical Officer, Cancer Registry:
Dr. W.M. Hatton
Assistant Health Statistician:
Mr. M.J. Hartfield
Clerk-In-Charge: Mr. N.G.C. Treleaven
Clerk, Medical Records:
Miss S. Stevens
Senior Data Processor:
Mrs. E. Clydesdale

STATISTICS BRANCH - ORGANIZATION CHART



HOSPITAL MORBIDITY SYSTEM

Problems following the transfer of the remaining parts of the morbidity system from the Australian Bureau of Statistics to the Statistics Branch in 1981 have been largely solved and the backlog of data update eliminated. Coding of Hospital Discharge forms is now completed in the Branch. Demographic data for all hospitals except the Royal Perth Hospital and King Edward Memorial Hospital, which use the A.T.S. system, is coded by Part I coding clerks.

Part II coding clerks code the illness and surgical procedures for non-teaching hospitals and check the coded forms from the teaching hospitals.

1981 data was processed and available by October 1982. During 1982 processing of morbidity data has proceeded reasonably smoothly and data will be available by the middle of 1983. For subsequent years, it is hoped that current data will be processed.

During 1982 a series of hospital visits have been made by the Senior Coding Clerk and the Clerk in Charge of the Branch. All metropolitan hospitals, both Government and private were visited and the problems of data collection discussed with the Matron or Administrative Officer in charge. These visits have resulted in hospital staff gaining a better understanding of the Statistics Branch data requirements and the purposes of the data collections. There has been consequently an improvement in the accuracy and consistency of data. Additionally, a number of hospital medical record personnel have spent some time in the Statistics Branch.

Overall, better communication between hospital coding staff and Departmental officers has been achieved.

In 1983, a series of visits to country hospitals are planned again with the aim of improving the quality of data and furthering a better understanding of the functions of the Branch.

CANCER REGISTRY

1982 was the first full year in which data was collected following the introduction of regulations making cancer a notifiable disease in 1981. A total of 3725 new cases were registered in 1982.

Development of computer systems and programs were completed during 1982 and tested during the latter part of the year. Most teething problems have been eliminated and the transfer of 1981 data to magnetic tape is progressing well. It is anticipated that this and 1982 data will be on computer and available for incidence rates and other studies by the middle of 1983.

Since the new regulations were enacted, pathology reports and Hospital Discharge forms are the primary sources of notification for the registry. Incoming forms are checked against existing files to detect prior notification. Cancer details are coded to I.C.D.O.(International Classification of Diseases - Oncology) and demographic information obtained from the hospital morbidity system through a computer enquiry program, which links details from the pathology notification and the corresponding hospital discharge record.

Though still in its developmental stage the registry has co-operated with numerous enquiries and supplied information for several research projects.

As an adjunct to the general registry a more specialised registry, collecting, more detailed information on mesothelioma cases, has been developed by Mrs Clarke-Hundley in co-operation with the Occupational Health Department.

Ultimately, co-operation with the national mesothelioma surveillance program will enable a countrywide assessment of the mesothelioma problem to be made.

MIDWIVES DATA SYSTEM

The Midwives Data System continues to furnish valuable data for Health Service Planning and for the Congenital Malformations Register, which is operated on behalf of the Public Health Department by Dr Fiona Stanley of the National Health and Medical Research Council Unit in Epidemiology.

Data receipt for the Midwives system is in the Hospital Morbidity Form and the Midwives Notification Form. In 1982 - 21,911 single births were entered into the file and 474 multiple births recorded. Routine reports are the Annual Midwives Report, Annual Obstetric and Perinatal Tables and Annual Infant Mortality Tables.

GENERAL

A substantial part of Branch activities is associated with the analysis of data collected both on a routine basis and from special surveys. The results of these analyses play an important role in health service planning in Western Australia.

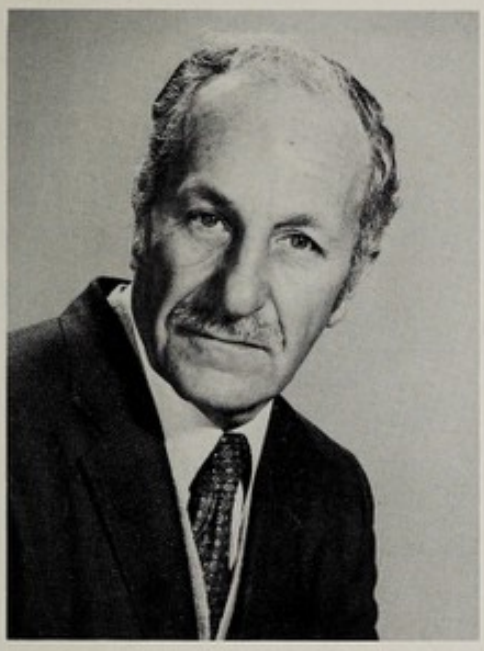
During the year a special study of bicycle accidents over a 10-year period in Western Australia was undertaken by Branch Officers, using data from the morbidity system and the Registrar Generals Office.

A survey of medical manpower in the State was carried out in conjunction with the Medical Board. The age, sex, location and speciality of all doctors in the State were studied and the results compared with previous surveys in 1977-78.

The Branch continues to participate in the development of health information systems at National, State and Departmental level. Branch officers serve on the National Committee on Health and Vital Statistics and its Cancer Sub-committee.

Appendix XVII

VENEREAL DISEASE CONTROL BRANCH

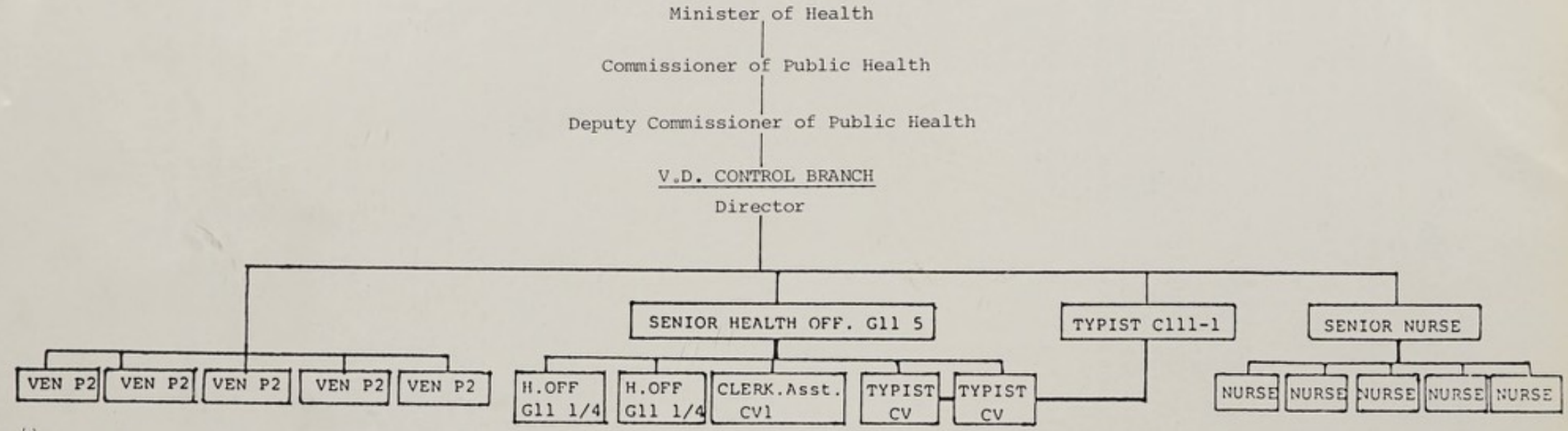


M.M. Gollow,
M.R.C.S. L.R.C.P. Dip. Ven. (Lond.)
Director

SENIOR STAFF

Director	: Dr. M.M. Gollow
Senior Health Officer	: Mr. G.C. Ross
Senior Nurse	: Sr. C. Graham
Secretary	: Mrs. J. Van Bavel

V.D. CONTROL BRANCH - ORGANIZATION CHART



VENEREAL DISEASE CONTROL BRANCH

The year 1982 saw further consolidation of the work of the V.D. Control Branch. The work at the clinics increased to a total of 50,450 consultations and this totally extended the resources of the Branch in staff and accommodation.

Total notifications for both syphilis and gonorrhoea were reduced from the previous year by a small number. With an increase in population in the State, the rate per 100,000 dropped even further to 106.46 for gonorrhoea and 16.64 for syphilis.

Notifications for Granuloma Inguinale were 8, but this has appeared as an obstetric problem in outlying areas of the State

NOTIFICATIONS VENEREAL DISEASES - W.A. 1981-1982

YEAR	GONORRHOEA	SYPHILIS	GRANULOMA	CHANCROID	TOTAL VENEREAL DISEASE
1981	1458	230	8	1	1697
1982	1420	220	8	1	1651

Laboratory notification of positive cultures are a close approximation to the practitioner notifications which is indicative of a good control system.

NOTIFIED CASES OF GONORRHOEA/SYPHILIS - W.A. 1981-1982

RATE PER 100,000 POPULATION

Year	Gonorrhoea	Rate	Syphilis	Rate
1981	1458	112.82	230	17.80
1982	1420	106.46	222	16.64

The maximum incidence of venereal disease was in the 20-24 age group, but it should be noted that the 15-19 age group was strongly represented after this, indicative of the need for continuing education regarding venereal diseases in the schools from year 8 onwards. As these diseases are being found from the age of 15 onwards, it is imperative that the population be acquainted with the knowledge of the diseases prior to becoming sexually active.

TOTAL VENEREAL DISEASE AGE DISTRIBUTION - 1982

0-14 YEARS	15-19 YEARS	20-24 YEARS	25-29 YEARS	30-34 YEARS	OVER 35 YEARS	AGE NOT STATED	TOTAL
43	373	464	293	205	271	2	1651

The 15-29 age group is the age of maximum sexual activity, and it will be seen that 68% of all infections occur in this interval.

YEAR	0-14 YEARS	15-19 YEARS	20-24 YEARS	25-29 YEARS	30-34 YEARS	OVER 35 YEARS	AGE NOT STATED
1981	1.12%	17.38%	31.29%	19.09%	13.85%	17.21%	0.06%
1982	2.61%	22.59%	28.10%	17.75%	12.42%	16.41%	0.12%

Distribution of consultations at the three clinics of the V.D. Control Branch in 1982 were:-

Moore St. Clinic	44,242
Queen Elizabeth II Medical Centre	3,647
Fremantle Hospital Clinic	2,561

Gynaecology-Coloposcopy Consultation Service

The gynaecological consultation coloposcopy service which has been provided at the Moore St. Clinic for the past 8 years was extended to the Queen Elizabeth II Medical Centre clinic this year, as the demand for the service had increased. The number of abnormal Papanicolaou smears detected in this young age group is high and with early detection the rate of late disease can be averted by counselling and early treatment. My thanks to Dr. Ellis Pixley for his assistance with this service over the years.

King Edward Memorial Hospital

The excellent co-operation of the V.D. Control Branch and the King Edward Memorial Hospital has continued to the advantage of the population served by both organizations. The assistance of the Medical Superintendent, Dr. S. Reid, the Deputy Medical Superintendent, Dr. G. Bird, and all the staff of the King Edward Memorial Hospital is gratefully acknowledged.

Postgraduate lectures were given on several occasions at the hospital to doctors and nurses.

The Director of the V.D. Control Branch was invited by the Royal Australian College of Obstetricians and Gynaecologists to lecture at their Second Advances Course in Canberra. This is the first occasion that this has occurred, and has resulted in closer co-operation between obstetricians, gynaecologists and venereologists.

The establishment of a hospital protocol for dealing with the problem of genital herpes was the outcome of joint discussions, and will be a great value to workers in this field.

Royal Perth Hospital

The introduction of a new format for provision of expertise was organized in 1982 with the assistance of the Medical Advisory Committee. This consists of the V.D. Control Branch being informed immediately of positive detections of venereal diseases by the Royal Perth Hospital laboratory. This permits the V.D. Control Branch to ensure adequate treatment, ensure proof of cure and follow-up is undertaken, and most importantly that contact tracing is effected. This has resulted in an excellent service to supplement the work already being done within the hospital. It is hoped to extend this format into all Government hospitals in the metropolitan area.

My thanks to Dr. C.R. Joyner, the Medical Superintendent, and all his staff for their invaluable assistance.

Queen Elizabeth II Medical Centre

The clinic at this centre continues to operate successfully and provides the opportunity for consultation within the hospital as well as acting as a clinic for the V.D. Control Branch. The excellent association of the Branch and the hospital is contributing to the success of our work.

Sincere thanks are expressed to Dr. Kilgour the Medical Superintendent and all his staff.

Fremantle Hospital

With the opening of the Princess of Wales Wing at the hospital, the clinic moved into new premises, and following consultation with the Administration a format for keeping V.D. Control Branch records separately, and ensuring that patients do not suffer undue embarrassment, was instituted. A Contact Tracing Officer has been allocated to this clinic part-time, and an appointment system instituted. This has resulted in a 50% increase in the number of consultations in this clinic.

My sincere thanks to Dr. P. Smith the Medical Superintendent, Dr. N. Fatin the Deputy Medical Superintendent and all the staff of the hospital for their co-operation and assistance.

Community & Child Health Services

In-service training has been provided for nurses and doctors working in Community & Child Health Services. These staff act as our field officers outside of the metropolitan area, and together we perform a very active

role in both the field of preventive and curative medicine.

My sincere appreciation is expressed to Dr. F. Quadros, Dr. J. Henzell, Dr. D. Hicks and all other staff for their help and co-operation.

State Health Laboratory Services

Dr. V. Blackman and all his staff have contributed considerably towards the expertise provided by the V.D. Control Branch. The unparalleled excellence of our work is only possible with the parallel expertise of the Laboratory Services.

Beta Lactamase Gonococci

The numbers detected at the V.D. Control Branch clinics this year dropped to 43 (12 less than last year). However the number of local cases detected has increased in spite of rapid contact tracing. The endemic problem of this condition is now firmly established in Western Australia.

Students and Residents

Undergraduate medical education has continued, as well as utilization of Residents from Royal Perth Hospital. This has resulted in a vast increase in the expertise of our young doctors who are now competent to deal with all but the most difficult of problems in this discipline.

This increasing expertise will continue, and the V.D. Control Branch is feeling the impact of this by increasing demand for our services by patient referral and for contact tracing by private practitioners.

Education

150 lectures and 300 tutorials were again given by the V.D. Control Branch in addition to the postgraduate lectures at all hospitals.

The demand for lectures is increasing from all over the State, with a resultant considerable increase in the workload of the V.D. Control Branch.

Education Services Branch

The publication 'Sexually Transmissible Diseases - Elementary Handbook for Health Workers' has been reprinted and demand for this is now virtually Australia-wide; only minor alterations were effected as it is an easily readable booklet.

Additionally this year a new patient pamphlet on sexually transmissible diseases was produced, additionally a protocol for the diagnosis treatment and management of Syphilis for distribution to medical and nursing practitioners.

The expertise available for these publications is considerable and extreme gratitude is expressed to Dr. K. Carruthers and all his staff.

Rural areas

Lectures to the general population, nurses and medical practitioners were

undertaken in the following towns in 1982 : Derby, Fitzroy Crossing, Halls Creek, Turkey Creek, Wyndham, Kununurra, Oombulgarri, Port Hedland, Strelley Station, Jigalong, Roebourne, Newman, Northam, Katanning, Wagin, Bunbury, Albany, Williams, Kojonup, Mt. Barker, Denmark, Kalgoorlie, Warburton, Kambalda, Ravensthorpe and Esperance. A consultation service was provided on each occasion, and medical practitioners in these areas are extremely grateful for the opportunity to relieve their medical isolation. This is a well worthwhile part of the services provided by the V.D. Control Branch.

Kimberley Region

Three meetings of the Kimberley Region V.D. Co-ordinating Committee were arranged during the year. The interest of medical practitioners of both Public Health Department and Hospitals continues, and co-operation between the two branches has resulted in excellent, rapid contact tracing, diagnosis and treatment being effected.

The laboratory services provided in the Kimberley are of extremely high standard, resulting in the excellent work being done in these areas of disease.

Surveys of treponemal serology of school children in two remote areas was undertaken, and did not provide evidence of a solitary infection. Further work will be done on this during 1983, and there is no doubt that this is satisfactory evidence of the excellence of the programmes of the V.D. Control Branch which have been instituted over the years.

My sincere thanks to Dr. R. Spargo and his staff, Mr. J. Edwards, Kimberley Administrator, in addition to all other members of the V.D. Co-ordinating Committees.

There is no doubt that public awareness of the diseases and facilities available for diagnosis and treatment is of the utmost importance in V.D. control.

Kalgoorlie - Eastern Goldfields Health Region

A week's visit was undertaken to these areas at the introduction of this new region. Dr. D. Coid, Director of the Region, arranged an extensive lecturing programme for the Director of the V.D. Control Branch, and approximately 50% of the area was covered. A good relationship has been established and facilities for diagnosis, treatment and contact tracing are provided in all major towns.

The residents at the Kalgoorlie Hospital, who have had training as undergraduates and postgraduates by the V.D. Control Branch, are able to use their knowledge to good effect in these areas.

Pilbara

A visit to the Pilbara was undertaken at the request of Dr. A. de Silva Rosa, and lectures given at Port Hedland, Strelley Station, Jigalong, Roebourne and Newman. The Headmaster of schools in all these areas were interviewed and agreed to institute a programme of venereal disease education within the schools.

Dr. D. Scrimgeour of Strelley Station attended the lectures and is working in close co-operation with the V.D. Control Branch on any problems he encounters.

Thanks is expressed to Dr. de Silva Rosa and all the doctors in the Pilbara for their assistance.

V.D. Co-ordinating Committee of W.A.

The work of this Committee continues under the able Chairmanship of Professor J.D. Martin. It was with the assistance of this Committee that the protocol for Syphilis was produced, and it is expected that further activities of this nature will be undertaken.

Dr. Kevin Murphy, who has been a prominent member of this Committee has resigned to work in Saudi Arabia. His work is gratefully acknowledged in addition to that of all the other members of the Committee.

Western Australian Venereology Society

This Society has now been in existence for three years. The Director of the V.D. Control Branch is the President of this Society which meets four times a year at different venues, and provides a broad range of informative lecturettes on all subjects even remotely connected with sexually transmissible diseases.

This year the final meeting was on acquired immuno-deficiency syndrome (AIDS). It was held at the Queen Elizabeth II Medical Centre, with an attendance of approximately 100 people. This was so successful that a request for a repeat of this talk has been received and will be undertaken in 1983.

This Society is open to all members of the Community, whether professional staff or not.

My sincere thanks to the Vice-President, Dr. D. Annear, the Secretary/Treasurers, Dr. A.Taylor and Mrs. J. Wright, and all other Committee members for their assistance.

National Venereology Council

The Director attended a meeting of the National Venereology Council in Melbourne in November, 1982. Numerous items of National interest were discussed. These meetings will continue on an annual basis. The Director was the invited speaker to the dinner of the Venereology Society of Victoria.

Conclusion

The doctors, nurses and clerical staff of the V.D. Control Branch have worked as an excellent team in 1982 and extended themselves fully as evidenced by the work statistics. My sincere gratitude is expressed to them for their help and assistance. Finally gratitude is expressed to the Commissioner of Public Health, Dr. J.C. McNulty, the Deputy Commissioner of Public Health, Dr. L.J. Holman AO, and the Assistant Commissioner of Public Health, Dr. K. Carruthers, who have provided a solid back-up to enable the work of the V.D. Control Branch to continue.

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2. Genital Herpes: Prospects for treatment. Harvey J., Berbatis C., Gollow M.M. Fremantle Hospital Drug Bulletin March-April, 1982 ISSNO155-3135.

3. Genital Herpes in the 1980's; Relevance to Australian Pharmacists. Harvey J., Berbatis C., Gollow M.M. Australian Journal of Pharmacy Vol.63, September, 1982.

4. Control of Sexually Transmissible Diseases in the Community. M.M. Gollow Patient Management, June 1982 p.23-29.

5. Update on Venereology. W.A. Faculty R.A.C.O.G.P. Bulletin, Gollow M.M. July/August, 1982.

Appendix XVIII

ANAESTHETIC MORTALITY COMMITTEE REPORT

Chairman, Dr. T.M. McAuliffe

CASES CONSIDERED BY THE COMMITTEE IN 1982

Case 1.

This was the case of a 21 year old male who died from respiratory obstruction several hours after anaesthesia. The patient had recovered fully from the anaesthetic. He died later in the ward.

The Committee found that the anaesthetic had been managed with due care and attention.

Case 2.

This patient was an extremely ill 78 year old man who died following surgery for a fractured neck of femur.

The Committee felt that the anaesthetic had been managed correctly. It commented that the patient's fluid and electrolyte status should have been improved prior to surgery.

Case 3.

This 47 year old male died shortly after a laparotomy for gastro-intestinal bleeding.

The Committee found that death was due to a form of malignant hyperthermia. The anaesthetic and resuscitation had been conducted with all due care.

Case 4.

This 77 year old female died during spinal surgery. An emergency procedure was carried out to relieve acute spinal cord compression.

The Committee felt that death was due to hypokalaemia and hypotension. It also felt that the registrar concerned should have sought the help of the on-call consultant before dealing with such a sick patient.

Case 5.

This 88 year old female died from a myocardial infarction during surgery for a fractured neck of femur.

The Committee found that the anaesthetic had been managed correctly.

Case 6.

This 90 year old female died during surgery for a fractured neck of femur.

The Committee considered that death was probably due to myocardial infarction. It felt that the anaesthetic had been managed correctly.

Case 7.

The patient was an 80 year old male who died after a trans urethral resection of the prostate gland. He was very ill pre-operatively with diabetes, cardiac failure, periferal vascular disease and renal failure. He had bilateral pleural effusions.

Case 8.

The patient was a 74 year old male with a history of renal failure, bowel obstruction, heart failure and gout. He died after a trans urethral resection of the prostate gland.

The Committee considered that death was due to myocardial infarction. It felt that the anaesthetic had been conducted with all due care.

Case 9.

The patient was a 59 year old male who died during surgery for a fractured neck of femur. He was critically ill pre-operatively with a terminal carcinoma of the floor of the mouth, a pseudocholinesterase deficiency, and lung dysfunction. These conditions made subarachnoid anaesthesia necessary. During surgery the patient became restless and could not be restrained. He was sedated with diazepam, droperidol and hemineurin, following which he developed respiratory obstruction and died.

The Committee felt that this was an extremely difficult case. The anaesthetic management was correct.

Case 10.

This desperately ill 68 year old female died following surgery to an ulcerated foot. Pre-operatively, she had heart failure, diabetes and peripheral vascular disease.

The Committee felt that anaesthesia had been managed with due care.

COMMENTS ON THE ANAESTHETIC MORTALITY COMMITTEE

The Committee has been in existence for three years. It has considered twenty nine cases in this time. Eleven deaths were due to, or contributed to by anaesthesia. This is from a total of 360,000 anaesthetics administered during the time.

The majority of deaths occurred in extremely ill elderly patients. The

death rate of 1 in 30,000 compares favourably with figures from other states and other parts of the world.

It is not possible to detect any particular weakness in anaesthetic practice from the material supplied to the Committee. Most deaths occur in critically ill patients in the major teaching hospitals, where the most sophisticated care is available. It is encouraging that this sort of case is not operated on in the smaller, less adequately staffed and equipped hospitals.

It is difficult to assess the usefulness of the Committee. Most anaesthetists are acutely aware of its existence. Members of the Committee and the staff of teaching hospitals regularly receive inquiries about problem cases. The Committees' views on pre-operative assessment, post-operative care and monitoring are well known.

In time it is hoped that material of educational value will emerge from the Committee as its experience grows.

Appendix XIX

CONGENITAL MALFORMATIONS REGISTER

SENIOR STAFF

Dr. Carol Bower
Dr. Fiona Stanley

NURSES

Sr. Jan Payne*
Sr. Barbara Chester

CLERKS

Rosemary Johnston
Melanie Honnor*

ACKNOWLEDGEMENTS

We are grateful to all the Midwives, Doctors, Community and Child Health sisters and others who have sent in notifications to the Register; to Mrs. Joan Pashley, Research Officer, Statistics Branch, Public Health Department, for help with computing and programming; and to the Department of Public Health and the Australian Bureau of Statistics for their continued co-operation.

The Congenital Malformations Register was funded by the Federal Department of Health for 1980 and 1981. From 1982 onwards it is jointly funded by the Lotteries Commission and the Western Australian State Public Health Department. We are grateful for their support.

*Sr. Payne and Ms. Honnor are now working on the case-control study of neural tube defects which is fully supported by TVW Telethon Foundation.

The Western Australian Congenital Malformations Register was established to collect data on congenital malformations throughout Western Australia, occurring in children born on or after January 1st, 1980. The basic data sets used are the Midwives Notification of Birth Form, which is filled in on every birth in the State, and the Perinatal Death Certificates. Added to this, voluntary notification on special notification cards is requested from hospital nurseries, Princess Margaret Hospital, child health sisters, special treatment and investigation centres and private practitioners.

Demographic, diagnostic and notification information is coded and computerised, without name. This report summarises the data received by April 1983 on children born from January 1, 1980 to December 31, 1982. These data are necessarily incomplete, as malformations in children born in 1980, 1981 and 1982 continue to be diagnosed and notified to the Register. Data for 1980 and 1981 have been updated, and some categories of congenital malformations have been excluded (e.g. inguinal herniae), so figures may be different from those in the previous Annual Reports.

TABLE 1

TOTAL CASES - 1980, 1981, 1982

	All Births in W.A.	Congenital Malformations Notified	Percentage of W.A. Births with Malformation
1980	20,788	797 (20)*	3.7%
1981	22,065	716 (8)*	3.2%
1982	22,422	616 (2)*	2.7%

*The figures in parentheses refer to the number of children notified to the Register who were born in other Australian states or overseas. They have been excluded from the calculation of percentage of Western Australian births with a malformation.

NOTIFICATIONS

1877 notification cards were received on the 797 cases for 1980, 1823 cards for the 716 cases in 1981 and 1483 for the 616 cases in 1982, some cases having up to 10 cards. Multiple notifications improve both accuracy of diagnosis and completeness of ascertainment.

TABLE 2

NOTIFICATIONS

Basic Data Sources	1980	1981	1982
. Midwives Notification	347	317	343
. Death Certificates	79	77	91
Additional Notifiers			
. Princess Margaret Hospital	444	507	333
. Private Practitioners	330	342	205
. Obstetric Hospitals	172	213	204
. Child Health Sisters	171	119	78
. Genetics, cytogenetics	161	121	105
. Pathology	83	82	93
. Other (Irrabeena, Fremantle Hospital, Register staff, etc.)	90	45	31
	1877	1823	1483

It is of interest, that in children born in 1980, there were 111 defects not identified to the Register until the child was over a year old, and 30 defects in children born in 1981 not identified until the child was over a year old. These abnormalities included major urinary tract, cardio-vascular and central nervous system defects.

RACE, SEX AND PLURALITY

The distribution of all malformations with respect to plurality and race mirrors that for total births. The significant excess of males with malformations is noted, and has been observed in other studies of birth defects throughout the world.

TABLE 3

RACE, SEX AND PLURALITY

	All Births	Congenital Malformations 1980	Congenital Malformations 1981	Congenital Malformations 1982
Race:				
Non-Aboriginal	95%	95%	95%	93%
Aboriginal	5%	5%	5%	7%
Unknown*		120	63	52
Sex:				
Male	51%	58%	58%	61%
Female	49%	42%	42%	39%
Plurality:				
Single	98%	99%	98%	98%
Multiple	2%	1%	2%	2%

*In many instances (120 cases in 1980, 63 in 1981 and 52 in 1982) race was not specified on the card. These are excluded from the above calculation of percentage by race.

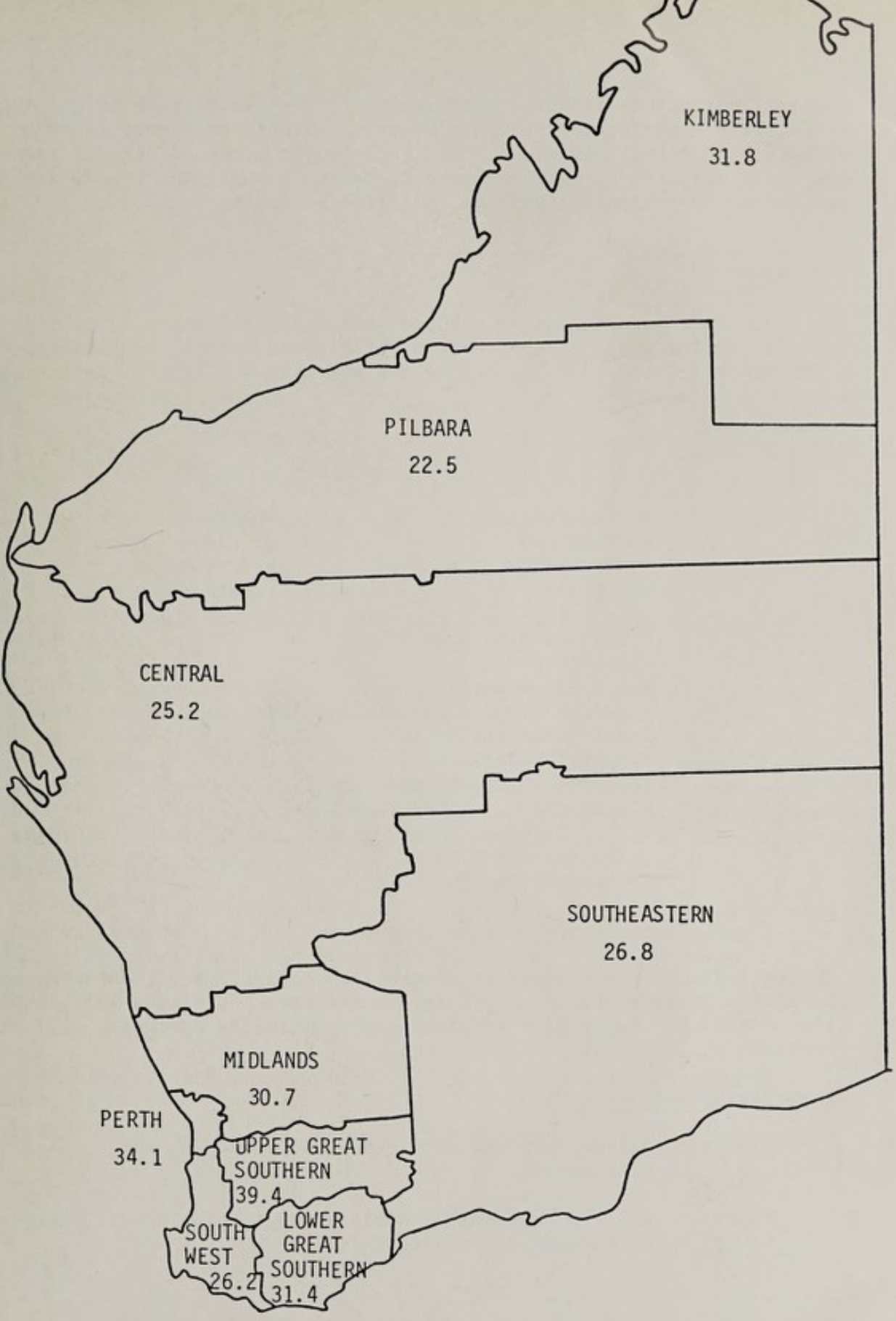
AREA OF RESIDENCE

TABLE 4

NUMBERS OF CASES OF ALL CONGENITAL MALFORMATIONS

BY MOTHER'S PLACE OF RESIDENCE

State Statistical Division of Maternal Residence	1980	1981	1982	TOTAL	
				No.	Rate per 1000 Births
PERTH	555	498	416	1469	34.1
SOUTH WEST	48	51	39	138	26.2
LOWER GREAT SOUTHERN	34	23	18	75	31.4
UPPER GREAT SOUTHERN	22	16	20	58	39.4
MIDLANDS	30	33	29	92	30.7
SOUTH EAST	22	17	31	70	26.8
CENTRAL	29	25	21	75	25.2
PILBARA	19	32	19	70	22.5
KIMBERLEY	16	12	16	44	31.8
UNKNOWN	2	1	5	8	
TOTAL	777	708	614	2099	32.2



Rate per 1000 Births of All Congenital Malformations by Maternal Area of Residence

Regional variations in total malformation rates are obvious in the above table, with higher rates in Upper Greater Southern and lower rates in Pilbara and Central Divisions. No single major group of defects accounted for these variations. Although the numbers are small the trends are consistent over time and will be investigated further.

DIAGNOSES

The diagnostic information is grouped into major and minor categories based on a classification from the Centers for Disease Control in Atlanta. Only a few minor defects are recorded by the Register - a list of exclusions is tabulated below.

Exclusions: Skin tag

Naevus, angioma	)	Unless multiple,
Haemangioma	)	or giant ($>4cm^2$)
Lymphangioma	)	or requiring
Birthmark	)	treatment

Mongolian Blue Spot
Clicky hip
Small ear anomalies
Inguinal hernia, umbilical hernia
Small anomalies of toes
Two cord vessels
Postural foot deformity
Tongue tie

Undescended testis	)	Unless requiring surgery
Hydrocoele testis	)	

During 1981, it was decided to discontinue collection of cases of inguinal herniae. These cases added greatly to the workload of the Register and the notifiers. Collection of those cases coming to operation will continue via hospital morbidity data.

Examples of malformations

Minor: polydactyly and syndactyly, bifid uvula, large ($>4cm^2$) birthmarks.

Major: talipes, congenital dislocation of hip, neural tube defect, chromosome disorders.

TABLE 5

DIAGNOSES BY GROUPED CATEGORIES

	1980	1981	1982
Single minor	69	68	65
Multiple minor	1	5	3
Single major ± minor	604	516	434
Multiple major ± minor	123	127	114

Thus, approximately 10% of the cases included in the Register have only minor malformations.

Each individual defect is also coded according to the 5 digit British Paediatric Association expanded ICD 9 system.

The following table (Table 6) lists out the frequencies of some of the more common or important defects. The figures refer to the number of cases with that defect, but one case may have several individual defects. For example, a child with a VSD and an ASD would be counted in each of these categories.

The difference in numbers between the three years which occurs with many of the defects could be due to: improvement in notification and verification practices; late diagnosis of defects (leading to an apparently lower 1982 incidence); chance fluctuations or real differences in birth incidence. Only when the Register has been operating for several years will trends be able to be analysed with confidence.

Data on malformations not included in these tables are available on request.

TABLE 6

NUMBERS AND RATES (PER 1,000 BIRTHS) OF CERTAIN CONGENITAL MALFORMATIONS IN CHILDREN BORN IN WESTERN AUSTRALIA

(Rates have not been calculated where numbers of any individual defect are less than 15).

DIAGNOSTIC CATEGORY AND B.P.A. CODE	1980		1981		1982	
	NO.	RATE	NO.	RATE	NO.	RATE
NERVOUS SYSTEM DEFECTS(74000-74299)	80	3.9	61	2.8	65	2.9
Neural Tube Defects (74000-74209)	46	2.2	35	1.6	39	1.7
Microcephaly (74210)	8		7		8	
Congenital Hydrocephalus (74230-74239)	23	1.1	14		8	
CONGENITAL HEART DISEASE(74500-74799)	135	6.5	111	5.0	113	5.0
Transposition of Great Vessels (74510-74519)	5		6		9	
Tetralogy of Fallot (74520)	5		3		3	
Ventricular Septal Defect (74540-74549)	83	4.0	55	2.5	66	2.9
Atrial Septal Defect (74550-74559)	27	1.3	23	1.0	26	1.2
Hypoplastic Left Heart Syndrome (74670)	3		5		2	
Coarctation of Aorta (74710-74719)	8		8		11	
Patent Ductus Arteriosus (74700)	15	0.7	20	0.9	28	1.3
RESPIRATORY SYSTEM DEFECTS (74800-74899)	38	1.8	32	1.5	26	1.2
Choanal Atresia (74800)	2		1		3	
Hypoplasia/Dysplasia Lung (74850-74858)	21	1.0	19	0.9	15	0.7
GASTRO-INTESTINAL DEFECTS (74900-75199)	131	6.3	131	5.9	121	5.4
Tracheo-oesophageal Fistula, oesophageal atresia, oesophageal stenosis (75030-75038)	3		15	0.7	5	
Stenosis/Atresia Anus (75123-75124)	14		9		9	
Hirschprung's Disease (75130-75133)	4		6		1	
Pyloric Stenosis (75050-75058)	40	1.9	35	1.6	43	1.9
CLEFT LIP AND PALATE						
Cleft Palate (74900-74909)	14	)	16	)	18	)
Cleft Lip (74910-74919	8	) 2.1	7	) 1.6	9	) 1.8
Cleft Lip and Palate (74920-74929)	22	)	12	)	14	)

TABLE 6 (Cont'd.)

NUMBERS AND RATES (PER 1,000 BIRTHS) OF CERTAIN CONGENITAL MALFORMATIONS IN CHILDREN BORN IN WESTERN AUSTRALIA

DIAGNOSTIC CATEGORY AND B.P.A. CODE	1980		1981		1982	
	NO.	RATE	NO.	RATE	NO.	RATE
URO-GENITAL DEFECTS (75200-75399)	140	6.7	119	5.4	101	4.5
Undescended Testis (75250-75253) (Surgically Treated)	38	3.6*	29	2.6*	11	
Hypospadias, Epispadias(75260-75261)	59	5.6*	53	4.7*	43	3.8*
Renal Agenesis/Dysgenesis (75300-75301)	10		7		13	
Obstruction Deformities of Kidney and Ureter (75320-75329)	15	0.7	4		7	
Ureteric Reflux (75348)	6		12		4	
MUSCULOSKELETAL DEFECTS(75400-75699)	267	12.8	291	13.2	229	10.2
Congenital Dislocation of Hip (75430-75431)	90	4.3	111	5.0	80	3.6
Talipes Equinovarus (75450, 75473)	62	3.0	56	2.5	43	1.9
Polydactyly (75500-75509)	17	0.8	16	0.7	26	1.2
Syndactyly (75510-75519)	15	0.7	16	0.7	9	
Diaphragmatic Hernia (75661)	9		12		3	
Exomphalos (75670)	6		3		4	
Gastroschisis (75671)	1		6		7	
Achondroplasia (75643)	1		2		1	
Osteogenesis Imperfecta (75650)	4		1		1	
Reduction deformities - Upper and/or Lower Limbs (75520-75549)	18	0.9	22	1.0	18	0.8
CHROMOSOME DEFECTS (75800-75899)	32	1.5	38	1.7	40	1.8
Down's Syndrome (75800-75809)	22	1.1	20	0.9	25	1.1
Trisomy 13 (75810-75819)	2		-		4	
Trisomy 18 (75820-75829)	2		5		3	
Turner's Syndrome (75860-75861, 75869)	1		4		1	
OTHER						
Congenital Rubella Syndrome (77100)	1		-		-	
Cystic Fibrosis (27700)	5		5		1	
Phenylketonuria (27010)	2		-		4	
Congenital hypothyroidism (24390-24399)	-		5		3	
Naevi (75738)	27	1.3	35	1.6	28	1.2

*Per 1000 male births

TABLE 7

DOWN'S SYNDROME BY MATERNAL AGE

(Expressed as rate/1000 births, and as a fractional rate).

Maternal Age	1980	1981	1982	TOTAL No.	TOTAL Rate/1000 Births	Fractional Rate
<20	-	-	1	1	0.2	1/5176
20-24	4	4	5	13	0.7	1/1539
25-29	7	7	8	22	0.9	1/1123
30-34	9	3	4	16	1.3	1/754
35-39	1	4	6	11	3.9	1/259
40+	1	2	1	4	8.5	1/118
TOTAL	22	20	25	67	1.0	1/974

From Table 7, it is seen that although the rate of Down's Syndrome is much greater in mothers 35 years of age or over, most babies with Down's Syndrome (52, or 78% of all Down's Syndrome babies) are born to mothers younger than 35 years.

DEATHS

TABLE 8

DEATHS 1980, 1981, 1982

	1980	1981	1982
All stillbirths in W.A.	181	188	186
Stillbirths with malformation	35	41	34
Percentage of stillbirths with malformation	19%	22%	18%
Neonatal deaths in W.A.	170	124	120
Neonatal deaths with malformation	51	54	53
Percentage of neonatal deaths with malformation	30%	44%	44%

In addition, many children with defects die post neonatally: 27, 20 and 26 in 1980, 1981 and 1982 respectively. These numbers may be expected to increase, as children born in these years die with malformations at older ages.

Of the stillbirths with malformations in 1982 74% had a post mortem examination performed (66% in 1980, 71% in 1981) and 81% of the neonatal deaths had a necropsy in 1982 (78% in 1980, 83% in 1981). The increase in necropsy rate is encouraging, and the information so obtained is of value not only to the Register, but most importantly, to doctors, parents and genetic counsellors.

It is probable that notifications of malformations in fetuses delivered before 20 weeks gestation may be under-represented. We wish to stress the importance of notifying these cases to the Register, to make ascertainment complete. It should also be remembered that these families may benefit from genetic counselling services.

The function of the Western Australian Congenital Malformations Register is to maintain an ongoing population-based record of cases of congenital malformations in Western Australia, which is as complete and accurate as possible. These data are used to generate incidence figures for W.A., and to examine changes in incidence with time, race, area of residence and other demographic variables.

To increase compliance from notifiers, the information requested on the orange notification card is by design, not extensive. The Register does not routinely collect data on exposure to drugs or alcohol during pregnancy, past pregnancy history or diagnostic tests during pregnancy. However routine record linkage of Register data to the Midwives data set has begun. This is a valuable first step in formulating hypotheses about risk factors.

The Western Australian Congenital Malformations Register has a similar data collection system to the Metropolitan Atlanta Congenital Defects Program, but in addition, mothers of selected cases in the Atlanta program are invited to complete a questionnaire on pregnancy details. This large bank of data enables rapid investigation of exposures in pregnancy suspected as a cause of malformations.

At present this is beyond the financial scope of the Western Australian Congenital Malformations Register, but it may be possible and desirable to introduce a similar system in the future. In the meantime the Register aims to have a near complete population record of congenital malformations, and to go back and collect exposure variables in epidemiological studies designed with a particular hypothesis in mind.

The Register staff is currently conducting a case:control study of neural tube defects, funded by Telethon, and is assisting in several other projects using data from the Register. In order to ensure confidentiality, a set of guidelines has been laid down and access to named information must be approved by the Commissioner of Public Health, on the advice of an Ethics committee. Copies of the guidelines are available from the Register. The staff is keen to see the data being put to good use and the data for 1980-82 are available for bonafide researchers wishing to use them.

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Appendix XX

MATERNAL MORTALITY COMMITTEE REPORT

Chairman, Professor J.D. Martin

During 1982 there were 22,236 live births and one maternal death giving a maternal mortality rate of 0.05 per 1,000 live births.

CASES CONSIDERED BY THE COMMITTEE

Case 1.

A 29 year old multiparous aboriginal with a bad obstetric history went into labour in a rural regional hospital. There was vaginal bleeding in labour followed shortly afterwards by collapse of the patient. A diagnosis of ruptured uterus was made and in spite of energetic and appropriate treatment the patient died 8 hours after abdominal hysterectomy. Death was considered to be unavoidable.

Appendix XXI

PERINATAL AND INFANT MORTALITY COMMITTEE REPORT

Dr. V.P. Waddell

The Perinatal and Infant Mortality Committee of Western Australia is a statutory body which conducts confidential enquiries into selected perinatal and infant deaths each year. The objective of the Committee is to increase the quality of medical care of women in pregnancy and labour and of their babies up to the age of one year. This objective is to be achieved by educational efforts directed towards individuals and groups. The Committee produces an Annual Report (1) which includes Educational Papers written by experts; these papers are pertinent to the causes of deaths occurring in that year.

Committee Findings 1981

The cases selected for investigation in 1981 were:-

1. All singleton stillbirths weighing 2000g or more at birth who were not lethally malformed.

2. All twins and other multiple stillbirths weighing 1000g or more at birth who were not lethally malformed.

3. All singleton neonatal deaths weighing 2000g or more at birth and multiples weighing 1000g or more who were not lethally malformed or cot deaths.

4. All infant deaths from meningitis.

In 1981 there was a total of 22,203 births and 371 perinatal or infant deaths.

TABLE 1

Timing of Death	No. of Deaths	No. Investigated	No. Potentially Avoidable	Percent Potentially Avoidable
Antepartum Stillbirth	120	46	9	7.5%
Intrapartum Stillbirth	40	11	6	15.0%
Unknown Antepartum/ Intrapartum Stillbirth	22	6	0	0
Neonatal Death	121	18	5	4.1%
Unknown Stillbirth/ Neonatal Death	1	0	0	0
Post-neonatal Infant Death	67	4	0	0
TOTAL	371	85	20	5.4%

(1) Copies available from Dr. V.P. Waddell, 60 Beaufort Street, Perth, 6000.

Of the 371 deaths, 158 (42.6 percent) were below 2000g birthweight, 74 (20.0 percent) were due to lethal congenital malformation and 45 (12.1 percent) were due to the sudden infant death syndrome. Eighty-five (22.9 percent) deaths met the criteria for investigation by the Committee. Of the 85 deaths investigated, 65 were found to be unavoidable and 20 potentially avoidable. The 20 deaths considered potentially avoidable represent 5.4 percent of the total perinatal and infant mortality. Intrapartum stillbirths made a large contribution to the potentially avoidable figure. There were no potentially avoidable post-neonatal infant deaths.

The findings of sister committees in other Australian States have been reviewed. Because the various committees employ different methods, it is not possible to make direct comparisons. However, bearing in mind these differences, the rates of potentially avoidable deaths and the reasons for these deaths are probably very similar throughout the country.

The potentially avoidable deaths were due to:-

1. Pregnancy-induced hypertension and proteinuria (antepartum stillbirth at 41 weeks gestation).

2. Pregnancy-induced hypertension and proteinuria (antepartum stillbirth at 36 weeks gestation).

3. Pregnancy-induced hypertension and proteinuria (antepartum stillbirth at 40 weeks gestation).

4. Proteinuria; inadequate assessment of gestational age (antepartum stillbirth at 41 weeks estimated gestation).

5. Pregnancy-induced hypertension; post-term (antepartum stillbirth at 42 weeks gestation).

6. Gestational diabetes (antepartum stillbirth at 39 weeks gestation).

7. Pregnancy-induced hypertension; post term (antepartum stillbirth at 41 weeks gestation).

8. Pregnancy-induced hypertension (antepartum stillbirth at 38 weeks gestation).

9. Mother refused treatment for pregnancy-induced hypertension with proteinuria (antepartum stillbirth at 37 weeks gestation).

10. Delayed delivery of second twin (intrapartum stillbirth at 34 weeks gestation).

11. Mother refused treatment for gestational diabetes (intrapartum stillbirth at 41 weeks gestation).

12. Fetal distress; oxytocin excess (intrapartum stillbirth at 37 weeks gestation).

13. Abnormal glucose tolerance test; post-term; meconium stained liquor (intrapartum stillbirth at 42 weeks gestation).

14. Footling breech (exact breech presentation not established prior to labour) (intrapartum stillbirth at 40 weeks gestation).

15. Glycosuria throughout pregnancy; fetal distress and hypertension in labour (intrapartum stillbirth at 37 weeks gestation).

16. Mother did not present for care until after birth of baby (1st day neonatal death after 40 weeks estimated gestation).

17. Pregnancy-induced hypertension; post-term; delayed intubation of neonate (1st day neonatal death after 42 weeks gestation).

18. Insufficient indication for elective Caesarean Section; inappropriate delivery of woman with high-risk pregnancy in small District Hospital (2nd day neonatal death after 38 weeks gestation).

19. Pregnancy-induced hypertension; fetal distress (2nd day neonatal death after 40+ weeks gestation).

20. Post-term pregnancy (2nd day neonatal death after 42+ weeks gestation).

As a result of these case investigations the following Educational Papers were written for inclusion in the Second Annual Report:-

(i) The Significance of Glycosuria in Pregnancy
(ii) Proteinuria in Pregnancy
(iii) Resuscitation of the Newborn : Equipment and Procedure

1982

In 1982 there were 22,387 births and 402 perinatal or infant deaths. Of these deaths 91 were selected for investigation, including this year all Aboriginal infant deaths.

Appendix XXII

INCIDENCE AND MORTALITY OF NOTIFIABLE DISEASES

Diseases Notifiable	1979		1980		1981		1982	
	Cases Notified	Deaths	Cases Notified	Deaths	Cases Notified	Deaths	Cases Notified	Deaths
Amoebiasis	5	-	6	-	4	-	-	-
Ancylostomiasis	1	-	-	-	-	-	-	-
Anthrax	-	-	-	-	-	-	-	-
Bacillary Dysentery	163	1	87	-	74	1	87	-
Bilharziasis	-	-	-	-	-	-	1	1
Brucellosis	1	-	3	-	-	-	-	-
Cholera	-	-	-	-	-	-	-	-
Diphtheria	-	-	-	-	-	-	-	-
Encephalitis Lethargic	3	-	-	-	1	-	-	-
Filariasis	-	-	-	-	-	-	-	-
Homologous Serum Jaundice	30	2	16	-	17	-	20	-
Hydatid	-	-	-	-	-	-	-	-
Infective Hepatitis	127	1	227	1	143	4	134	4
Leprosy	12	-	9	-	8	-	14	-
Leptospirosis	1	-	9	-	11	-	5	-
Malaria	35c.o.s.	-	50c.o.s.	-	30c.o.s.	-	20	1
Meningococcal Infection	1	1	-	-	1	-	1	1
Ornithosis	1	-	-	-	-	-	-	-
Paratyphoid	-	-	-	-	3	-	-	-
Plague	-	-	-	-	-	-	-	-
Poliomyelitis	-	-	-	-	-	-	-	-
Puerperal Fever	1	-	-	-	-	-	-	-
Relapsing Fever	-	-	-	-	-	-	-	-
Salmonella Infection(A)	451	2	219	1	16	-	97	-
Scarlet Fever	6	-	3	-	3	-	2	-
Small Pox	-	-	-	-	-	-	-	-
Tetanus	-	1	-	-	-	-	-	-
Tuberculosis	179	11	167	7	160	-	136	-
Typhus Fever	1	-	-	-	-	-	1	-
Typhoid Fever	4	-	4	-	-	-	2	-
Yellow Fever	-	-	-	-	-	-	-	-

c.o.s. - Contracted out of State.
(A) - Other Salmonella Infection.

PUBLIC HEALTH DEPARTMENT

EXPENDITURE FOR YEAR ENDED 31/12/1982.

		$	$
1.	Salaries Including Administration and Other Health Services		5 758 094
2.	Administration Expenses		842 655
3.	Payroll Tax		1 940 353
4.	Government Printer		21 541
5.	Child Health Services		
	Salaries	5 567 869	
	Generally	551 050	6 118 919
6.	Dental Health Services		
	Salaries	8 637 616	
	Generally	924 456	
	Training Centres	155 364	
	Therapy Centres	766 585	
	Dental Clinics	206 895	10 690 916
7.	Senior Citizens Services		
	Salaries	10 343	
	Generally	394 836	405 179
8.	Community Health Services		
	Salaries	5 222 128	
	Generally	2 245 276	7 467 404
9.	Community Health Programme		
	Salaries	4 064 455	
	Generally	2 695 201	6 759 656
10.	Laboratories		
	Salaries	8 836 460	
	Generally	4 572 804	13 409 264

11.	Other Health Services		
	Health Services Centre	28 455	
	Pharmaceutical Services	51 891	
	Statistics	241 350	
	Health Surveyors & Inspection	151 758	
	Pest Control	19 394	
	Occupational Health	92 044	
	Clean Air	113 826	
	Noise Abatement	24 528	
	Physics Division	120 291	
	V.D. Control	47 027	
	Health Services Planning & Research	145 778	
	Poisons	38 648	
	Guthrie Testing P.M.H.	35 156	
	Food and Nutrition	1 028	
	Ord River Ecological Research	51 138	
	National Heart Foundation	20 000	
	Hypothrodism	44 100	
	Fly Eradication	4 000	
	Family Planning	29 562	
	Chair of Community Dental Health	600	
	Epidemiology	133 887	1 394 461
12.	T.B. Control		
	Salaries	843 884	
	Generally	236 184	1 080 068
13.	Meat Inspection		
	Generally		415 500
14.	Education Services		
	Health Education		
	Salaries	264 471	
	Generally	109 748	374 219
	Audio Visual		
	Salaries	254 477	
	Generally	178 062	432 539
	Library Services		
	Salaries	222 947	
	Generally	95 467	318 414
	Staff Development Unit		
	SDA Commonwealth Funding		
	Salaries	74 928	
	Generally	77 524	152 452

	Staff Development Unit		
	SD State Funding		
	Salaries	135 570	
	Generally	6 655	142 225
	Drug Education		
	Salaries	102 097	
	Generally	54 566	156 663
	Education Services Branch		
	Generally		72
15.	Derby Leprosarium		
	Salaries	155 165	
	Generally	75 733	230 898
	GRAND TOTAL :		58 111 492

PUBLIC HEALTH DEPARTMENT

REVENUE FOR YEAR ENDED 31/12/1982

	$	$
LICENCES		
Anatomy	464	
Fumigation	1 355	
Poisons Act	47 987	
Radioactive Substances Act	2 547	
Optical Dispensers	60	
Private Hospitals	5 055	
Clean Air Act	18 720	76 188
FEES		
Fish Inspection	15 595	
Building Inspection	7 267	
Perth Medical Officers	869	
Pest Control Collections	10 352	
Pesticide Registration	53 977	
Septic Tank Plans	50 095	138 155
MISCELLANEOUS		
Other	41 923	
Recoup of V.D. Costs	348 211	
Recoup of T.B. Costs	570 801	
Busselton Health Centre	9 700	
Mandurah Health Centre	8 122	
Karratha Health Centre	15 221	
South Hedland Health Centre	29 002	
Geraldton Health Centre	32 862	
Kwinana Health Centre	1 316	
Lockridge Health Centre	7 049	
Claremont Health Centre	15 891	
X-Ray Examinations	5 803	
Almalgam Waste	44	
Sale of Publications - Health Education	2 451	
Audio Visual Charges	57 942	
Calibration of Instruments	680	
Subsidised Insurance Scheme	15 331	1 162 349
COMMONWEALTH GRANT		8 570 661
LABORATORIES (Fees and Services)		4 962 780
DENTAL		
Fees		270 636
GRAND TOTAL		$15 180 769

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