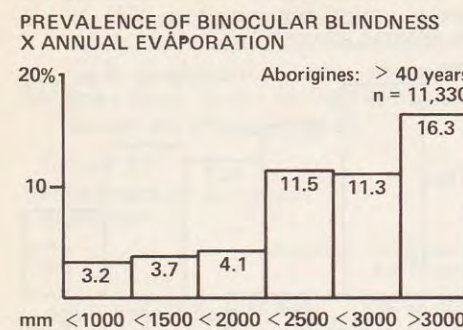


Figure C 28



For humidity and evaporation, see Figures C 27 and 28 there is a reasonable strong association of falling humidity and increasing evaporation to be associated with increased prevalence of Aboriginal blindness.

For the sunlight factors U.V. exposure and bright sunshine hours, see Figure C29 and 30, there are orderly increments in blindness prevalence rates as the climate factors increase. These associations are statistically significant and strong evidence for a sunlight factor in Aboriginal blindness.

Figure C 29

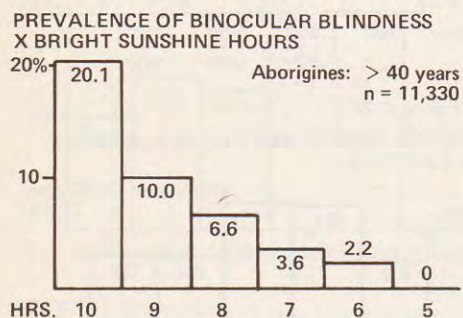
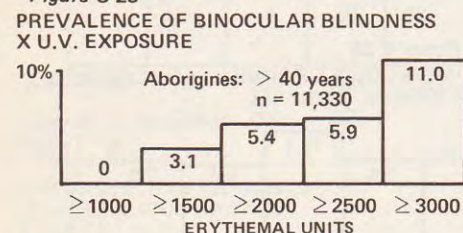


Figure C 30

POOR VISION AND CLIMATE

Poor vision, that is visual acuity worse than 6/12 but better than 6/60 in both eyes or the better eye, occurred for 1,369 or 12.3 per cent of this age group of Aborigines. Prevalence rates for poor vision varied with the climate factors, see Figures C 31 to C 36 inclusive. There were no strong associations with humidity, rainfall and latitude, but good associations with U.V. exposure and evaporation and a very good association with bright sunshine hours.

Figure C 31

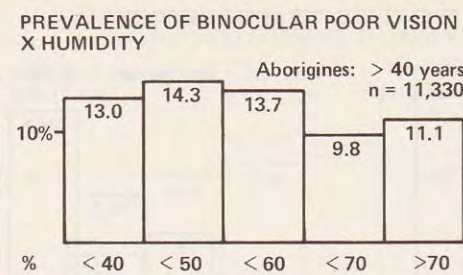


Figure C 32

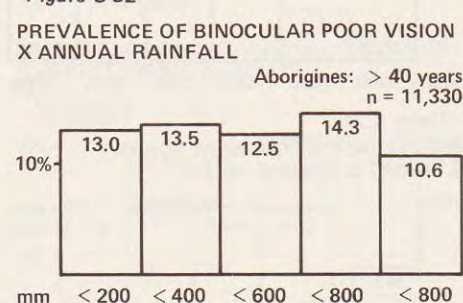


Figure C 33

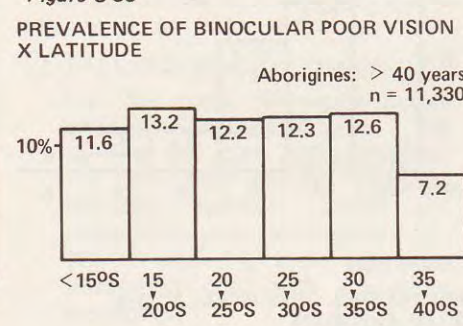


Figure C 34

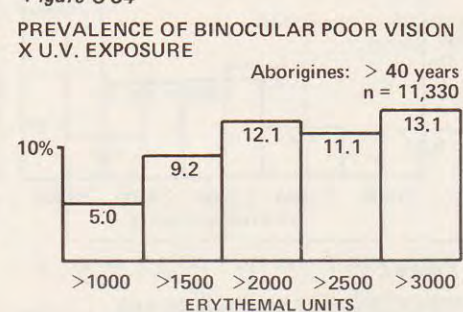


Figure C 35

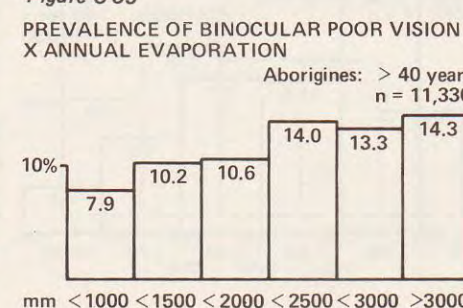
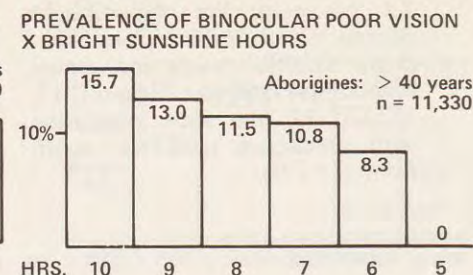


Figure C 36



SUMMARY

The influence of the environment has been considered in two parts: climate as measured by meteorological standards, and "hygiene", which includes nutritional status, as measured by the Waterford Index.

The Waterford Index allows for variation in "hygiene" within a group of persons and affords graduated measurement.

For Aborigines and non-Aborigines less than 20 years, the prevalence rates for follicular trachoma, skin infection, otitis media and nasal discharge have been tested for their association with the six climatic variables, humidity, rainfall, latitude, ultra violet irradiation, evaporation rate and bright sunshine hours. They have also been tested for association with the six "hygiene" variables, water access, nutritional status, food storage facilities, waste disposal, sewerage systems and housing.

For Aborigines and non-Aborigines of all ages the prevalence rate of cicatricial trachoma has been tested for association with the six climate and the six "hygiene" variables.

For Aborigines and non-Aborigines more than 40 years, the prevalence rates of cataract, pterygium, corneal scars, labrador keratopathy, blindness and poor vision have been tested for association with all the climate and "hygiene" variables.

For the purpose of this report the major climate factor tested is the variation from the temperate and moist to dry and bright. In addition a tropical factor is tested.

Climatic changes towards the brighter and more arid are associated with an increasing prevalence of most of the health parameters measured. The influence of climatic change from cool and moist to hot, dry and bright, on prevalence rates for the diseases is ANABATIC - from anabasis = the course of a disease to its climax. Generally, the hotter, brighter

and dryer the climate, the higher the prevalence rate of the disease measured.

This ANABATIC force of climate changes is different for different diseases and very different for the different racial groups.

The Anabatic Force of Climate

Considering for both racial groups the disease entities, follicular trachoma, nasal discharge, skin infection and otitis media and for all ages cicatricial trachoma, the anabatic force of climate on prevalence rates can be seen in Figure S 1. For Aborigines for follicular and cicatricial trachoma there are large increases in prevalence with increasing evaporation. For nasal discharge, skin infection and otitis media the anabatic force is also strong but less regular.

For non-Aborigines, there is a climatic anabatic force for nasal discharge, follicular and cicatricial trachoma, but its strength is only a fraction of that seen for the Aborigines. For skin disease and otitis media,

evaporation has a marked anabatic force for Aborigines but not for non-Aborigines. There is, however, a tropical skin infection anabatic force for non-Aborigines (See Figure S 1).

Considering only the five entities, follicular trachoma, cicatricial trachoma, nasal discharge, skin disease and otitis media for Aborigines, the anabatic force of each climate factor can be graded.

For follicular trachoma prevalence, the major anabatic force is evaporation rate. Humidity, rainfall and bright sunshine hours have less but significant anabatic force. Increasing or decreasing latitude has no significant anabatic force. (See Table S 1).

Skin infection prevalence shows a very strong anabatic force for latitude and ultra violet irradiation and lesser but significant force for changes in all the other climate factors.

Otitis media prevalence shows an anabatic force for ultra violet irradiation, evaporation and bright sunshine hours and decreasing rainfall. Latitude and humidity show no anabatic force. (See Table S 1).

Nasal discharge shows significant anabatic force for all the climate variables but for none is the force as great as that of, for example, evaporation on follicular trachoma or ultra violet irradiation on skin infection. (See Table S 1).

Considering now the anabatic force of climate on cataract, pterygium, corneal scars, labrador keratopathy, blindness and poor vision for Aborigines more than 40 years of age.

For cataract prevalence there are three anabatic climate forces. (See Figure S 2 and Table S 1.) Increasing bright sunshine hours raises the prevalence from 7 per cent to 24 per cent, decreasing latitude changes prevalence from 8.5 per cent to 18 per cent and increasing ultra violet irradiation raises prevalence 4.2 per cent to 17.5 per cent. No other climate factors have substantial anabatic force. For non-Aborigines there was no anabatic climate force for cataract prevalence.

THE ANABATIC FORCE OF CLIMATE ON PREVALENCE OF SEVERAL DISEASES

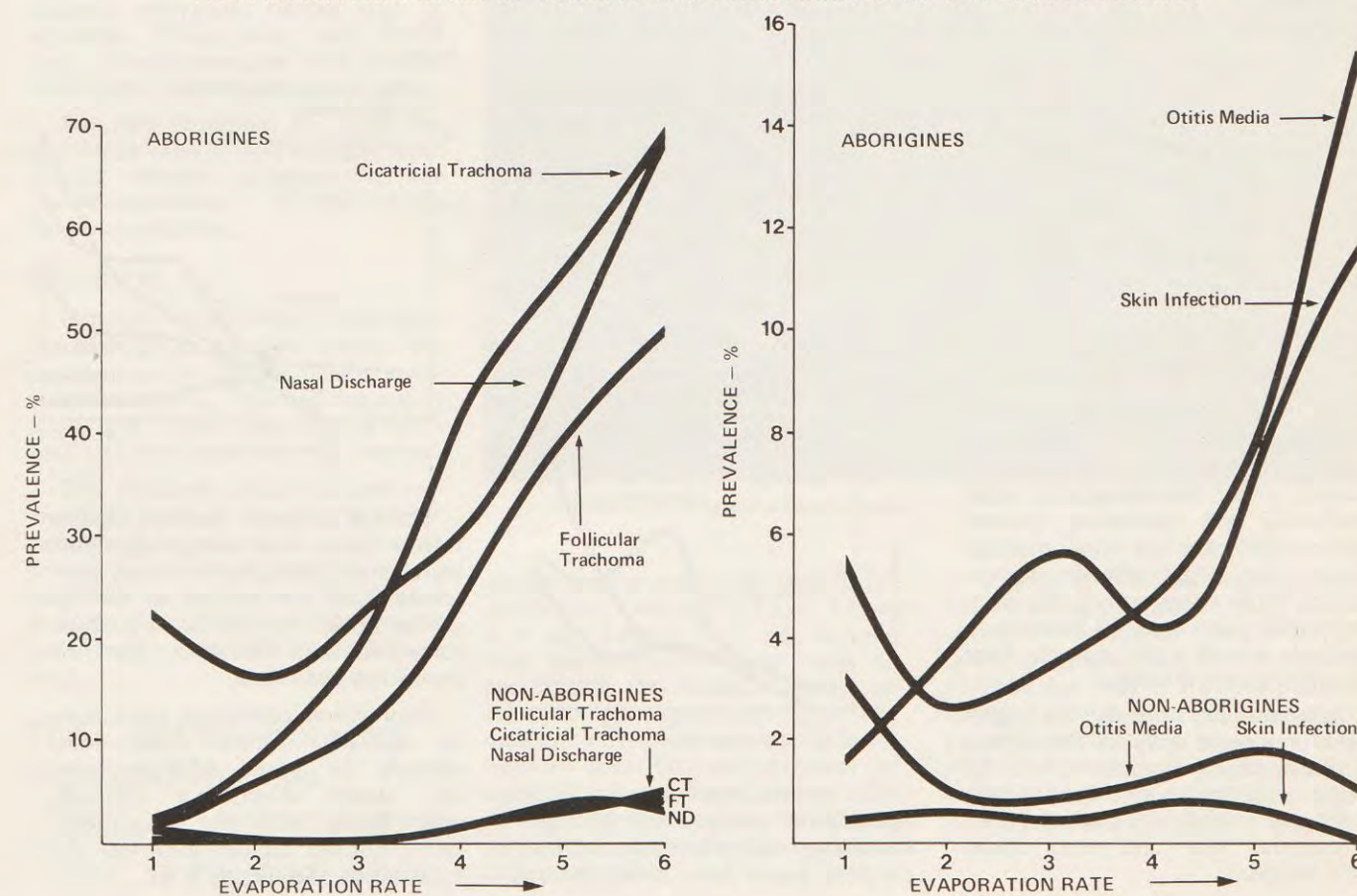


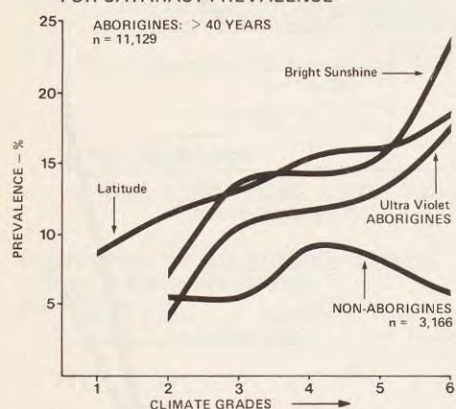
Figure S 1

TABLE S 1: TABULATION OF THE STATISTICAL SIGNIFICANCE OF RANK CORRELATION BETWEEN ENVIRONMENT VARIABLES AND CERTAIN CONDITIONS: ABORIGINES

0 = not significant $p = > .05$
1 = significant $p = < .05$
2 = very significant $p = < .02$

	Humidity	Rainfall	Latitude	UV Exposure	Bright Sunshine	Evaporation	Water	Nutrition	Food Storage	Waste Disposal	Severage	Housing
Follicular Trachoma	1	1	0	1	2	1	6	2	2	2	2	12
Cicatricial Trachoma	1	1	0	1	2	1	6	2	1	2	2	11
Otitis Media	0	1	0	1	1	1	4	2	1	2	1	10
Nasal Discharge	1	1	1	1	1	1	5	2	2	2	1	11
Skin Infection	1	1	2	2	1	1	8	1	1	2	1	8
Cataract	4	5	3	6	7	5	9	7	10	8	9	9
Pterygium	0	0	2	2	0	2	6	0	0	0	0	1
Lab K	0	0	1	1	0	2	4	0	0	0	0	0
Corneal Scars	0	0	2	2	2	2	6	1	2	1	1	8
Blindness	1	1	0	1	2	2	7	1	2	2	1	11
Poor Vision	1	0	0	2	1	2	6	2	2	2	2	12
	0	0	0	1	1	2	4	1	1	1	2	7
	2	1	3	9	6	12	6	7	7	5	7	7
	6	6	6	15	13	17	15	14	17	13	16	16

Figure S 2
CLIMATIC ANABATIC FORCES FOR CATARACT PREVALENCE



For pterygium prevalence, (see Figure S 3 and Table S 1) increasing bright sunshine hours has a strong anabatic effect. Increasing ultra violet irradiation and decreasing latitude have a significant but lesser anabatic effect. The other climate factors do not show strong effect. For non-Aborigines older than 40 years there was only a very weak anabatic force for bright sunshine hours.

Labrador Keratopathy, of significant prevalence only in Aborigines, shows a strong anabatic effect for bright sunshine hours (see Figure S 4) and a slightly lesser effect for evaporation rate and ultra violet light increases.

Figure S 3
CLIMATIC ANABATIC FORCES FOR PTERYGIUM PREVALENCE

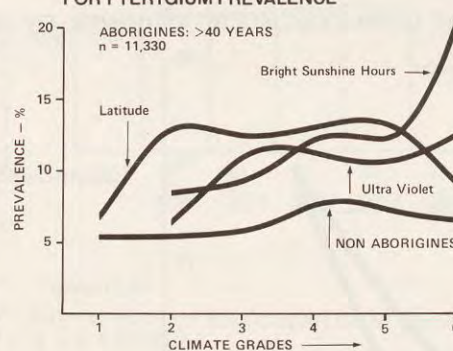
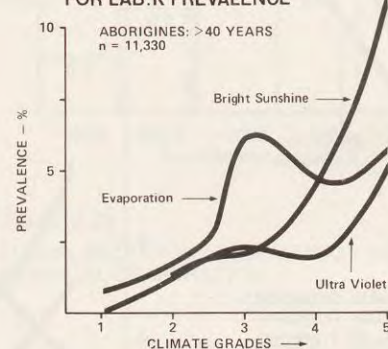


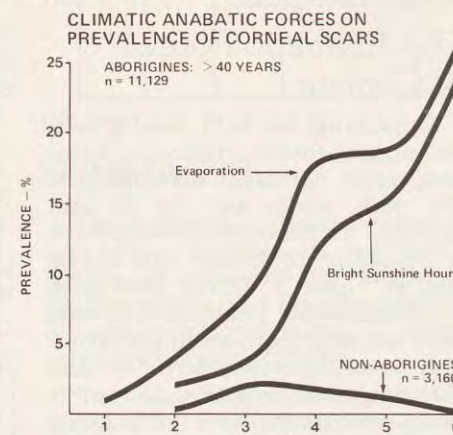
Figure S 4
CLIMATIC ANABATIC FORCES FOR LAB. K PREVALENCE



For corneal scars, a major finding and cause of poor vision in Aborigines, increasing evaporation rate and bright sunshine hours have strong anabatic

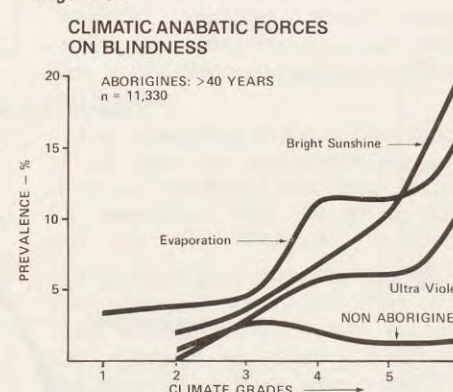
effects (see Figure S 5). There is a steep increase in prevalence rate over a range from 0.6 per cent to 26.4 per cent. No such anabatic force occurs for non-Aborigines.

Figure S 5



Aboriginal blindness prevalence shows the strongest anabatic effects for bright sunshine hours (see Figure S 6), while ultra violet irradiation and increasing evaporation have lesser effect. Rainfall and latitude changes do not have a consistent anabatic effect. (See Table S 1.)

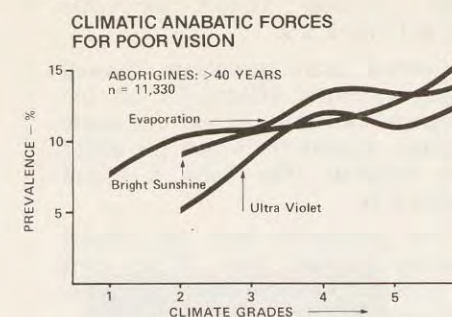
Figure S 6



For the strongest anabatic climate factors there is an average eight fold increase in Aboriginal blindness prevalence from the bottom to the top of the range. No significant anabatic force on non-Aboriginal blindness prevalence was found.

Poor vision prevalence rates show an anabatic climate effect most strongly for bright sunshine hours and weaker effects for increasing ultra violet light and evaporation. Other climate factors show no anabatic effect. (See Figure S 7).

Figure S 7



For all the ocular and other conditions, the climate factors showing the greatest anabatic force on prevalence rates were, in order, bright sunshine hours, increasing ultra violet irradiation exposure, and increasing evaporation rate. (See Table S 1).

The anabatic effects of latitude, decreasing humidity and decreasing rainfall were significantly less. (See Table S 1).

All climate anabatic effects were much greater for Aboriginal prevalence rates than for non-Aboriginal prevalence rates. For non-Aborigines older than 40 years, the climate variables did not have significant effects on the prevalence rates of cataract, pterygium, corneal scars or blindness. There were only 3,000 such persons compared with 11,000 Aborigines.

For non-Aborigines the trend for prevalence rates to rank with the order of the climatic variables was not significant at the $p = .05$ level for any factor or condition.

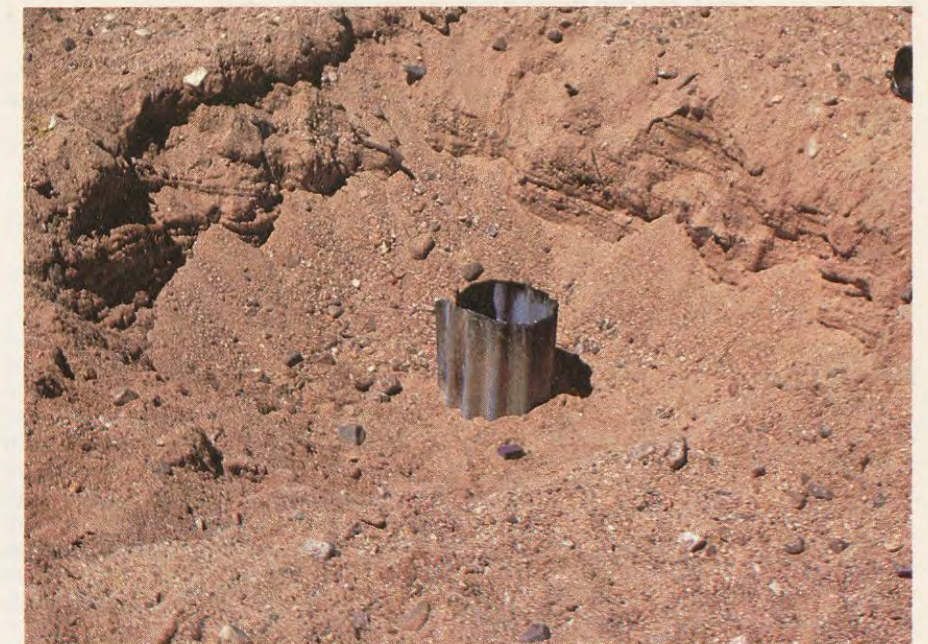
Hygiene

Generally improvement in the quality of hygiene variables lowered the prevalence rate for the health parameters measured. This lowering was in stages and is best described as CAT-ABATIC — declining in degrees.

The catabatic effect of improvement of each of the six "hygiene" variables was not equal nor was it similar for all the health parameters measured. It is to be remembered that non-Aborigines are classified for each "hygiene" variable at the highest level.

The Catabatic Force of Improved Hygiene

Firstly, for follicular trachoma for Aborigines under 20 years, all six "hygiene" variables showed a strong



A small "soak" in a creek bed the only water supply for a community of more than 100 Aborigines — Napperby, Northern Territory.



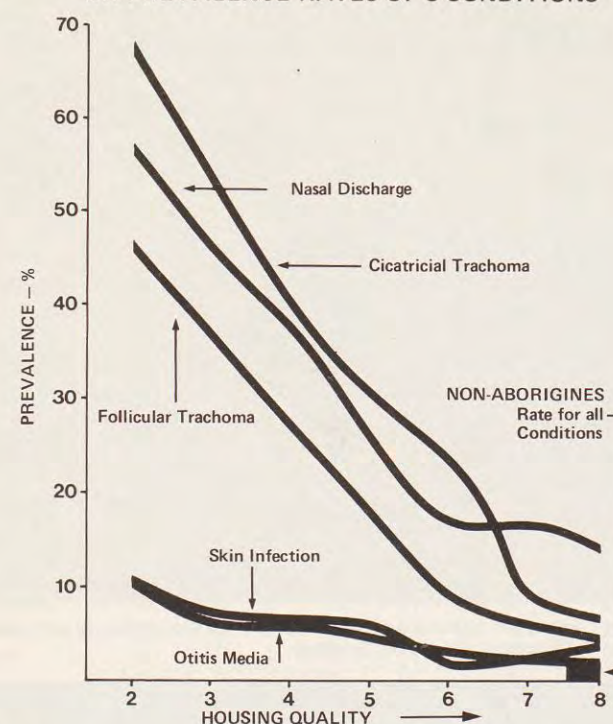
One result of adequate access to water.

association for prevalence rates to fall as hygiene improved. From Figure S 8 and Table S 1 it can be seen that the prevalence falls from 46 per cent in the poorest housing category to 4 per cent in the best. The catabatic effect is greater at the lower hygiene level but the direction of change is constant and towards the level of non-Aboriginal prevalence, as the level of non-Aboriginal housing is approached.

Cicatricial trachoma prevalence rates for all ages shows a strong catabatic effect for all six "hygiene" variables, and particularly for the housing variable, see Figure S 8. As housing improves, prevalence falls from 67 per cent, approaching but not attaining the non-Aboriginal prevalence. Nutritional status showed a less strong catabatic effect than the other factors.

Figure S 8

CATABATIC FORCE OF HOUSING QUALITY ON PREVALENCE RATES OF 5 CONDITIONS



Nasal discharge showed a strong catabatic effect for all six "hygiene" variables except for sewerage systems where the effect was present but less strong (see Table S 1); although the catabatic effect for housing improvement, as seen in Figure S 8, is strong, the final level of prevalence attained is very much higher than the non-Aboriginal average. This may reflect a lack of sensitivity on housing quality measurement or it may reflect that the best Aboriginal housing is usually below the standard of average non-Aboriginal housing.

From Figure S 8 it may be induced that improved housing quality is associated with lessening disease prevalence. Health benefit seems to accrue stepwise well before top quality is achieved. Improved housing seems to be used by Aborigines to lessen disease prevalence.

Otitis media prevalence for Aborigines, although having a lower level generally, shows a significant catabatic effect with improved hygiene. The effect was very strong for housing, (see Figure S 8 and Table S 1) sewerage systems, food storage and water access. It was present but less strong for nutritional status and waste disposal. In the best housing category, otitis media rates for non-Aborigines were very close to that for Aborigines. (See Table S 1).

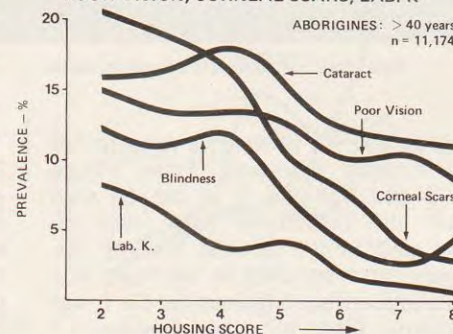
Skin infection prevalence rates showed a catabatic effect strongest for sewerage systems and food storage facilities (see Table S 1) and also an effect for all the other "hygiene" factors, for example, for housing, (see Figure S 8).

The catabatic effect of the "hygiene" variables was also tested for the prevalence of cataract, pterygium, corneal scars, labrador keratopathy, blindness and poor vision in Aborigines more than 40 years.

For Cataract, only housing showed a catabatic effect on prevalence, see Table S1 and Figure S9.

Figure S 9

CATABATIC FORCE OF HOUSING ON THE PREVALENCE OF CATARACT, BLINDNESS, POOR VISION, CORNEAL SCARS, LAB. K



Labrador Keratopathy prevalence showed a strong catabatic effect for nutritional-status and food storage

facilities and a weaker effect for the other "hygiene" factors, see Table S 1 and Figure S 9.

Corneal scars prevalence showed strong catabatic effects for all the "hygiene" variables except for waste disposal systems for which the effect was moderate (See Table S 1 and Figure S 9).

The prevalence rate for corneal scarring dropped from 20 per cent to 3 per cent as the housing grades improved from 2 to 8.

Blindness and poor vision prevalence rates both showed catabatic effects with the "hygiene" variables. See Table S 1 and Figure S 9. The lowering of prevalence was greater for blindness than for poor vision (see Figure S 9). No hygiene factor failed to show a catabatic effect for these worst grades of vision. (See Table S 1).

For pterygium prevalence none of the "hygiene" variables showed a catabatic effect.

For all eleven conditions tested the catabatic effects of prevalence rates of improved hygiene was overall greatest for housing, sewerage systems then water access and nutritional status and lastly, waste disposal (See Table S 1). To achieve a score of 8 for food storage, an Aboriginal group would mostly likely also have all the other "hygiene" variables at a high level.

In summary, the anabatic effects of the dry, bright climate of Australia drives prevalence rates of trachoma, otitis media, skin disease, nasal discharge, cataract, pterygium, corneal scars, labrador keratopathy, blindness and poor vision higher but the effect is much greater for Aborigines.

The catabatic or lowering effect on prevalence rates for Aborigines for the same diseases by improvement of the "hygiene" factors is dramatic for trachoma, nasal discharge, otitis media and corneal scars and blindness and significant for labrador keratopathy and skin diseases. For pterygium and cataract, "hygiene" as tested appears to play little part in deciding prevalence rate levels.

In Chapter 15, we will consider the facilities necessary for rural Australians to reduce the anabatic force of climate on the prevalence of disease and also those things necessary to increase the catabatic force of improved "hygiene" on the prevalence of disease.



Chapter 11:

Trachoma Treatment Programs

This report has shown how trachoma can lead to blindness and reduced vision. How much this is so depends on the extent to which the individual has been exposed to and has suffered from the effects of infectious disease: the greater, and of longer duration, the initial infection, the more severe the cicatricial consequences can be expected to be, and the more likely the disease is to cause substantial visual loss.

In communities in Australia where trachoma is still endemic, many people, particularly the aged, are suffering substantial loss of vision because of trachoma. While follicular trachoma is no longer evident for many of those with visual loss, the cicatricial consequences of the follicular trachoma have become progressively greater over the years.

Because visual loss may develop so long after follicular trachoma has receded, the prevalence of visual loss and blindness in trachoma-endemic communities is a reflection of the prevalence in and intensity of follicular trachoma in those communities in past years and does not necessarily accurately reflect the present force of infection.

However, there are clear signs that the follicular trachoma prevalent today is still of sufficient force and intensity to cause disabling, potentially blinding lesions in future years for those presently exposed.

Trachoma in Australia must therefore be said to remain blinding, and avoidably so in that the disease is tractable. Because improvement in environmental conditions, which determine the prevalence and intensity of the disease, is so slow, trachoma can be expected to continue reaping its crop of visually disabled people from the adolescents and children of today and among the generations which follow. Until the intervention required to wipe out the pools of trachoma infection in Aboriginal communities occurs, trachoma will continue to be a substantial cause of

avoidable blindness in Australia.

One of the intervention techniques available is chemotherapy — designed to reduce the strength of infectious pools (and thus the incidence and ultimately the prevalence of infection), and also to shorten the duration of infection in affected individuals — one of the factors which contributes to the severity of the consequences of follicular trachoma.

Chemotherapeutic attacks on chlamydial infections must take into account the epidemiology of the disease and also the demography of the communities involved. Epidemiology simply means study among the people. Trachoma is a disease among the people rather than an affliction of the individual. This is especially so of Australian Aboriginal trachoma. The logic of mass treatment appeals to Aboriginal people whose life experience confirms its need and to anyone with even a brief exposure to Aboriginal living styles in trachoma-endemic areas of Australia. In these areas persons share each others' bacteriological environment constantly and palpably, and infection is not confined to one part of the body. In these circumstances treatment of individuals only, or of a single part of the body only, is inappropriate. Although much medication in urban Australia is appropriately delivered person by person, such a method does not fit the needs of trachoma therapy in rural Australia.

Thus all persons in the infectious pool should be treated simultaneously, and whole areas treated to reduce the likelihood of reinfection caused by movements of people from untreated to treated centres.

Initially, an intensive period of chemotherapy, extending over at least three weeks, is indicated; this attack should be followed by intermittent chemotherapy and/or topical therapy, especially during periods of high prevalence of other ocular pathogens.

The National Trachoma and Eye Health Program organised four major mass-treatment programs based on these principles of chemotherapeutic intervention, and many other much smaller-scale programs based on particular communities: attacking trachoma infections family by family where prevalence was low and restricted to members of a few families.

The most appropriate drug for the initial intensive chemotherapeutic attack on the reservoir of chlamydia in communities was considered to be Co-trimoxazole (trimethoprim-sulphamethoxazole).

This broad spectrum antibacterial agent is known to have a good anti-chlamydial effect¹, although earlier hopes for a synergism between trimethoprim and sulphamethoxazole in attacking chlamydia have not been realised.² It is also known to have a good effect on secondary bacterial infections of the eye.

It delivers consistently therapeutic levels to mucous membranes, including the eye³, and in commercially available forms can be delivered conveniently and easily in twice-daily dosages to people of all ages.

The preparation is well tolerated, and is relatively free of side effects.⁴ 5 6 7 8 9 & 10

In spite of extremely large scale use of Co-trimoxazole throughout the world, no significant development of resistance by any hitherto susceptible organism has yet been shown. There has been little change in the resistance pattern over almost a decade of widespread use.^{11 12 13 & 14}

A not unimportant consideration, though to some extent a secondary one, was the particular relevance of Co-trimoxazole to the main pathogenic microbial load of Australian Aborigines, where respiratory infections and other diseases susceptible to Co-trimoxazole intervention are very prevalent. It was partly because of advice about the special suitability of Co-trimoxazole from a number of specialists in Aboriginal health, including Father Frank Flynn, MSC, that the particular drug was chosen.

The program's employment of the drug was supervised by Dr John Spicer, consultant physician in infectious diseases at the Bacteriology Department, Alfred Hospital, Melbourne. Dr Spicer was engaged to advise on the planning of the treat-

ment regime, to assist in the diagnosis and treatment of any side effects, and to co-ordinate the medical surveillance of the programs.

No other trachoma-endemic area is known by the National Trachoma and Eye Health Program to be using Co-trimoxazole in treatment campaigns, although another systemic drug, Doxycycline, is known to have been used.^{15 16} The use of this drug was considered and was used on a trial basis in one community. There are a number of factors which in the program's judgment make Doxycycline less appropriate than Co-trimoxazole in the Australian context, despite any advantages which might be available from the fact that Doxycycline needs to be administered only once daily.

The trial use of Doxycycline (Vibramycin) in one community during a treatment campaign provided no material with which one could compare the relative efficacies of Doxycycline and Co-trimoxazole: patient resistance proved so strong after several days that effective delivery was impossible.

A vital consideration in the choice of Co-trimoxazole was the desire to make the treatment campaigns part of a general community mobilisation toward health and, in particular, toward eye health. The program's

upon the ordinary lives of the people involved. The communities, it might be added, generally had some experience of mass-treatment campaigns, including topical ones, though not with ones of the duration or degree of community involvement in planning and delivery as those organised by the program.

The drug selected could easily be dispensed by health workers and was clearly identified in the minds of the communities with the anti-trachoma program because of the consultations involved, and the use of local people in delivery and educational efforts. It had the support and active involvement of the authority structures of the particular communities.

The use of Co-trimoxazole in large-scale mass-treatment campaigns followed trials at Enngonia, a predominantly Aboriginal community in western NSW. These trials indicated a sustained beneficial treatment effect on follicular trachoma in children.¹⁷

Professor Barrie Jones, one of the world's leading trachomatologists who gave assistance in the Enngonia trials, reviewed the considerations surrounding the choice of Co-trimoxazole in the National Trachoma and Eye Health Program treatment programs in a report he prepared for the Royal Australian College of Ophthalmologists

ENNGONIA TREATMENT TRIAL: CHILDREN 2-11 YEARS

Follicle Grade	Initial Examination 1972 before treatment		Initial Examination 1975, 3 years after treatment	
	Number	Percentage	Number	Percentage
0	9	25	36	95
1	16	44	2	5
2	10	28	0	0
3	1	3	0	0
	36		38	

experience, and the advice it received during intensive consultations with the authority structures of the communities with which we were dealing, was, at the broad system of administration which a drug such as Co-trimoxazole involved, the most desirable and acceptable. Also, once-daily medication would not sufficiently meet the needs of involving the whole community in a movement toward health, while any medication requiring four or more administrations per day would be unduly intrusive

in early 1978.¹⁸ The relevant section of the report reads:

The policy of treating the whole population, including adults, on the basis of follicle-finding in the children in the absence of microbiological, serological, or unequivocal clinical evidence of infection by *Chlamydia trachomatis* in the adults is, in my opinion, correct action.

About the principle of initial intensive chemotherapy, I have

no doubts, provided the therapy delivered is adequate to eradicate transmissible infection by *Chlamydia trachomatis*.

Our experience suggests that, irrespective of whether oral or topical delivery is chosen, the delivery should be maintained for a full three weeks. The choice of oral Co-trimoxazole in standard B.D. dosage for use as the anti-chlamydial drug for initial intensive chemotherapy is less clear cut.

When I visited Enngonia with Professor Fred Hollows, in 1972, and we subsequently isolated *Chlamydia trachomatis* from eight out of 20 children swabbed, he planned his four week trial of twice daily Co-trimoxazole in Enngonia, considerably on the recommendation of Professor Max Kamien who had experience of using the drug for respiratory and alimentary tract infections in the Aborigines there. It was felt that Co-trimoxazole was especially well suited to the main microbial loads in the Aborigines. . .

On balance, and in view of all the data now available to me, I consider that the choice of Co-trimoxazole was reasonable. The choice was good if Professor Hollows' views are shown to be correct of the low incidence of sulphonamide-resistant bacteria and hence the value of the antibacterial effect, and the effect on the community interest in the program engendered by twice-daily dosage.

Regime Used

Co-trimoxazole: Septrin (Burroughs-Wellcome)	
Tablets: Trimethoprim	80 mg
Sulphamethoxazole	400 mg
Paediatric suspension: 10 mls contains	
Trimethoprim	80 mg
Sulphamethoxazole	400 mg
3 months to 2 years	2.50 mls of suspension b.d. for 20 days
2-5 years	5 mls of suspension b.d. for 20 days
5-10 years	10 mls of suspension b.d. for 20 days
10-adolescent	1 tab. b.d. for 20 days

late adolescent to adult 2 tabs. b.d. for 20 days.

In addition, 5 mg of folic acid was administered during the last week of the program to persons said to be over 60 years old to counter the possible risk of exacerbation of any folate deficiency.¹⁹

On each dosage occasion, the drug was offered with freshly prepared artificially sweetened cordial containing a solution of 250 gm of Sodium ascorbate (Roche). Advice we received from Aboriginal organisations and medical practitioners in the Aboriginal health field pointed to a strong possibility of Vitamin C deficiencies in the diets of the people living in fringe camps and settlements, and we were advised that Vitamin C would be a most appropriate addition to any regime.

The 20-day course was adopted in an attempt to ensure that a significant proportion of the treated community would receive sufficient medication to maintain therapeutic blood and tissue levels of the agent for a sufficient period. It is not known for certain what the critical period is.

The Delivery of Treatment

Extensive surveys among the Pitjantjatjara Aboriginal people in the north-west of South Australia, and adjacent areas of Western Australia and the Northern Territory, showed a high level of follicular trachoma. Program leaders had extensive consultations with the senior members of the tribe about the most appropriate method of dealing with the problem. At this stage, the results of the Enngonia treatment trials provided the program with a treatment regime it could recommend.

The Pitjantjatjara Council, in its first ever meeting on non-ceremonial business, spent two days with program personnel discussing the most appropriate mechanisms for their communities.

The same process of consultation has been followed in each of the other three treatment programs: one in the bottom half of the Northern Territory, another in the south of Western Australia, and another in

AREAS OF MASS SYSTEMIC TRACHOMA TREATMENT PROGRAMS 1976-1977-1978

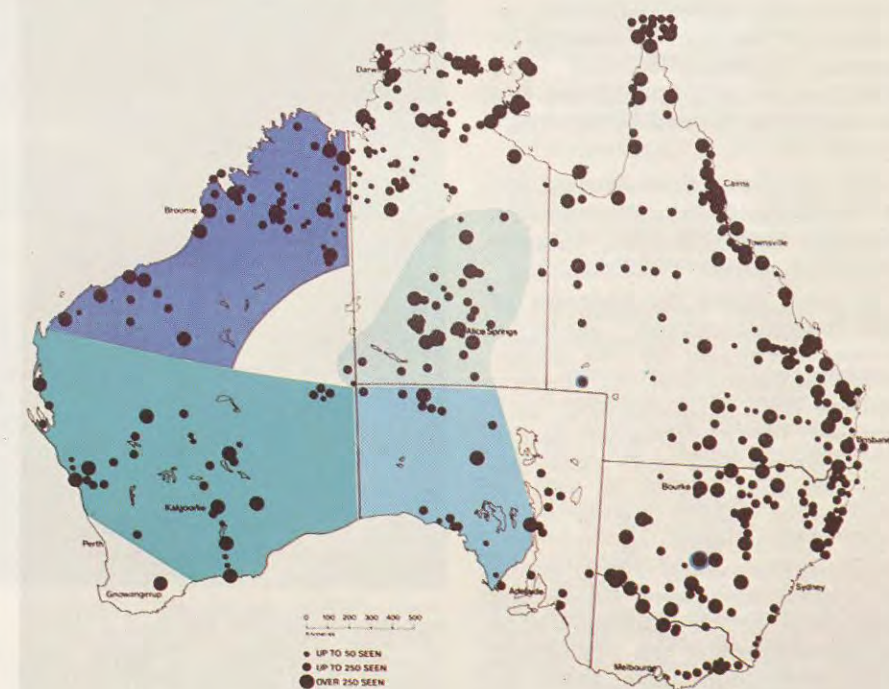


FIGURE 1

the north and north-west of that state. The areas in which treatment was carried out are shown in Figure T 1.

The precise system adopted has varied from community to community, according to their needs and wishes, but all systems have revolved around using persons from the structures. Some communities have handled the administration without assistance from outsiders; most communities, however, were assisted by medical and other



Figure T 2 "Aboriginal health workers administering Septrin in a Vitamin C-based cordial in the Northern Territory."

students from various universities, recruited on the basis of coverage of travelling expenses, a small living allowance and an understanding that the experience they would have would provide their major reward.

The function of the student was to record the delivery of treatment, this being done only after seeing the medication actually swallowed.

A week before the beginning of each treatment campaign the health workers nominated by the communities gathered with the medical students and program field team members for a period of general familiarisation with each other and with the techniques to be used. In addition, a short course in appropriate clinical skills for the conditions under which people would be working was given. Advice was given about the detection, notification and management of any side effects, along with instructions about reporting to a central agency where a doctor was on hand.

During the course of the program, program doctors travelled about the communities giving advice, consulting community leaders, and assisting with any medical problems which arose.

Because of the mobility of members of Aboriginal communities, it was necessary to treat whole areas at once, rather than to treat one community and then the next. It may be that one factor in the failure of treatment campaigns in some of these com-

In all, 130 students were employed to assist with treatment programs, and about 200 Aboriginal health workers. The mass-treatment programs took place at the following times:

Pitjantjatjara communities (about 3,000 people) August, 1976
Red Centre — Northern Territory (10,700 people) March, 1977
Eastern Goldfields and Murchison district, WA (4,500 people) August, 1977
Pilbara and Kimberleys WA (7,000 people) December, 1977

Compliance

In all, about 25,000 Aborigines in South Australia, Western Australia and the Northern Territory have participated in mass-treatment campaigns. An average of about 26 dose deliveries, of a maximum 40 per person, has been recorded.

The mean and median numbers of doses delivered during the 20-day period varied from community to community, and, with a few notable exceptions, were generally considered satisfactory.

Analysis of compliance indicates that there tended to be two clusters in the population of each community: those who received close to a full

Figure T 3 "Medical students who assisted in the first N.T.E.H.P. treatment program in 1976."



munities in the past has been a failure to take population mobility into account. As a result, reinfection from other nearby communities quickly occurs.

course of treatment, and those who received considerably less than a full course — certainly not one sustained long enough for any immediate effects to be expected.

An effective course was considered, for the purpose of analysis of compliance, to be a period of 10 days during the 20-day treatment period, in which 10 doses were received for the first five days and at least one dose per day during the next five days. In practice, because of the clustering effect already mentioned, a less stringent standard for measuring compliance would not have admitted a much greater proportion of the population. Those considered to have received effective doses would have had an average 35 doses, with a standard deviation of three, while those who failed to have an effective dose would have had an average 15 doses, with a standard deviation of six.

In general, children and adolescents showed higher rates of compliance than their communities as a whole; compliance among men aged between 20 and 40 being particularly poor.

Even those who did not receive effective doses of the drug could be expected to benefit if other members of the community had received effective treatment, because the pressure of reinfection is reduced.

Side Effects

Co-trimoxazole is a relatively well-tolerated drug, but side effects of some sort can be expected in about one in 20 courses administered.^{20 21} About 75 per cent of these involve cutaneous manifestations, or gastrointestinal reactions, the overwhelming proportion of which are fairly mild (nausea, vomiting, stomatitis, glossitis and rash) and cease on withdrawal of the drug. A rare side effect is erythema multiforme, including Stevens-Johnson syndrome, with a highest reported incidence of less than one in 500,000.^(22 23) Haematological reactions appear to occur with an overall incidence similar to that known to occur with sulphonamides.²⁴

Despite the presence of medical practitioners in the field during treatment campaigns, it is always difficult to assess the number and severity of all side effects, especially if a reaction, mild although unpleasant, leads not to direct complaint but to cessation of therapy through the patient making himself or herself absent when the medication is being dispensed. Additionally, there is almost always a high prevalence of infection and disease present in most Aboriginal communities. A possibility exists that

some conditions presented as being possible reactions to Co-trimoxazole therapy had only a temporal relationship with it.

Reports of side effects were also seen to vary according to the degree of support or antipathy felt towards the program and its aims by the reporters, including local health personnel. Unfortunately, in some areas the support given by the program to the development of community-based and controlled health services led to active antipathy from some quarters, who regarded any such developments as a threat to their own positions.

In one area, for example, health communications systems were widely used to sound warnings about the dangers of Co-trimoxazole, including descriptions of side effects, especially the more serious ones. As a result, the number of side effects reported seemed greater, and more serious, than either the literature or the program's experience in other areas gave reason to expect. When, however, these reports were checked up by program doctors, many of the people reported as having side effects were found to be absent, to have made 'complete recoveries' or to have had problems unrelated to the use of Co-trimoxazole. The difference between expected side effects and what was reported was attributed in most cases to what one doctor described as the 'highly polarised situation' in the area.²⁵

Overall, the reports of the side effects encountered by the program were, but for one community, in line with what might have been expected from the literature. Nausea, vomiting and diarrhoea were reported fairly commonly, the latter perhaps associated with the Vitamin C preparation.

Other gastro-intestinal side effects reported were glossitis and stomatitis, with skin rashes and general malaise being recorded in some communities.

In Western Australia, medical supervision of the 12,000 people receiving treatment was supplied by the Public Health authorities who reported:

"Side effects following the administration of Septrin in the mass treatment for trachoma in the Eastern Goldfields, Murchison, Pilbara and Kimberley areas of Western Australia were limited to rashes and headaches. No cases of major side effects have been reported to the supervising medical officers of this branch".²⁶

Ongoing Chemotherapy

Intensive chemotherapy programs organised by the National Trachoma and Eye Health Program are seen as having been the beginning of efforts to reduce the rate of blinding trachoma in the communities treated. Unless the treatment effect is followed up, and environmental changes are made which will destroy the basis of the organism's persistence, any advantage gained by the initial mass treatment may be lost.

Professor Barrie Jones, in his report on the program, devoted considerable attention to the way in which ongoing programs should be organised. The program agrees with his recommendations, repeated in full below:²⁷

"Ongoing action can, in my opinion, best be organised through a sequence of three phases of action: the attack phase, a consolidation phase and a surveillance phase."

The Attack Phase

The Attack Phase of the National Trachoma and Eye Health Program has been essential in order:

1. to identify the most under-served, the most disadvantaged, and the most urgently needing communities.
2. to provide surgical care of the accumulated backlog of remediable blindness from cataract, and possibly also from corneal opacification.
3. to provide surgical correction of the potentially blinding trachomatous lid deformities.
4. to carry out initial intensive mass chemotherapy to substantially reduce the reservoir of infection with *Chlamydia trachomatis*".

The 'Consolidation Phase': action against *Chlamydia trachomatis*

"In communities where environmental sanitation and personal hygiene have already been raised, or could foreseeably be raised, it may be sufficient, in order to achieve long-term eradication, merely to give initial intensive chemotherapy to the identified individuals with trachoma, or to give it to the whole population. On the other hand, in the most disadvantaged communities, with the most severe problems of communicable ophthalmia, it is difficult to see how environmental changes can be achieved within a reasonable time span. Clearly these

improvements should be pursued, but the addition of continuing or repeated chemotherapy may be required, adequately to control the situation in some communities.

"Surveillance will indicate the need for further chemotherapy, repeating mass intensive oral chemotherapy (not necessarily using the same drug on each occasion). In one of our studies in Southern Iran²⁸ an upswing of transmission of trachoma appears to be recurring in the third year after initial intensive chemotherapy, despite a discernible level of economic development going on. If intensive oral chemotherapy were to be the only intervention in that community it could, at present, be required every third year.

"In Professor Fred Hollows' uncontrolled trial of initial intensive oral chemotherapy with Co-trimoxazole in the Aboriginal community at Enngonia, there was a demonstrable effect at six months, and I understand from him that this effect is still apparent at five years. To ensure a lasting effect it will be necessary to maintain surveillance for recrudescence of transmission of trachomatous infection, thereby to determine the need for further intensive oral chemotherapy or other measures during the 'Consolidation Phase'.

The Consolidation Phase: continuing action against ocular bacteria and Chlamydia

"Blindness from infection by Chlamydia trachomatis is the result of life in a community with a continuing high level of ocular promiscuity — high pressure of transmission of communicable eye infections. Hyperendemic trachoma is therefore epidemiologically, and from the public health point of view, inseparably part of the overall problem of communicable ophthalmia, in which Chlamydia trachomatis accounts for the bulk of the 'chronic communicable ophthalmia' and the totality of pathogenic ocular bacteria and viruses account for the 'acute communicable ophthalmia'.

"Chlamydia trachomatis, causing chronic infection, waits for the delivery of initial intensive 'eradication' chemotherapy whenever it may be convenient to deliver it to the whole community, or the families concerned.

"The acute ophthalmias, however, arise acutely, both sporadically and especially in epidemics. These are un-

likely to be substantially influenced for long by initial intensive chemotherapy. Logically they require the immediate, family-based delivery of topical chemotherapy with a tetracycline or a macrolide (erythromycin or spiramycin) antibiotic ointment whenever an acute red eye begins to develop.

"Our unpublished work in Southern Iran, monitoring the ocular microbial flora in families with severe active trachoma over a period of more than one year, suggests that one application of antibiotic eye ointment given once each month to all the children in a family may drastically reduce the pressure of transmission of bacterial infection.

"Substantial reduction in the incidence of discharging red eyes should also reduce the transmission of infection of Chlamydia trachomatis and this may be further reduced if the chosen antibiotic is active also against that agent. It is necessary, however, to implement changes that are of ecological dimension both in impact and in duration if the effect on the menace of blindness is to be of long duration. This is the second objective of the 'Consolidation Phase'.

The Consolidation Phase: Broadening the base of health care

The provision of family-based immediate topical chemotherapy of every red or sticky eye is an objective that can be achieved only within the context of a substantial community-based move towards health, arising within the Aboriginal communities. This should arise in response to education concerning health that is comprehensible and acceptable within the existing cultural constraints, and especially in response to perceived benefits from intensive measures.

"It is clear from Professor Hollows' letter to the college of 13th July 1976, and from the 'Report on the Activities of the National Trachoma and Eye Health Program in South Australia', by Dr David Moran, Program Epidemiologist, March 1977, that the combined effect of the initial educational component, the perceived benefits from the present survey, the chemotherapy-treatment program and the surgical-treatment program have begun to mobilise exactly this sort of response by the formation of the Pitjantjatjara Medical Council. This group of representatives of the various

Pitjantjatjara communities who had met to discuss what they considered important as regards health services for their own people, could have a continuing input into decision-making with the South Australian Government, the Central Australian Aboriginal Congress and the other relevant agencies.

"This would appear to be an historically unique response. It lays clearly upon the shoulders of all those concerned for Aboriginal health and welfare an enormous responsibility to respond by providing the funds and the utmost encouragement for the appropriate training of Aboriginal health workers, and for the provision of doctors working in continuity on the ground in certain of the larger strongly tribalised Aboriginal communities.

"There is here a matter of great urgency for a policy decision at the highest level to fund this development so that the selection and partial training of a substantial number of Aboriginal health workers can occur during the remaining period of the present National Trachoma and Eye Health Program. Administrative delays can easily result from the complexities of interactions between Federal and State agencies concerning a program that bridges between them all.

"It would be a tragedy if the internal move towards Aboriginal community health and the skills already generated in community eye health care were to be allowed to dissipate. Delay in providing ongoing finance for the training and stabilisation of community-based Aboriginal Health Workers could easily lose this opportunity to establish a framework in which health matters generally are dealt with as 'the communities' own business, rather than as something imposed from above and from a distance.²⁹

"There are similar, though somewhat less urgent, problems which arise in providing ongoing specialist curative eye services in certain Aboriginal communities, especially in the Northern Territory, because of the difficulties in providing State-based finance for the cost of transporting ophthalmologists who volunteer from the college of ophthalmologists to do short periods of work in remote places, which are otherwise entirely without such services.

The Surveillance Phase

"Surveillance should be arranged in selected Aboriginal communities found in the present survey to have the worst problems. This should consist of clinical surveys in these communities, as in the present program. It is desirable at this stage to plan to include also a serological survey using tears and finger-prick blood specimens from the whole population surveyed".

Rescreening

The effectiveness of treatment is best measured by further screening of the groups known to be at risk. Rescreening permitted an assessment of changes, if any, in the prevalence of follicular trachoma in the areas being rescreened, and showed the need for further anti-trachoma action.

The organisation of rescreening exercises in areas of high trachoma prevalence also permitted a review of those with ocular abnormalities requiring continuing attention. These included persons with marked cicatricial trachoma pathology, those with other eye abnormalities, those who had had surgery or were still awaiting it, and those for whom spectacles were prescribed. The greater majority of these were adults — persons in whom follicular trachoma signs were uncommon. For this group rescreening provided little opportunity to assess treatment effect, but provided a continuing eye health care service.

For rescreening purposes it was necessary to see sufficient numbers, at random, to assess whether or not any significant changes had taken place. How many persons had to be seen in order to draw such a conclusion depended on a number of factors including the original prevalence of follicular trachoma and the number of persons originally seen.

In practice, however, the program saw again most children and adolescents in communities it revisited. At no stage during rescreening visits did the program set prior limits on the numbers of persons it needed to see; as on the first occasion, it attempted to see all.

Major rescreening exercises took place in the Pitjantjatjara regions (several months after the conclusion of the treatment program there), in Central Australia, in the Kimberleys, Pilbara and Eastern Goldfields of Western Australia. These rescreenings took place at varying intervals after treatment to permit an assessment of treatment effect.

All rescreenings were 'blind': examiners had no knowledge about previous findings in individuals being screened, and only general knowledge, if any, about overall results in the communities being rescreened. The identification of persons who had been seen on both screening occasions had been done manually before computer analysis of rescreening results.

The results presented in this report

are of persons under the age of 15 on the first screening occasion. These were the persons most likely to have follicular trachoma. Because the presence or absence of trachoma follicles is the prime sign of follicular trachoma, the results represent the change in the follicle status of the persons seen.

In all, 2,201 persons who had been under the age of 15 at the first screening and who had participated in mass-treatment programs, were screened again. A further 252 persons under 15 who did not live in areas where mass-treatment programs took place were also rescreened. The latter might be regarded as a control against which improvements among the former group can be compared.

Table RES 1 and Figure RES 1 show the change in follicle status of persons in each of these age groups on rescreening.

In both groups there was an improvement in the number of follicle-free persons between screenings. In the untreated group, the improvement was not significant ($p=0.07$) but among the treated group it was ($p = <1 \times 10^{-9}$)

Almost half of those seen with follicles at the first screening did not have follicles when rescreened after treatment. In the untreated group, 22 per cent of those with follicles on first screening did not have them on rescreening.

TABLE RES 1: CHANGES IN FOLLICLE STATUS ON RESCREENING: PERSONS UNDER 15

GROUP	AGE	SCREENING	PER CENT WITH FOLLICLES	PER CENT FOLLICLE-FREE	SAMPLE SIZE
TREATED	0-4	First	71	29	391
		Second	55	45	
	5-9	First	53	47	1,173
		Second	26	74	
	10-14	First	39	61	637
		Second	12	88	
UNTREATED	0-4	First	52	48	2,201
		Second	27	73	
	5-9	First	37	63	44
		Second	34	66	
	10-14	First	30	70	142
		Second	23	77	
	0-14	First	29	71	66
		Second	20	80	
	0-14	First	31	69	252
		Second	24	76	

FOLLICLE FREE PERSONS ON FIRST AND SECOND SCREENINGS BY AGE

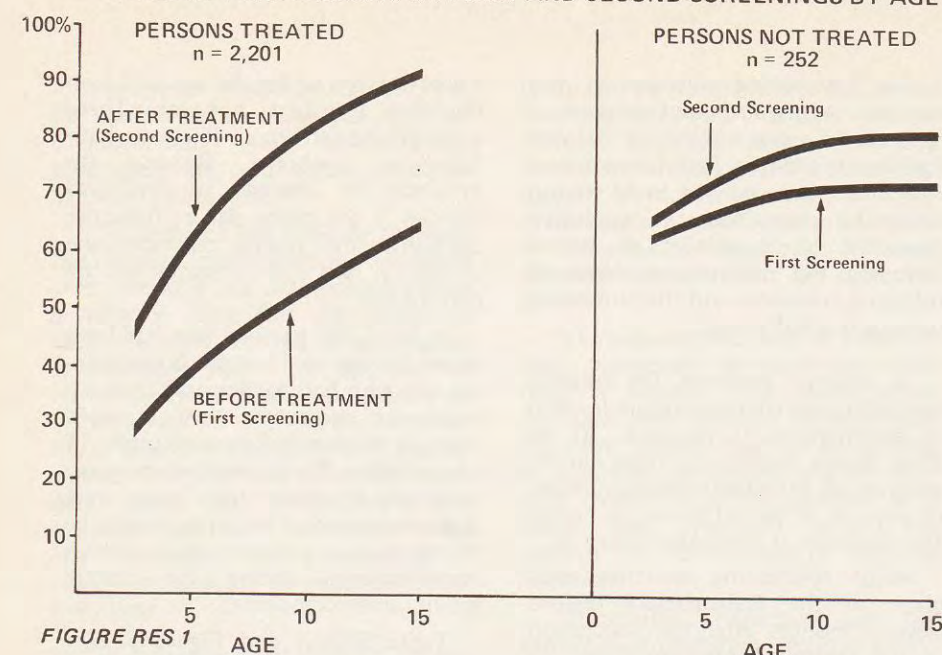


FIGURE RES 1

There was a lessening in the severity of follicles encountered. Follicles, as discussed in Chapter 4, were graded according to whether they were just present, obviously present, or grossly present. Table RES 2 shows the change in the pattern of follicles observed at the two screenings.

This table and figure show that there was not only a reduced prevalence of follicles, particularly in the treated group, but that there was a substantial reduction in the severity of follicles seen, a change again most marked in the treated group. This effect is best

demonstrated by Figure RES 2.

On the first occasion 15 per cent of the treated group had had obvious or gross follicles; only 3 per cent did on the second occasion. This statistically significant change suggests that treatment, even when it does not succeed in eliminating follicles, reduces their severity.

The changes found in rescreening remain significant even when an allowance is made for observer variation or any natural remission which might have been expected over time.

Table RES 3 shows the changes

in follicle prevalence in the different age groups in each of the six zones in which mass-treatment programs took place.

An improvement was found in each zone, although significant improvements were not found in all age groups either because of small number problems or because no real change had occurred. It was noticeable that the most significant improvements were found in primary-school-age children and young adolescents; changes in follicle rates for children under school age when first examined, although significant overall and in a number of zones, tended to be less marked than in others.

Was the improvement in follicle prevalence sustained in time? Table RES 4 shows the change in follicle prevalence according to the period since the mass-treatment program took place.

These figures which include persons of all ages and therefore inflate the proportion of the population seen without follicles, suggest that the change seen was one which was sustained over time. The change seen in persons rescreened one-and-a-half years after the mass-treatment campaigns shows about the same degree of improvement as do the figures from the first six months of treatment.

TABLE RES 2: CHANGES IN FOLLICLE SEVERITY ON RESCREENING: PERSONS UNDER 15

GROUP	AGE	SCREENING	FOLLICLE JUST PRESENT per cent	GRADE OBVIOUSLY PRESENT per cent	GROSSLY PRESENT per cent	SAMPLE SIZE
TREATED	0-4	First	46	24	1	391
		Second	44	11	0	
	5-9	First	37	15	1	1,173
		Second	24	2	0	
	10-14	First	31	8	0	637
		Second	11	1	0	
UNTREATED	0-14	First	37	14	1	2,201
		Second	24	3	0	
	0-4	First	35	2	0	44
		Second	32	2	0	
	5-9	First	25	5	0	142
		Second	19	4	0	
	10-14	First	26	3	0	66
		Second	17	1	0	
	0-14	First	27	4	0	252
		Second	21	3	0	

CHANGES IN FOLLICLE SEVERITY ON RESCREENING BY AGE Treated and Untreated Children

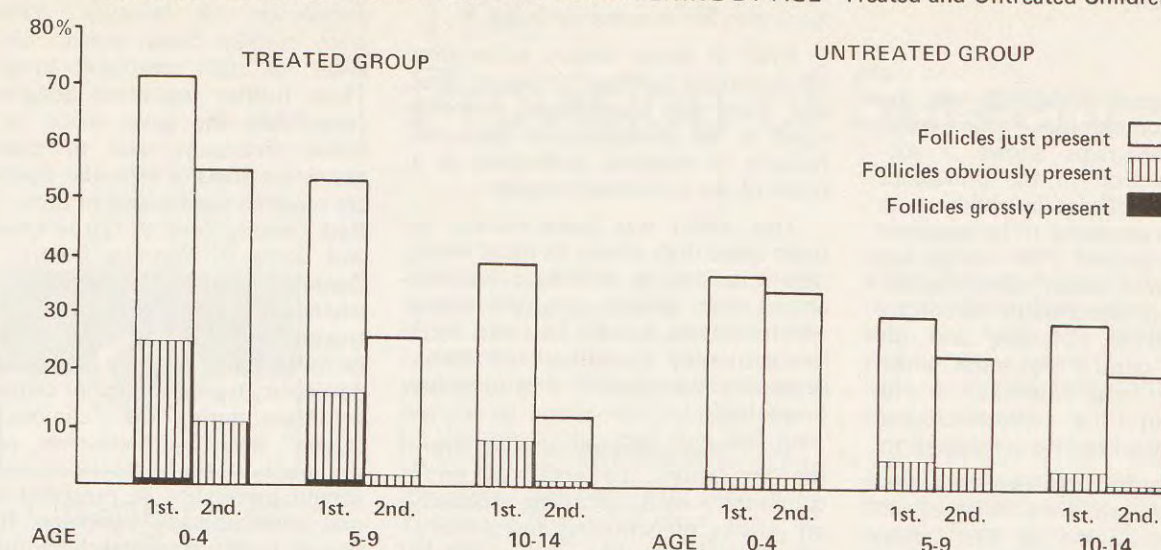


FIGURE RES 2

TABLE RES 3: CHANGES IN FOLLICLE PREVALENCE BY ZONE AND AGE: TREATED ZONES

ZONE	AGE	PER CENT WITH FOLLICLES: FIRST SCREENING	PER CENT WITH FOLLICLES: SECOND SCREENING	SAMPLE SIZE
1: Red Centre	0-4	71	48	104
	5-9	57	23	417
	10-14	52	13	238
2: Cattle Country	0-4	71	53	62
	5-9	40	22	218
	10-14	19	5	105
3: Western Desert	0-4	85	77	111
	5-9	74	51	191
	10-14	56	31	105
4: Goldfields	0-4	87	49	31
	5-9	52	30	226
	10-14	30	15	27
5: Coastal Missions	0-4	63	62	34
	5-9	56	30	90
	10-14	25	3	39
6: Coastal Towns WA	0-4	16	11	32
	5-9	31	8	157
	10-14	20	1	117

TABLE RES 4: CHANGES IN FOLLICLE PREVALENCE ACCORDING TO PERIOD SINCE TREATMENT: ALL AGES

PERIOD SINCE TREATMENT	SCREENING	FOLLICLE FREE per cent	FOLLICLES PRESENT		Grossly per cent	SAMPLE SIZE
0-5 months	First	52	37	11	0	226
	Second	74	25	4	0	
6-11 months	First	61	29	9	1	508
	Second	85	12	3	0	
12-17 months	First	73	21	5	0	836
	Second	87	10	2	0	
18 or more months	First	47	35	17	1	1,600
	Second	67	29	4	0	

Discussion

The program's findings on re-screening communities after mass-treatment programs shows a substantial reduction in the prevalence of trachoma follicles in children, an effect which appeared to be sustained over a long period. This change was significant even when other factors, including improvements in the control group, observer variation, and the amount of natural remission which might have been expected or predicted from the epidemiological pattern, were taken into consideration.

Chemotherapy organised on a mass basis will not have provided all of this improvement. Some of the factors mentioned above have to be taken into consideration: natural remission of follicles with increasing age, the effects of any substantial changes in living conditions in the interval between first and second screenings, and, perhaps, some seasonal variations in follicle

prevalence. Some allowance has to be made also for observer variation.

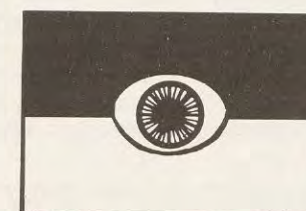
With all these factors taken into consideration however, it seems clear that there was a significant improvement in the prevalence of trachoma follicles in matched individuals as a result of the treatment program.

This effect was more marked in some areas than others. In many areas, despite a fall in follicle prevalence among the young, the prevalence which remains is high. In some there has been only a small improvement, suggesting that further chemotherapy is required.

Such chemotherapy should, from the indications, be organised on a community basis, focussing especially on infants, pre-schoolers and primary-school children, but embracing the entire community. It should be combined with intermittent treatment programs designed to reduce the prevalence of seasonal conjunctivitis, along the lines quoted earlier from Jones.

The areas in which the highest prevalences of follicular trachoma were initially found remain the key areas for such treatment programs. Thus, further treatment designed to consolidate the gains made by the initial treatment, and to mop up remaining pools of follicular trachoma, are required particularly in Zone 1, the Red Centre, Zone 2, Cattle Country, and Zone 3, Western Desert, with Zones 4 to 10 remaining as areas where treatment is necessary or where treatment which has occurred should be followed up. In these latter zones in particular, topical-treatment campaigns organised during the "conjunctivitis season" may, by themselves, reduce the pool of trachoma infection, but should preferably be preceded by an oral chemotherapy campaign. In the former, further mass oral chemotherapy is necessary.

In the remaining zones where follicular trachoma is considerably less prevalent, but pockets of infection exist, family treatment programs are necessary.



Chapter 12:

The Provision of Surgery

The program saw more than 1,400 people during the course of its screening activities whose vision or eye conditions were likely to be improved by surgery. Three types of surgery were most commonly indicated: eyelid (to repair damaged lids and prevent eyelashes from rubbing against the eye), cataract and pterygium. These accounted for more than 90 per cent of the surgery cases identified.

Persons were only identified for surgery if the patient was willing. This meant that some people, particularly the very elderly who were unwilling to undergo surgery because of their age and acceptance of their ocular condition, were not marked as needing surgery although there was a possibility of improvement through it. Similarly some procedures, most notably corneal graft surgery, were only indicated when the person was living in sufficiently good conditions close to major facilities where there was regular ophthalmological follow-up available.

Six out of every seven cases of corneal blindness in Aborigines was attributed to trachoma (see Chapter 7, page 77). For such persons corneal grafting is not successful because of loss of the supporting role of the conjunctiva.

Of those requiring surgery, 34.5 per cent required cataract operations, 29.5 per cent pterygium operations and 27.8 per cent trichiasis operations. The remaining cases involved about 8 per cent of the cases seen.

Table SU1 shows the distribution of surgery cases identified by zone. Because some cases involved several procedures, the category totals come to somewhat more than the totals at the end of each row.

Of the cataract cases, 43 per cent were found in Zones 1, Red Centre, 2, Cattle Country, and 3, Western Desert, although only 36 per cent of the persons 60 years or over (from

where most of the cataract cases came) live in these three zones. This reflects not only the higher cataract rate in these zones but the relative lack of surgical intervention in these areas in the past.

Similarly, 58 per cent of the eyelid cases came from these three zones, while another 33 per cent come from Zones 4, Goldfields, 5, Coastal Mission WA, 6, Coastal Towns WA, 7, Arid Eastern and 8, Top End NT: all zones of intermediate prevalence as far as the prevalence of trachoma, the base of much of the trichiasis and entropion requiring surgery, was concerned.

Almost all the surgery involved Aborigines. Table SU 2 shows the racial distribution of persons identified for surgery.

Some 77 cases are excluded from this list because at the time it was being prepared they had not been integrated properly into the program's files. These would, however, follow the same trend. It can be seen that 90 per cent of the cases for surgery were Aborigines. An analysis of the program's coverage shows that one in every 50 Aborigines seen by the program required eye surgery. By comparison, one in every 300 non-Aborigines seen required eye surgery.

Most surgery cases involved elderly persons. Table SU 3 shows the distribution of the surgery cases among Aborigines according to age.

Almost one in every six Aborigines over the age of 60 seen required eye surgery, while one in every 17 Aborigines between the age of 50 and 59 did. The rate was also high for 40-49 year-olds, with one in every 25 seen being identified for surgery. Only squint surgery cases predominated in the young; the rate for all age groups for squint surgery was, however, low.

Table SU 4 shows the distribution of surgery cases by age among non-Aborigines.

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- 20 Ibid. 7
- 21 Ibid. 16
- 22 Ibid. 4
- 23 Ibid. 12
- 24 Ibid. 4
- 25 Report to the Royal Australian College of Ophthal, on Treatment Programs by Dr. A. McDonald, 1977. On file National Trachoma and Eye Health Program.
- 26 Dr. R. Roberts, Director, Community & Child Health Services, WA on Aboriginal Health Worker Training Program, June 1977.
- 27 Ibid. 18
- 28 Jones B R: The Prevention of Blindness by Trachoma Trans Ophthal Soc. UK Vol XCV:1:75
- 29 Ibid. 18

TABLE SU 1: SURGERY CASES BY ZONE: ABORIGINES AND NON-ABORIGINES

ZONE	Cataract	Eyelid	Pterygium	Corneal	Squint	Other	Total Persons
1. Red Centre	92	108	45	13	3	20	275
2. Cattle Country	69	84	26	2	0	14	190
3. Western Desert	44	32	25	2	0	0	98
4. Goldfields	15	25	25	0	1	2	66
5. Coastal Missions W.A.	12	9	11	1	0	2	34
6. Coastal Towns WA	34	18	38	0	0	5	90
7. Arid Eastern	41	55	116	3	11	16	233
8. Top End NT	64	22	17	6	4	11	121
9. Gulf and Cape	25	6	17	1	1	2	52
10. Torres Strait	32	1	16	0	2	1	51
11. Coastal Qld	27	16	35	1	4	11	93
12. Coastal NSW	10	1	14	0	3	3	31
13. Southern Mainland	11	7	22	1	5	1	47
ALL ZONES	476	384	407	30	34	88	1,381

As with Aborigines, most cases for surgery were old people, with one in every 20 non-Aborigines over the age of 60 being identified for surgery, a rate less than a third of that found among Aborigines in the same age group. One in every 50 non-Aborigines between 50 and 59 were also identified for surgery.

At the time of planning the activities of the program it was envisaged that a good deal of any uncovered back-log of surgery could

TABLE SU 2: SURGERY CASES BY RACE

TYPE OF SURGERY	ABORIGINES	NON-ABORIGINES
Cataract	409	34.7 %
Eyelids	342	29.1
Pterygia	351	29.8
Corneal grafts	29	2.5
Squints	26	2.2
Other	68	5.8
Total persons for surgery	1,177	127

Note: because some operations were multiple procedures, percentages and column totals in these tables are higher than person totals.

TABLE SU 3: SURGERY CASES BY AGE: ABORIGINES

TYPE OF SURGERY	AGE							Total
	0-9	10-19	20-29	30-39	40-49	50-59	60 +	
Cataracts	9	1	8	4	15	44	336	409
Eyelids	5	4	9	25	48	49	202	342
Pterygia	3	4	39	65	91	61	70	351
Corneal grafts	0	0	2	1	2	7	17	29
Squints	12	7	1	5	1	0	0	26
Other	8	6	8	9	4	7	26	68
Persons for Surgery	36	22	66	109	159	157	628	1,177
Rate for surgery by age per thousand	2	1	10	24	41	58	158	19

TABLE SU 4: SURGERY CASES BY AGE: NON-ABORIGINES

TYPE OF SURGERY	AGE							Total
	0-9	10-19	20-29	30-39	40-49	50-59	60 +	
Cataracts	2	0	1	0	0	2	22	27
Eyelids	1	2	1	1	2	2	13	22
Pterygia	2	2	10	9	16	9	10	58
Corneal grafts	0	0	0	0	0	0	1	1
Squints	1	2	1	2	0	2	0	8
Other	1	4	1	2	2	3	2	15
Persons for Surgery	7	10	13	14	20	18	45	127
Rate for surgery by age per thousand	0.4	0.6	5	7	16	21	50	3

be done during the course of screening. However, the number of cases and the essential need for supervised follow-up of any surgical procedure done in the field meant that it was impracticable to deal with much surgery. The forward pressure of the screening schedule dictated the movement of the few skilled eye-surgery-aftercare persons. Screening eye doctors would generally only perform lesser surgical cases that were urgently required, e.g. to preserve the sight of a one-eyed person, and those who were most unlikely to have post-operative complications.

In the event, the program field doctors were able to perform surgical procedures on 413 of the 1,387 cases identified for surgery during the program's field activities or immediately after. This does not include several hundred epilation operations performed on the spot: these involved the removal of eyelashes rubbing against the eye in cases of relatively mild trichiasis where extensive eyelid surgery was not considered necessary. Other cases were performed in local hospitals, program teams being fully equipped for most surgery necessary, and in some cases at local health centres.

Some of the factors which had to be considered in the organisation of surgery for the remaining cases included:

1. The physical remoteness of many areas from hospital facilities. In general, especially in Western Australia, South Australia and the Northern Territory, the more remote a community was from such facilities, the more likely it was that large numbers of surgery cases would be identified. In areas where such facilities existed, particularly if these areas were serviced by ophthalmologists on a fairly regular basis, fewer cases requiring surgical intervention were seen.
2. Cultural and social differences between Aborigines and health-service institutions meant that many people were unwilling to travel long distances for surgery, or undergo surgery at all.
3. In the regions where the problems were greatest there was little regular ophthalmological input before the arrival of the program. This meant that only a few cases could merely be identified

for follow-up during a routine service visit by the local ophthalmologist.

The program's experience in seeking to meet the challenge of providing surgery to people who needed it was the same as that found in all aspects of the program's activities: that the most important ingredient of success was liaison, consultation and discussion with individuals and the community. Repeatedly the program learned that when such communication was effectively organised it was able to deliver highly cost-effective services and meet the needs of the local community; when liaison was less efficiently arranged, the program was considerably less successful in providing such services.

The vital contribution of the program's liaison officers in achieving the full consent and support of the community and individuals involved in surgery will be discussed in greater detail later.

Army Participation

After initial screening activities in the Port Augusta region, the program was able to arrange and complete most of the surgical procedures which proved necessary through the local hospital facilities. The first major challenge to the program in the delivery of surgery was in the Pitjantjatjara regions in the north-west of South Australia, which extends westwards in Western Australia and north into the Northern Territory.

Here the program encountered many old persons who had suffered visual loss and discomfort capable of being alleviated by surgical intervention. Many elderly persons were remedially blind because of cataract; many others suffered from trichiasis due to trachoma.

The nearest hospital facilities were several hundred kilometres away, and for a number of reasons many people were unwilling to be evacuated to this hospital for surgery. Many were very old and concerned about the possibility of dying outside their traditional country, others saw the hospital as frightening, remote and culturally oppressive. Additionally, the volume of cases requiring surgery would have placed considerable strains on the facilities which were available.

After extensive consultation and discussions with members of the Pitjantjatjara council at a meeting of their choosing, it was decided to seek the support of the Australian Army field hospital unit in providing surgery in the area where people lived.

The extensive use of local liaison personnel and Aboriginal health workers helped resolve many logistical problems associated with this: arranging transport and accommodation for patients and securing their informed consent to the procedures. The process of fieldwork and consultation took four months before the arrival of the Army hospital unit.

The Army hospital unit had the advantages of being mobile and able to be installed in the most appropriate area, and of possessing a self-contained operating theatre unit with facilities for in-patient care and a high case load over a short period. A further advantage proved to be the highly-skilled and well-motivated Army officers and personnel, whose training and efficiency proved invaluable to the ultimate success of the venture. From the Army's viewpoint the provision of the facilities provided it with a peacetime training exercise which was well-received and more meaningful than a usual field exercise.

It was decided to install the hospital at Amata, near the top of South Australia. The 11th Field Ambulance detachment, consisting of about 30 Army personnel and a small team of ophthalmic surgeons led by Drs. J.E.K. Galbraith and H.R. Taylor, arrived in the area on November 18, 1976. The unit contained all necessary support personnel, all major items of equipment, and mobile shelter for patients attending surgery.

The first patients began to arrive on that day and pre-operative assessments began the next day, while the camp, with a theatre tent, ward tent, outpatient clinic and self-contained accommodation for staff and patients, was erected during the next three days. Over this period until surgery began on November 21 there were formal and informal meetings and gatherings involving the surgical team, the Amata Council, Aboriginal health workers, and the field ambulance unit. During this time



Figs. SU 1 and 2
"To assist the program in delivering surgical treatment to Aborigines in their remote homelands, Army hospital units were organised at Amata in South Australia, and Utopia in the Northern Territory"

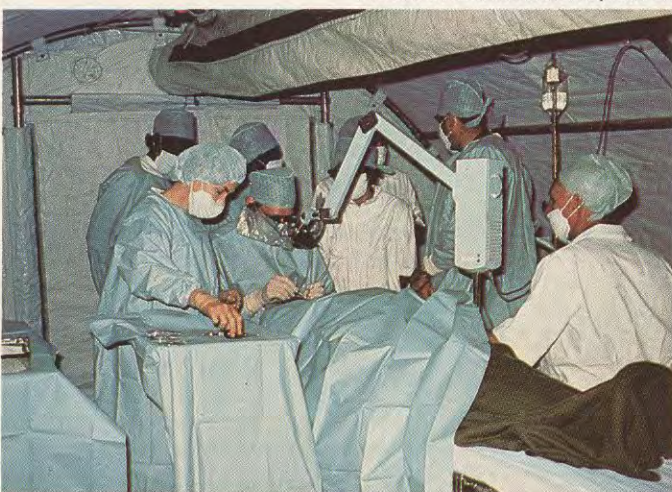


Fig. SU 3
"Surgery teams were equipped for most eye operations. Aboriginal health workers attended for surgical training, to reassure the patient and to translate."

practical strategies were implemented to ensure the success of the exercise: after consultation with liaison officers, surgery lists were drawn up so that the operations proceeded in the most appropriate way, with the most senior persons being dealt with first and no embarrassing situations involving inappropriate mixing of persons in avoidance relationships with others; and great care was taken to ensure that social customs were respected in the ward tents during the patient's stay.

The degree of acceptance of the program by the Amata people was shown on the first night after the operations when the soldiers and the surgical team were invited to attend an Inma, or corroboree.

Surgery began on November 21, with 41 operations, 21 intra-ocular



Fig. SU 4
"Aboriginal health workers and Army personnel after surgery exercise at Utopia, Northern Territory."

and 20 extra-ocular, being completed over the next two-and-a-half days. There were only two minor surgical complications.

Some extracts from the report on the exercise by Dr. Galbraith follows:

On Friday, November 24, a further dressing round was conducted in the morning, and at this stage the visual acuity of the cataract patients was assessed with a lens. The excitement of this ward-round permeated the entire camp and gave satisfaction to everyone who had been involved in the exercise.

A typical patient was, an old man who had been totally blind from cataract for 20 years. His excitement at regaining his sight was moving. He ann-

ounced his intention of joining a kangaroo hunt as soon as he was discharged. He had not hunted for over 20 years The health workers played an important role in the success of our program. They assisted in pre-operative assessment of the patients they had brought to hospital. Both pre- and post-operatively, at least one health worker was on duty in the ward by day and by night to assist the ward staff and to interpret for them. Their presence was particularly effective in allaying the apprehension of the patients in such a strange environment. One health worker was present during the induction of local anaesthesia, and stood behind the surgeon during the surgery to watch the operation and to reassure the patient by his presence. This

was a comfort to the patient and made the job of the surgeon easier. The health workers were able to tell patients in their own tongue what was involved in the operation and even to show them a recently extracted cataract. In our opinion, health workers must be closely integrated in any further team, and treated as equal and valued members.

The Army theatre staff impressed us with their enthusiasm and skill, and their willingness to take directions from our theatre sisters. The speed with which they picked up the techniques of assisting eye surgery ensured a successful outcome to all operations. The ward staff showed gentleness and understanding towards their charges, and the sight of a soldier leading a blind old man to and from the toilet with tact and kindness impressed us all. The ward staff performed daily dressings on all extra-ocular operations after their discharge from hospital until their sutures were removed one week post-operatively.

The facility with which the program was able to deal with urgently needed Aboriginal eye surgery while working with the Army contrasted quite markedly with the difficulties often encountered when our surgeons attempted to use existing hospitals in parts of rural Australia.

Conclusions

A short visit by a highly specialised team is a suitable method of providing ophthalmic surgical care for Aborigines in remote areas. It is recommended that consideration be given to the possibility of using a field ambulance with theatre bubble and surgical team, even in areas where hospital accommodation is already available. This ensures that the work of the hospital is not interrupted by the team taking over large numbers of beds for surgical cases. It is doubtful if any central Australian hospital could provide 32 beds for one week, which was the requirement for this team. It is further recommended that the local medical and nursing staff be involved in the management of patients in such a unit.

The visit to Amata has demonstrated conclusively that it is both

practicable and safe to perform major eye surgery such as cataract operations in an operating theatre bubble. The Aboriginal health workers played an important role in the work of the team and should be encouraged to participate in the work of any future surgical team.

Forty-one eye operations were performed at Amata without serious complications, and all cataract patients were excited by an increase in vision post-operatively.

A review of patients who had had operations indicated that the restoration of sight by cataract extraction and pain relief from eyelid repair operations were much appreciated by the community. Many of the patients had regained their independence and were able to cook and feed themselves, to make artifacts (a source of income), and return to take their rightful places in traditional and ceremonial life.

Encouraged by the success of the Amata exercise, the program also sought the assistance of the Army in organising a similar exercise at Utopia, about 250 kilometres north-east of Alice Springs in May, 1977. During this exercise 73 surgical procedures were performed on 47 patients with similar success to the Amata exercise.

Cost considerations alone (the program had to bear much of the costs of such exercises) prevented the further use of the Army in providing surgical care for large numbers of persons in remote areas. There were a number of other areas, notably in Western Australia, the Cattle Country of the Northern Territory and the Gulf Country of Queensland, where such exercises might prove the most appropriate method of dealing with the backlog of surgery needed to be done.

Unfortunately, however, these cost considerations forced the program to adopt other methods, which, while highly satisfactory in meeting some of the needs in the long term, meant that many persons had to wait an unnecessarily long time for surgery. The program believes that the training value of such exercises (for Army personnel) should mean that exercises of the sort carried out at Amata and Utopia should rightfully make the cost of mounting such exercises a charge on the defence services.

Special Surgical Exercises

To meet the backlog of surgery in other areas, small mobile teams of ophthalmologists, all like the surgeons in the Army exercises, volunteers working with only reimbursement of travelling expenses, were organised to travel to particular centres and carry out outstanding surgery.

Typical of such exercises were expeditions led by Dr. W. Gillies, of the Royal Victorian Eye and Ear Hospital, to Katherine (several visits), by Dr. Leo Shanahan, to Alice Springs and Darwin (several visits), and by Professor Ian Constable and Dr. Dick Cooper to the eastern Goldfields area of Western Australia.

As with the Army surgery exercises, the vital ingredient proved to be effective liaison and consultation. In a number of areas there were shortcomings in relation to this and, as a direct result, the amount of surgery performed was less than expected.

The program's experience was that such liaison and accompanying logistical arrangements had to be organised independently of local health services, although of course in consultation with them. Part of the reason for this arose from the very existence of a high backlog of cases arising from surgery: in many areas existing health services were remote from the communities they served and did not have operating systems for making effective contact with them. As a result it was necessary to use the program's liaison facilities to make such contact.

In several areas visited by the program, most notably in Western Australia, there had already existed a system of visiting ophthalmological care on a regular basis, organised through the State health authorities. In spite of such visits, the program encountered people who had eye abnormalities capable of being assisted by surgery which had never been reviewed by an ophthalmologist. It appeared that existing systems of regular ophthalmological visits, involving the review of patients presented by local health agents with scheduling so devised as to make camp visits impossible, did not wholly cover the needs which

existed; a system of screening was absolutely essential if the full number of persons requiring surgery was to be uncovered. Reliance on local health authorities in the organisation of surgery exercises similarly meant that persons missed out; such reliance had to be strongly supplemented by liaison through Aboriginal liaison officers.

When such liaison was well organised, however, special surgical exercises proved highly effective in delivering surgical care to persons in need. One instance of this can be seen in an exercise at Leonora, in the Eastern Goldfields of Western Australia, where through efficient Aboriginal liaison and the assistance of the highly respected matron of the Leonora Hospital, Matron Sadie Canning, there was a very high turn-up of patients, all, in the words of the Royal Perth Hospital team which performed the surgery, "superbly prepared both physically and psychologically for surgery". The ward accommodation was adequate, and the theatre arrangements extremely efficient, with Aboriginal health workers assisting, observing and accompanying patients.

The conclusion of the Royal Perth team was that with such assistance complex intra-ocular surgery could be provided in such hospitals without complications and on an adequate scale. Such a method represented an enormous saving for public health services, were more acceptable to Aborigines in remote Aboriginal communities, and could provide safe complex surgery in small country hospitals close to where the patients lived.

Similarly, a surgical exercise organised at Thursday Island and in Northern Queensland communities depended for its success primarily on the efficiency of its liaison with local Aboriginal communities. Excellent co-operation from the Torres Strait Hospital authorities, especially Dr Peter Holt, permitted Dr W Yates to complete 21 surgery cases and review 100 outpatients over a four-day period. There were no complications. Visits to a number of Gulf and Cape communities, with excellent liaison organised through local Aboriginal organisations after local health and welfare agencies were unable to produce a good turn-up, permitted the completion of a total of 14 operations in three centres in these areas.

A number of very successful surgical exercises were held in the Northern Territory, with several trips to Alice Springs and nearby centres, including Santa Teresa, Papunya and Yuendumu, to Katherine, and to Darwin and some surrounding centres including Port Keats. The exercises in Central Australia, along with the Army exercises and procedures carried out during the teams' visits, meant that almost all outstanding cases were cleared up.

In the Top End and Cattle Country, however, there were a number of liaison and logistical difficulties which meant that a smaller proportion of cases were completed. Although these areas had lower prevalences of cases for surgery, it appears especially difficult for local health authorities to provide the program with the assistance it received in other areas, including Central Australia, and there were higher proportions of persons refusing surgery, a proportion the program always found to be closely related to the liaison input. There were also a number of problems associated with the use of local and major hospitals, involving the inadequacy of facilities made available to program surgical teams.

A review of the outstanding surgery in May, 1979, led the program to conclude that a further major exercise should be planned for the Cattle Country in the Wave Hill and Lajamanu area, to clear up outstanding cases, and that further surgery in the Top End should be preceded by a small-scale screening exercise and intensive liaison so that the highest possible number of cases could be re-identified and completed. The exercise in the Top End, the program concluded, would need more independent liaison facilities than the program had used in planning surgery in that area in the past, and would have to be more self-reliant for transport, equipment and facilities.

Special surgical expeditions organised through the program and assisted by volunteer ophthalmologists completed several hundred eye operations in remote areas of rural Australia. As with Army exercises, the technique of sending small mobile teams into the areas where people lived proved generally a highly cost-effective method of providing desperately needed surgical care. The most essential aspect of the success of such visits proved to be the initial

work of liaison and consultation with the individuals and communities involved. When this was done effectively, the resources and expertise of the volunteer ophthalmologists was best able to be used by the people in need. Program surgeons carried out eye operations in places marked with a small black dot on map, Figure SU 5.

Individual Ophthalmologists taking responsibility for Specific Areas

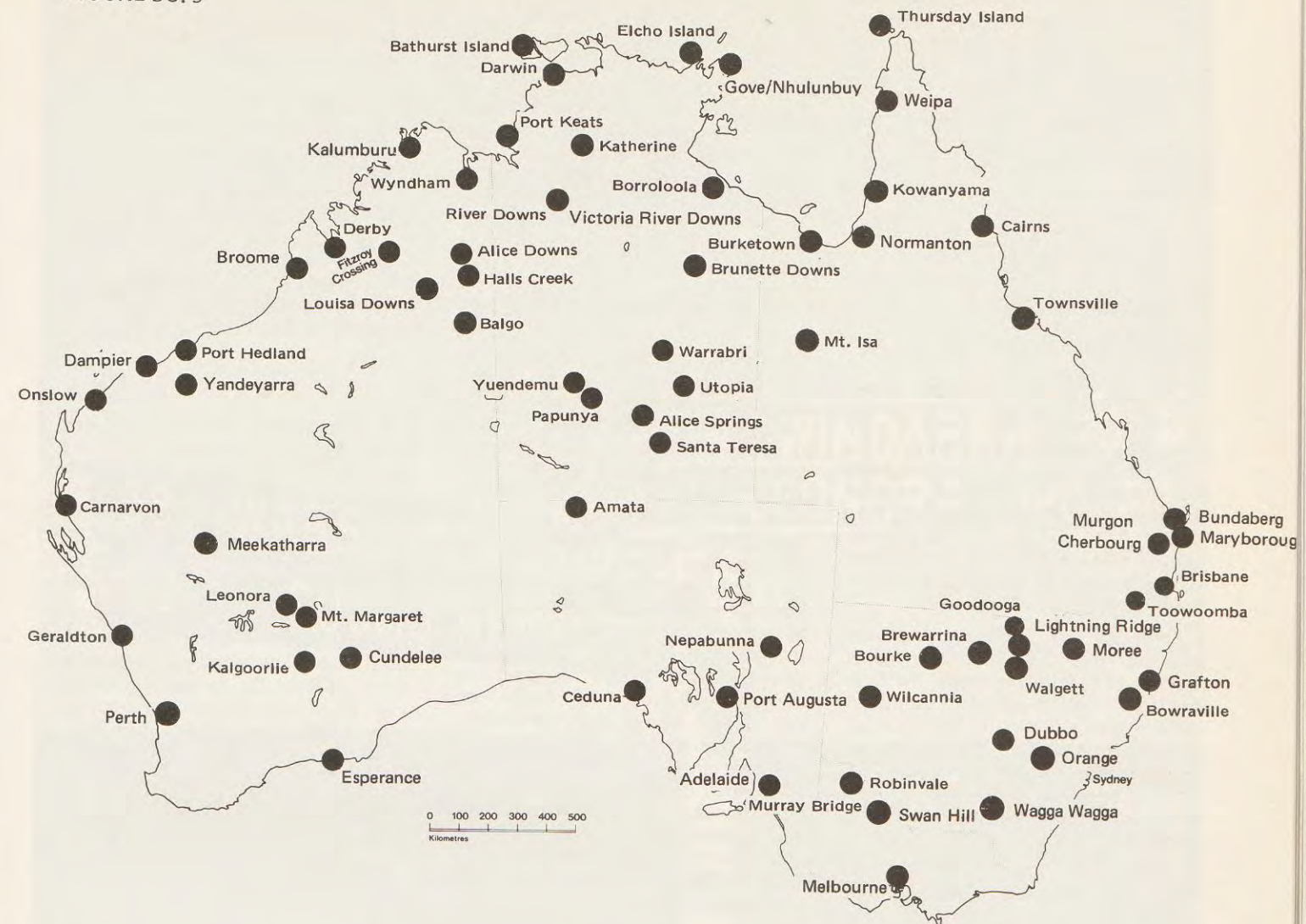
The high level of ocular pathology requiring treatment, surgical intervention and regular review among remote Australian communities prompted the Royal Australian College of Ophthalmologists and its State branches to form committees to organise ongoing ophthalmological care for these areas without regular access to ophthalmological services.

In some cases there had already existed arrangements between relevant State health authorities and individual ophthalmologists for such visits; the effect of the program being to lead to greater co-ordination of such activities and an attempt to select areas of particular priority for such services.

Eye doctors who have undertaken responsibility for particular areas have completed much of the outstanding surgery in these areas, and in addition have identified and dealt with further cases, besides reviewing patients operated on in the past and performing further screenings of the general population.

An example of success has been South Australia, all areas of which are now regularly visited by ophthalmologists working closely with local health authorities, including Aboriginal Medical Services, and State authorities. Other States in which almost all rural communities will have regular visits by college members in the future are New South Wales, Queensland, and Western Australia, although in the latter the branch is considerably handicapped both by the distances and the small number of ophthalmologists involved.

FIGURE SU. 5



Trachoma committees established by the NSW and Victorian branches of the college have undertaken to provide services within the Northern Territory where there are insufficient ophthalmologists to handle the volume of work which is necessary.

The work of the college branches in providing ongoing services to rural Australian communities will be covered in greater detail in the next chapter. In this chapter, however, it is important to note that the provision of such services has already reduced the surgical backlog in many areas.

As with special surgical expeditions, experience has proved the vital need for close liaison with Aboriginal communities and organisations if services are to be most effectively or-

ganised. In particular, a great need has been shown for ophthalmologists to spend time visiting camps and living areas, seeking persons likely to be in need of attention; almost invariably the cases presented for review and inspection by local health agencies has only represented a proportion of those who can be assisted by surgical intervention. Many persons have come to accept their visual loss without knowing that it is capable of being relieved by surgery, or have had bad experiences in the past which has made them reluctant to undergo surgery.

Such people can only be found by extensive fieldwork in the area where they live and by close consultation and liaison with local communities

and their authority structures. Similarly, experience has shown that the most ideal surgical visits to communities involve several days in which much time is devoted to discussion, communication and explanation. "Flying" visits, with schedules which prevent such communication because of the volume of clinic work already waiting, are not as cost effective.

Referrals to nearby Ophthalmologists

In several regions, particularly in Queensland, NSW and Victoria, persons identified by the program for surgery were referred for follow-up to ophthalmologists working nearby.

Most of the surgery which was completed in NSW and Victoria, and most of the surgery found in all but the most remote areas of Queensland, was handled in this way.

The program where necessary provided such ophthalmologists with assistance in liaison and logistics in dealing with these cases.

Creation of an Ophthalmologist's Post at Alice Springs

At the time when most of the program's fieldwork in Central Australia was being conducted, there were no regular ophthalmological services available from the major centre in that region, Alice Springs. Part of the reason for this was difficulty encountered by the hospital in recruiting a suitable full-time ophthalmologist.

Through the intervention of the program and the Royal Australian College of Ophthalmologists, the Sydney Eye Hospital agreed to supply an ophthalmic registrar to the hospital, on the understanding that he would be provided with supervision by ophthalmologists carrying out program activities, particularly surgery, in the area.

The first registrar appointed, Dr. M. Mahmoud, now fully qualified and still at Alice Springs, proved the value of the plan. Through the co-operation of the hospital authorities he has been able to spend a considerable proportion of his time visiting communities throughout the Centre and further screening and treating people in the areas in which they live.

The success of the appointment has led to suggestions that similar positions be established in other major hospitals in areas where there is a high prevalence of treatable eye pathology, particularly in Western Australia. The program supports these suggestions which would not only permit the regular monitoring and screening of persons with sight-threatening eye pathology and their treatment, but would prevent such a backlog of treatable eye conditions from ever re-emerging.

Aboriginal people are especially aware of inter-personal relationships. It appears that they readily establish

relationships with health-care persons rather than develop faith or confidence in a medical system or service. A major factor in overcoming reluctance to undergo sight-saving or restoring surgery is for the Aboriginal patients to get to know by repeated meetings the eye surgeon who will perform the surgery whether the surgery is to be done locally or at a metropolitan base. An example of a successful system in this regard is the efforts of a team from the Royal Perth Hospital headed by Dr R Cooper. This team, in conjunction with the program, has now visited part of the Eastern Goldfields on several occasions, screening for trachoma and noting its prevalence, providing spectacles, following up post-operative cases, doing surgery at places like Leonora Base Hospital and examining future surgery candidates. When an Aboriginal person from this area requires surgery in Perth, he or she will on arrival there recognise and readily re-establish rapport with the eye doctor he or she has met in the home area. The fear of surgery in a remote place and the strangeness of the hospital environment is greatly reduced by this personal link. Additionally, the eye surgeon knows well the environment to which his patient will return post-operatively and will adjust surgical procedure, duration of hospital stay and after-care directions accordingly. An important ingredient in these matters is continuity of service in the field and at base on the part of the eye surgeons.

Comments on technical aspects of Four Surgical Conditions as they relate to Aborigines

1. Cataract. Cataract extraction in Aborigines requires some special precautions and facilities. Aboriginal cataract almost always has a posterior subcapsular component irrespective of whether opacification is central or anterior.

There are seven requirements for the surgeon who performs Aboriginal cataract extraction.

1. He must be a highly skilled operator.
2. He must be able to handle the deep-set Aboriginal eye.

3. He must be able to handle the haemostasis necessary for a section passing through a vascular trachomatous upper limbus.
4. He must be able to perform intracapsular extractions.
5. He must be able to deal with a dislocated lens (many Aboriginal zonules are already partially ruptured before surgery).
6. He must be able to handle vitreous loss and achieve a vitreous-free anterior segment.
7. He must be able to provide and ensure continuity of supply of suitable aphakic spectacles.

2. Eyelid Surgery for trichiasis. The many different operations that are available for the relief of trachomatous entropion bear testimony mainly to the great variation in success rate for this type surgery. This type of surgery has a success rate similar to that for varicose-vein surgery.

It is wise to avoid excision of tarsal plate. The worst situation with which to leave the patient is palpebra with skin and conjunctiva only. In such a situation eyelid skin hairs abrade the cornea and no structure is available capable of affording rigidity sufficient to evert the lid margins against the action of the orbicularis.

Two successful types of surgery in Australia have been:

1. The Kettesy as developed by B. Jones and/or J.K. Galbraith. In this procedure the eyelid margin is buckled out and held down by incision and sutures;¹ and,
2. The shift of the lash-bearing portion of the lid margin by sliding it upwards after splitting the lid through the grey line.
3. **Pterygium.** The pterygia which are most certain not to recur after surgery are those which most certainly do not require surgery. As a general rule of thumb it is probably unwise to perform pterygia surgery on persons living in areas equal to, or more than, eight bright sunshine hours (see Figure ENV 6, Chapter 10); or an ultra-violet exposure level of more than 2,000 erythema units (see Figure ENV 4, Chapter 10), especially if they are less than 30 years of age, unless Beta therapy is available immediately post-operatively.

4. Corneal Grafting. Although corneal disease is a frequent cause of blindness in Aborigines and although many attempts have been made to alleviate this form of blindness by corneal transplantation, we have seen few if any good visual results in trachoma cases. We do not recall a sight-restoring graft in any Aboriginal person blinded by trachoma who was less than 40 years of age. Many of the grafts have been quite expertly performed.

By the time cicatricial trachoma has run its course, a state of 'cir-

rhosis of the chorion' of the conjunctiva has supervened. Such a state resembles advanced ocular pemphagoid or 'essential shrinkage of the conjunctiva'. For these states it seems that the loss of conjunctival function prevents persistence of clear transplanted grafts.

Corneal grafts should be further attempted but it may be wise to avoid:

- (a) The young who are more likely to suffer recurrence of inflammatory trachoma, and

- (b) those who have substantial scarring of the conjunctiva especially if there is any obliteration of the conjunctival fornices.

Sight-restoring or preserving surgery for Aborigines on technical grounds alone is not the demesne of the novice. Skilled surgeons with full supporting staff and equipment can provide good services in the field and elsewhere.



1. Taylor, H.R., Gailbraith, J.E.K., Aust. J. Ophthal. Vol. 7, No. 2, June 1979, p.145



Chapter 13:

The Provision of Immediate Care and Spectacles

An important aim of the program from its inception was to provide immediate eye health-care services to persons who on examination were shown to need it. It was recognised that many persons, particularly Aborigines and those living in remote areas, had had little if any access to specialist ophthalmological services in the past and that there would thus be a significant backlog of persons requiring such care. It was also recognised that there would be a need for some non-ocular services, including ear and skin treatments.

A major aspect of the program's credibility among those it served was that it was not merely conducting yet another survey of poor health conditions. The program was an action one: the screening and surveying which did take place was an essential pre-requisite to action so that persons in need of specialist attention could be identified and appropriate action could be taken. The program found that many surveys of poor rural health, especially among Aborigines, had been conducted but that most had been seen by those who had been surveyed as having been of little if any value.

Each screening team contained two specialist ophthalmologists. One was a full-time program employee whose attention was particularly focussed on the initial screening of persons for trachoma and other visual pathology. The second was usually a volunteer ophthalmologist spending several weeks with the program. This person's main role was consultancy: carrying out full examinations on those persons identified by the team leader during the initial screening so that appropriate treatment, if necessary, could be carried out.

It was the program's boast that it was able to conduct ophthalmological examinations of the same high standards as would be expected in a major urban practice or hospital, even in the most difficult field conditions. Each team carried a full range of

ophthalmological examination equipment appropriate for the eye service requirements being encountered by the program, which was set up and transported to probably 800 locations during the program's initial screening activities.

This equipment needed special care — much delicate instrumentation was involved — particularly in the most adverse conditions: corrugated roads and long distances, heavy dust and extreme heat. The teams also carried a wide range of drugs and other treatment equipment.

At no stage was the program willing to provide an ophthalmological service of a lower standard than a person would have had the right to expect in an urban situation.

About 12,000 people were identified from the initial screening examinations for further ocular examination by the program's consultant ophthalmologists. These were persons found to have less than normal vision, or visual-system abnormalities requiring further examination and possibly treatment.

Each of these had a separate clinical record prepared in which the ophthalmologist's notes were recorded, together with details of treatment given and any further follow-up necessary. As with the original clinic sheets, these were later coded for computer analysis.

One reason for follow-up examination was the assessment of refractive errors and the ordering if necessary of correcting spectacles. The nature of the refractive errors seen are discussed in Chapter 9: to correct these errors the program prescribed spectacles for 7,058 different persons during its initial screening activities.

All told, more than 5,000 pairs of spectacles were prescribed for Aborigines. Table IC 1 shows the distribution of these in each zone by age.

Table IC 1
SPECTACLES PRESCRIBED BY ZONE AND AGE: ABORIGINES

ZONE	0-9	10-19	20-29	30-39	40-49	50-59	60+	TOTAL
1. Red Centre	11	6	10	21	67	78	131	324
2. Cattle Country	4	8	6	26	139	121	217	521
3. Western Desert	1	3	5	10	73	61	130	283
4. Goldfields	4	8	7	6	54	34	46	159
5. Coastal Missions	5	3	3	7	56	64	57	195
6. Coastal Towns	17	18	6	16	107	66	84	314
7. Arid Eastern	18	31	38	86	302	193	178	846
8. Top End	3	7	6	55	258	164	117	610
9. Gulf and Cape	3	5	4	32	106	132	84	366
10. Torres Straits Is.	10	13	7	3	59	82	64	238
11. Coastal Qld	16	65	41	91	362	299	212	1086
12. Coastal N.S.W.	2	4	4	24	92	69	49	244
13. Southern Mainland	10	36	22	52	132	91	74	417
ALL ZONES	104	207	159	429	1807	1454	1443	5603

Table IC 2
TYPES OF SPECTACLES PRESCRIBED: ABORIGINES
Proportion of persons prescribed one or two pairs of spectacles (using percentages)

TYPE OF SPECTACLES	AGE							TOTAL
	0-9	10-19	20-29	30-39	40-49	50-59	60+	
One pair ordered	94	95	95	90	84	77	76	82
Two pairs ordered	4	1	1	5	7	7	10	7
Bifocals ordered	2	4	4	5	9	16	14	11

Table IC 3
SPECTACLES PRESCRIBED BY ZONE AND AGE: NON-ABORIGINES

ZONE	0-9	10-19	20-29	30-39	40-49	50-59	60+	TOTAL
1. Red Centre	8	14	7	13	14	16	9	81
2. Cattle Country	2	2	4	10	23	18	9	68
3. Western Desert	1	1	5	2	8	11	7	35
4. Goldfields	8	4	2	8	12	9	16	59
5. Coastal Missions	2	1	2	2	10	8	6	31
6. Coastal Towns	14	15	6	4	21	14	8	82
7. Arid Eastern	19	54	18	16	100	77	80	364
8. Top End	12	22	34	38	93	46	40	285
9. Gulf and Cape	0	5	3	5	14	6	17	50
10. Torres Strait Is.	2	3	0	5	5	2	13	30
11. Coastal Qld	13	53	9	13	64	39	52	243
12. Coastal N.S.W.	0	4	2	1	2	3	5	17
13. Southern Mainland	11	10	7	3	20	33	26	110
ALL ZONES	92	188	99	120	386	282	288	1455

Table IC 4
TYPES OF SPECTACLES PRESCRIBED: NON-ABORIGINES
Proportion of persons prescribed one or two pairs of spectacles (using percentages)

TYPE OF SPECTACLES	AGE							TOTAL
	0-9	10-19	20-29	30-39	40-49	50-59	60+	
One pair ordered	96	98	95	97	74	70	54	77
Two pairs ordered	2	0	1	1	5	8	14	6
Bifocals ordered	2	2	4	2	21	22	32	17

The greater majority of spectacles prescribed were for those aged 30 or more: a high proportion of these involved spectacles for presbyopia, whether alone or in conjunction with other refractive errors. Persons were given either bifocal spectacles, or two pairs of spectacles.

Table IC 2 shows the number and type of spectacles prescribed for Aborigines, according to the proportion of persons in each category.

By comparison, spectacles were prescribed for 1,455 non-Aborigines on an age and zonal distribution as shown in Table IC 3.

The highest proportion of people requiring spectacles was again found in persons aged 30 or more. Again a high proportion of these people required 'readers', whether alone or in conjunction with spectacles for other refractive errors. Table IC 4 shows the proportion of persons prescribed single, bifocal or two pairs of glasses.

Delivering the spectacles caused problems. In most areas there were no existing systems for refracting, dispensing and preparing spectacles; many persons who had never had access to ophthalmological or optical services had poor vision capable of being improved by spectacles. Additionally, only a few of the State health-and-welfare authorities had systems of providing spectacles free, to persons unable to afford them, which worked in rural areas. In South Australia for example, 'indigent' persons were entitled to free spectacles but had to have them prescribed at a major hospital in Adelaide; an equitable system perhaps for the people of Adelaide but one which effectively denied spectacles to many persons in rural areas.

Each State had different systems for defining those persons considered indigent: in some cases, receipt of a pension defined it; in others it was at the discretion of local welfare agents.

The concern of the program was primarily to ensure that rural Australians whose vision could be substantially improved by spectacles could obtain them if they wished. It was only secondarily concerned about questions of who should pay. Nevertheless, the program's progress around Australia was continually bedevilled by difficulties arising out of the different standards adopted. The program chose an optical contractor who supplied free-of-charge to the pro-



Through oculus trial frames a woman tests the increased ease with which she can do her craft.

gram a number of optical dispensers to fit persons for spectacles prescribed by the program.

Where no such system operated, the program paid. Those who could pay made arrangements privately with the optical contractor.

Spectacles prescribed and dispensed by the program were delivered within a few weeks of ordering. The program's optical contractor, OPSM Ltd., supplied spectacles to the program at contract rates well below normal commercial rates, provided the program with dispensers free of charge, and gave an appropriate and very efficient service to persons throughout rural Australia.

There were also problems associated with replacing spectacles. In many areas, especially with Aborigines, the living conditions were such that spectacles could easily be lost, broken or scratched. Many people had no facilities for storing spectacles, or for keeping them out of reach of children or away from animals. In such circumstances, it was to be expected that regular replacements would be needed.

Persons requiring replacements

were identified during rescreening programs on an individual and community basis. In some cases replacements were organised and paid for by welfare authorities in the State; on the whole, however, the regular provision of replacements continued to be a drain on the program's finances.

The program made several submissions to the Federal Government about the need for a uniform national policy for the provision of spectacles to persons unable to afford them. Although this matter has been raised at several State and Commonwealth health conferences, there had been little movement toward such a policy at the time of writing this report.

Apart from refractions, 5,509 persons were given further examinations by the program's consultant ophthalmologists — some of these people, of course, also being refracted for spectacles. The nature of these examinations and the action which followed is set out in Table IC 5.

The figures given in row totals are less than the total for each of the items in each row. This is because

TABLE IC 5
RESULTS OF FULL OPHTHALMOLOGICAL EXAMINATIONS BY ZONE:
ABORIGINES AND NON-ABORIGINES

ZONE	Topical Treatment Given	Minor Surgery Performed	Referred For Further Treatment	Marked For Later Review	Pathology Verified by Full Examination: No Further Action	TOTAL
1.	275	49	24	74	267	637
2.	192	29	18	60	229	482
3.	72	5	3	38	102	187
4.	122	116	35	25	90	256
5.	47	4	0	17	52	114
6.	82	11	10	130	211	318
7.	353	30	73	260	652	1154
8.	185	22	15	242	404	645
9.	90	4	13	33	132	251
10.	13	1	2	25	58	76
11.	397	14	79	182	467	969
12.	22	3	17	23	53	96
13.	79	11	46	95	169	324
TOTALS	1929	299	335	1204	2886	5509

TABLE IC 6
PERSONS GIVEN OR RECOMMENDED FOR TOPICAL TREATMENT:
ABORIGINES AND NON-ABORIGINES

AGE	ABORIGINAL Numbers	Rate/100	NON-ABORIGINAL Numbers	Rate/100	TOTAL
0-9	518	2	167	1	685
10-19	232	1	115	1	347
20-29	117	2	115	5	232
30-39	152	3	110	6	262
40-49	113	3	61	5	174
50-59	95	4	48	6	143
60+	203	5	65	7	268
TOTALS	1430	2	681	2	2111

there were a considerable number of multiple actions. In summary, 1,929 persons were given topical treatments for eye conditions, 299 had simple operations, most frequently epilations (removal of eyelashes), 335 were referred for further treatment, 1,204 were marked for further review later, and 2,886 had the pathology seen on first screening verified by a full examination, but had no further action taken.

Most of those for whom treatment was recommended or dispensed were Aborigines (such cases exclude those with trachoma pathology requiring treatment). Table IC 6, drawn on a slightly different base than Table IC 5, shows the proportions of persons given topical treatment or referred for further action.

Overall, 2 per cent of both Aborigines and non-Aborigines needed some form of ophthalmological treatment, apart from spectacles and chemo-

TABLE IC 7
ACTIONS TAKEN FOR EAR, NOSE AND SKIN CONDITIONS BY AGE:
ABORIGINES AND NON-ABORIGINES

AGE	ABORIGINAL	NON-ABORIGINAL	TOTAL
0-9	450	52	502
10-19	189	21	210
20-29	65	6	71
30-39	33	6	39
40-49	19	3	22
50-59	28	1	29
60+	33	7	40
TOTALS	817	96	913

therapy for trachoma. The number of persons requiring treatment tended to be higher in the higher age groups.

A total of 2,886 people required no further action after a full examination. This did not however, mean that the examination proved unnecessary: the process of selecting eye abnormalities which did not require treatment was as essential as deciding those that

did.

Over and above the figures presented above, a total of 149 people were given orthoptic treatment, or were referred for orthoptic treatment. Most such treatment involved the setting of exercises to correct latent squints, and the provision of some orthoptic aids to assist in such treatments. Many hundreds more,

suspected of having eye muscle-balance abnormalities, were given full orthoptic examinations by program orthoptists.

As outlined in the program's findings for ear, nasal discharge and skin infections, the program referred several thousand people to local health authorities for treatment — mostly for otitis media and scabies.

In addition, however, the program treated 913 people for such conditions during its screening activities. This was particularly in areas where there were few, if any, local health facilities, or where only odd individuals had abnormal ear or skin disease. The names of all persons given immediate treatment were given to appropriate local authorities with instructions about further follow-up.

Table IC 7 shows the distribution of such general-practitioner actions by racial group and age.

Because most of these conditions were found in the young, most actions of course involved them.

SUMMARY

In most areas of rural Australia there has been little local ophthalmological input in the past. Those who required ophthalmological services were forced to travel long distances to major centres, frequently capital cities. This process favoured those able to afford it, and those willing to go away from their own areas perhaps for extended periods.

It was not surprising therefore that nearly one in every six Aborigines seen required a full ophthalmological examination. This was over and above the trachoma pathology found, although, of course, those with marked cicatricial trachoma pathology were given a full examination and are included in the figures presented.

The examinations disclosed that few Aborigines with refractive errors, or with presbyopia, had previously been corrected for them. Consequently many persons, particularly the old, had been effectively blind or considerably visually handicapped until seen by the program. These people will only retain their improved vision as long as systems operate to replace their spectacles as they are needed, perhaps as frequently as three times a year, and to refract them again as their visual status changes.

Again, two in every hundred Aborigines seen did not require

TABLE IC 8
ACTIONS TAKEN FOR EAR, NOSE AND SKIN CONDITIONS BY ZONE:
ABORIGINES AND NON-ABORIGINES

ZONES	ABORIGINES	NON-ABORIGINES	TOTAL
1. Red Centre	260	6	266
2. Cattle Country	32	3	35
3. Western Desert	52	0	52
4. Goldfields	49	7	56
5. Coastal Missions	6	1	7
6. Coastal Towns	46	11	57
7. Arid Eastern	121	27	148
8. Top End	30	6	36
9. Gulf & Cape	8	3	11
10. Torres Strait Is.	4	0	4
11. Coastal Qld.	120	23	143
12. Coastal NSW	53	3	56
13. Southern Mainland	36	6	42
TOTAL	817	96	913

immediate action but had visual-system abnormalities of an order that required regular monitoring, with intervention being likely to be necessary at some time in the future. This was over and above the cases of persons prescribed spectacles (most of whom will need review), those indicated for surgery, and those with trachoma pathology not presently threatening vision but likely to progress to a point where it does.

These considerations led the program to conclude that ongoing eye care-delivery systems capable of meeting this demand were urgently needed so that the position disclosed by the program's findings — showing a failure in existing health care-delivery systems — would not happen again. Health delivery systems, as discussed in Chapter 12 and in the final chapter, involve a whole package of environmental improvements to many areas. Additionally, however, expert resource people will need to be necessary to provide the support such a program of environmental improvement needs and the essential change in health care-delivery structures which will also have to take place.

Based on the program's finding for the prevalence of trachoma and other ocular disabilities, the regular follow-up of persons identified by programs will require regular visits by ophthalmologists — preferably every six months — with appropriate back-up and support throughout rural Australia. The indications for follow-up, zone by zone, are:

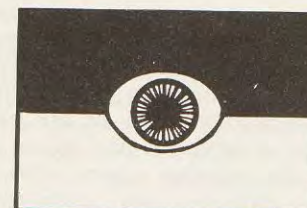
- ZONE 1: Red Centre: three teams
- ZONE 2: Cattle Country: three teams

- ZONE 3: Western Desert: two teams
- ZONE 4: Goldfields: one team
- ZONE 5: Coastal Missions WA: one team
- ZONE 6: Coastal Towns WA: one team
- ZONE 7: Arid Eastern: five teams
- ZONE 8: Top End NT: two teams
- ZONE 9: Gulf and Cape: one team
- ZONE 10: Torres Strait Is.: one team
- ZONE 11: Coastal Queensland: two teams
- ZONE 12: Coastal NSW: one team
- ZONE 13: Southern Mainland: one team

This is on the basis that each team, consisting of an ophthalmologist and necessary support staff, would spend two periods in the field each year, with each exercise taking three weeks. In effect, to provide regular services to rural Australians, particularly Aborigines, which would place them on an equal footing with urban Australians as far as access to ophthalmological services is concerned, would require the equivalent of full-time services of five ophthalmologists a year.

The provision of a full-time ophthalmologist to cover gaps in national coverage by other eye doctors is required. Such a person will also provide a central technical expertise necessary for efficient management of the ongoing program.

Because of the extent and severity of sunlight induced or exacerbated eye disease in persons industrially at risk, especially Aboriginal stockmen, the means of supplying appropriate protection by spectacles should be provided.



Chapter 14:

On-going Eye Health Care Programs

A central aim of the National Trachoma and Eye Health Program was to establish on-going eye health programs for those areas of rural Australia shown to need them.

Such on-going eye-health programs include: continuing measures to eliminate trachomatous blindness through the provision of monitoring, treatment programs and surgery where necessary; the provision of services to deal with other eye-health problems, especially cataract; the development of services for the provision and supply of spectacles; and the provision and training of the appropriate health personnel to provide routine eye-health care of a standard as is the norm in urban Australia.

As discussed in Chapter 13 dealing with the provision of immediate care services to areas of rural Australia, one distinction between the sort of services in the past and those which are necessary is whether or not services have been most appropriately available. There were many communities visited by the program of which it could be said that some ophthalmological services were available — insofar at least as there was some ophthalmological practice not too distant from the community which could be said to have been offering its services to the community. The services could not, however, have been said to have been available within the community; additionally, the high level of ocular disability encountered suggests that the existing methods of providing such services were not providing the most appropriate service so that all in need of such services were able to use them. In many other areas there were no services at all.

The National Trachoma and Eye Health Program study was an 'epidemiological' study: the people whom it examined represented a broad cross-section of the community and the study was of people generally. The sort of problems encountered by many ophthalmological practices may not as accurately reflect the level of types of ocular disability to be found

among the people.

The sort of on-going services which the program hopes to see established were ones which took account of the epidemiological nature of ocular disability and provided a service which met that need.

Chapter 13 spelled out the program's assessment of the level of ophthalmological care needed to provide services to people which were of the same standard and availability as services within urban areas. Also required is: special monitoring programs in areas of high trachoma prevalence so that this, especially among children, is being constantly checked; the organisation of continuing treatment programs where follicular trachoma and other infectious eye disease is still present; the devising of systems of ensuring that general health care delivery structures most appropriately meet the needs of the people they are supposed to serve. Some of these considerations are dealt with in this and the next chapter.

Before setting out the steps already taken to provide continuing care to rural Australian communities, particularly Aborigines, it is appropriate to review some of the program's findings and achievements.

- o Australia-wide, nearly half the Aboriginal population screened had trachoma. In the Northern Territory and Western Australia in particular the figure was much higher, averaging about 80 per cent.
- o The program found high prevalences of follicular trachoma in children, ranging to 80 per cent in some regions.
- o A high proportion of Aborigines, especially those over 60, had marked trachomatous signs of the sort described by Jones and others as "blinding or potentially blinding lesions". Overall, 28 per cent of Aborigines over 60 seen had such signs; in

Central Australia and other arid areas, the figure was up to 50 per cent.

- o The program found whole regions where the average blindness rate among Aborigines was up to 3.5 per cent. Up to 26.2 per cent of Aborigines over 60 were found to be blind in arid regions. Overall, 1.5 per cent of Aborigines seen were blind. This compares with a finding that 0.2 per cent of non-Aborigines seen were blind — a high finding, one which the program believes to reflect some selection by non-Aboriginal persons tested. A further 2.3 per cent of Aborigines and 0.7 per cent of non-Aborigines were visually handicapped.
- o The program also found high levels of other ocular pathology, some associated with trachoma, among Aborigines. Some of this is treatable and some will require constant follow-up and surveillance in the years ahead.

In all, more than 100,000 people were seen, more than 60,000 of whom were Aborigines. About 7,000 pairs of spectacles were prescribed, while about 1,400 cases were indicated for surgery, and more than 4,000 people require regular review.

Mass chemotherapy programs involving the treatment of about 25,000 people have been organised and carried out, bringing into the field more than 200 medical students to assist Aboriginal health workers. In addition, many family-based treatment programs have been organised throughout the country.

In setting out to achieve the first part of its task — the elimination of trachomatous blindness in Australia — and in realising its second aim — presenting the ocular status of rural Australians — the National Trachoma and Eye Health Program has:

- o established lines of communication with Aboriginal communities which enabled it to work effectively in those communities. This involved a major investment in Aboriginal liaison, the use of local personnel, and considerable time in consultation and discussions with the authority structures of those communities.
- o mobilised the resource personnel

available within the college and elsewhere (as with the Army) and placed them effectively in areas where there was a critical need for their services.

- o developed a body of organisational experience and expertise able to efficiently organise the provision of clinical services and the carrying out of program objectives. This experience includes working closely with State and other health authorities, and broad familiarity with the whole of rural Australia.
- o developed a system of central records on a computer base able to readily process new data and permitting national and regional overviews of the changing trachoma situation. Such a central system is essential in deciding the allocation of resources, and the priority areas for on-going activities.
- o through the co-operation of State branches of the college and State health authorities, has assisted in the development of on-going eye care services in rural communities throughout Australia.
- o focussed national attention on the problems of Aboriginal health generally, and eye health in particular, and on the resources which will have to be mobilised if they are to be improved.

The program has brought considerable credit to the Royal Australian College of Ophthalmologists, and enhanced its reputation as a body concerned and willing to act on public health issues.

Four persons who worked with the program (Doctors Pararajasegaram, Taylor and Hollows and Orthoptist G. O'Sullivan) attended and contributed significantly to a World Health Organisation workshop in Asilomar, California in 1978, to prepare a W.H.O. handbook titled "Technical and Operational Aspects of Prevention of Blindness Programs". This publication may play an important part in reducing avoidable blindness on a world scale. The National Trachoma and Eye Health Program's experience enabled Australia to make a significant contribution.

The program received wide public support and has been strongly supported by Aboriginal communities

and leaders, and by Government. The experience of the program has played a major part in framing Aboriginal health policies, something recognised by the (then) Minister for Aboriginal Affairs, Mr. Viner, in his major policy statement on Aboriginal affairs in 1977, when he said that:

"What must be done — and done urgently — is to enlist and train more Aborigines as field health workers who can make initial contact with those in need to provide low-level health care while, at the same time, act as educators and agents for change by assisting communities to develop attitudes and behavioural patterns that will render them less liable to constant illness. Aborigines must believe that health is their responsibility. It must find a place in the cultural and social system of communities. This means that health care must be taken to them."

One of the lessons which has come out of the trachoma campaign is the need to take health care to the people together with modern technology which is available."

The program has received the strong support of World Health Organisation experts on the elimination of avoidable eye disease, including Professor Barrie Jones, who assisted the program in part of its field work and prepared for the Royal Australian College of Ophthalmologists a report suggesting future action by college members in achieving the task the college had set for itself. Additionally, the program has had its experience drawn upon in the preparation of a major publication by the International Agency for the Prevention of Blindness on the organisation of national programs to combat eye disease.

These achievements have, however, underlined the need for further action. As Professor Jones, in his report to the college, said:

*"It would be naive to assume that blindness from trachoma and associated infections would be eradicated from all Aboriginal communities simply by screening the Aboriginal population for eye disease followed by three weeks intensive oral chemotherapy offered to everyone in the affected communities. . . . together with the provision of eye surgery. . . ."*¹

Jones defined three phases of activity if the first aim of the pro-

gram was to be realised. The first, which he called the attack phase, is that with which the program has been primarily concerned to date. This involves:

1. Screening surveys
2. Provision of immediate eye care, including minor surgery, and spectacles
3. Initial intensive oral chemotherapy campaigns
4. The provision of urgently needed surgical treatment
5. The development of opportunities for community education, and for selection and preliminary training of Aboriginal health workers.

During the second phase, the consolidation period, he recommended that mechanisms be developed, in close consultation with local health authorities, for the provision of family-based topical chemotherapy for the prevention of any recrudescence of trachoma and to consolidate the gains made by initial treatment programs. Additionally during this phase he recommended that ways of providing ophthalmological manpower to communities shown to be in need of them to be devised (as is occurring through the Trachoma Committee) and that the gains in health worker training programs be consolidated.

Wherever the program went attempts were made to transfer skills in eye examination and treatment to local health workers, especially Aboriginal people. Teams carried teaching slides and other illustrations and gave illustrated lessons in many areas. These activities were well-received by the local people.

Of the third phase, the surveillance phase, Jones said:

"Following the initial intensive chemotherapy in the attack phase it will be essential to maintain periodic surveillance, in a selection of the most severely trachomatous communities. Surveillance is desirable in at least a few communities —"

1. To measure the effect of the initial chemotherapy.
2. To detect a recrudescence of transmission of trachomatous infection, should it occur.
3. To detect and deal surgically with further cases or recurrence of trichiasis, cataract or pterygium.

This surveillance should consist of limited clinical surveys, repeated at appropriate intervals, and serological

² Ibid

surveys. It should commence during the consolidation phase, but should be organised centrally from the National Trachoma and Eye Health Program, whereas the action of consolidation should rest progressively on the relevant State agencies. It will be desirable for the National Trachoma and Eye Health Program to maintain this surveillance in certain areas for some years: at least five and probably ten".²

The program's rescreening findings confirm Jones' warning that initial treatment effects must be followed up and consolidated. There has been a significant reduction in the prevalence and severity of follicular trachoma as a result of treatment, but levels in many areas remain high and will have to be followed by further treatment.

The program has had considerable success in organising surgical expeditions to deal with the backlog of surgery uncovered. It would be naive, however, to pretend that this achievement has not been accompanied by problems. The experience of organising surgery in the Northern Territory has shown the problems of liaison and the potential difficulties when one is not appropriately supported by local health authorities. The difficulties of organising surgery in Western Australia have been much the same because appropriate mechanisms of mobilising Aboriginal liaison are lacking, and the existing State Health Department procedures do not make most effective use of the ophthalmological resources and expertise available.

The program's experience in organising surgery has been that:

1. There must be a considerable investment in Aboriginal liaison and extensive consultation with Aboriginal communities if the services the college has to offer are to be taken up.
2. While the program must work closely with relevant local health authorities, the surgery team needs a degree of independence so that it can make most effective use of its time and resources.

Similarly, as discussed in Chapter 13, there have been difficulties surrounding the development of appropriate methods for the prescription, measurement and supply of spectacles for all of those who are in need of them.

It was with these factors in mind that the Royal Australian College of Ophthalmologists decided to establish a permanent Federal Trachoma Committee, supported by trachoma committees in each of its State branches, to oversee the development of continuing college programs to provide rural Australians with the eye health care which they need.

The aims of the Federal Trachoma Committee are:

1. To pursue to their completion the aims of the National Trachoma and Eye Health Program.
2. The supervision of the activities of State trachoma committees in providing regular eye health care services to communities throughout rural Australia.
3. The monitoring of the trachoma situation throughout rural Australia through regular surveillance and screening of communities known to be at risk.
4. The co-ordination of the activities of the State trachoma committees in providing surgical services, as needed, to rural communities.
5. Liaison with Federal, State and local health authorities in co-ordination with State committees in the carrying out of the college's policies, including the maintenance of satisfactory eye health-care programs.

The committee has established a central secretariat to assist it in carrying out these tasks. The purpose of the secretariat has been stated as follows:

1. To maintain and develop a central records system so that up-to-date and readily comparable records of eye health are available on an individual, community, regional, and national basis.
2. The maintenance and development of the program's lines of communications with Aboriginal communities so that efficient liaison is always available when college resources are put into the field, whether for surgery trips, rescreenings, or on-going care services.
3. The maintenance of program clinical standards.
4. The maintenance of equipment, both at the secretariat and at centres throughout rural Australia, so that college personnel always have access to all equipment necessary to carry out their tasks.
5. The development of educational programs, including ones for clinic-

¹ Jones, B.R.: Report to the Royal Aust. College of Ophthal. on certain aspects of the NTEHP, 1977.

ians, Aboriginal health workers, Aboriginal communities and the Australian community generally.

6. The special supervision of eye health-care programs in the Northern Territory, where ophthalmological resources in relation to the need are especially few.
7. The control of money for college activities and liaison, consultation and travelling expenses for persons carrying out these activities.

The organisation of college members to provide the on-going services will be done through State branch committees of the college, each State taking responsibility for its own areas, although State branch members in NSW and Victoria have also agreed to take a special responsibility for providing regular ophthalmological services to communities in the Northern Territory. These committees, in consultation with State and local health authorities and under the supervision of the Federal committee, will assume responsibility for providing college manpower to support the new eye-health systems which will have to be devised if ocular health, particularly among Aborigines, is to be improved to an acceptable standard.

The secretariat has been established on the premise that the responsible health and welfare authorities will assume responsibility for providing the back-up resources and facilities which such a new system of health care will entail: the provision of primary health care facilities; the financing and organisation of further mass chemotherapy campaigns where necessary; the organisation and financing of essential follow-up to the continuing program activities, including the provision of clinical facilities where necessary, the supply of spectacles, and the remuneration of resource personnel.

As discussed throughout this report, a major aspect of the poor health status of rural Aboriginal Australians has proved to be the failure of health care-delivery systems. Even where these systems have been available they have frequently proved inappropriate and unable to make an impact on overall health status. As outlined in Chapter 15, there will have to be basic changes in the methods of health-care delivery to most rural Aborigines if Aboriginal health is to be significantly improved and eventually brought to non-Aboriginal standards.



Camp nurse Bruce Stanley attends to minor injuries at Mimili community, South Australia.

The Federal Trachoma Committee is vitally concerned to see that such change takes place. Only when appropriate health facilities and health-care services are devised will the expertise and resources of the college be being put to best use with maximum results.

The program believes it to be essential that the resources of the college are put at the disposal of rural Australian communities in a way which makes it most likely that the services available are most appropriately used, and that those most in need of such services are able to take advantage of them.

Because of this it has placed great emphasis on the maintenance and development of its lines of communication with Aboriginal communities, on the use of appropriate local personnel as middlemen in its dealing with such communities, and on the maintenance of some independence of action and facilities from existing health-care structures, which have in some instances proved to be remote from, and not accepted by, the people in local communities.

The State and Federal trachoma committees have already begun operating. In South Australia, for example, the State trachoma committee has already devised coverage of all areas of the State on a regular basis in co-operation with State and local health authorities, including the Pitjantjatjara Homelands Medical Service. Ophthal-

mologists from the State have nominated particular areas they will visit regularly in co-operation with the relevant health authorities.

Western Australia already had devised, because of the interest of ophthalmologists in that State, a system of fairly regular visits to most rural communities in co-operation with the Western Australian Public Health Department. There were some difficulties with the system which has been operating, most notably being that some communities were not covered at all, and that the system of visits relied on the identification of persons in need of treatment by local health personnel, particularly hospital personnel, rather than community screenings. This has meant that there were many areas visited by the program in which persons were seen with very serious eye abnormalities capable of being treated, or which might have been treated in the past, who had never been examined by an ophthalmologist. The program and the on-going secretariat has been concerned to ensure that the continuing system becomes more flexible to more fully meet the needs shown by the program's findings.

Queensland, NSW and Victorian State branches have devised means for the effective coverage of their States by ophthalmologists, so that all major communities receive regular access to eye health care within their communities in the future.

Additionally, the NSW and Victorian branch trachoma committees have undertaken responsibility for continuing-care programs within the Northern Territory, and ophthalmologists from these States will be making regular visits to these areas in the future to provide not only surgical services to deal with the backlog of cases identified by the program but routine eye health-care services of the sort taken for granted by most Australians.

The program has also been concerned to offer its resources in the training and education of medical, paramedical and interested lay persons in the skills necessary to provide eye health care in rural Australia.

Part of that aim will be met by widespread publication of the report, and by the program's activities in providing information and skills to health personnel and the general community in areas which it has visited. Additionally the program, at the time of writing this report, has been involved in the sponsorship of a conference of Aboriginal health workers from the Central and Western Desert regions of Australia, the areas in which the greatest prevalences of trachoma and other diseases were found.

As well, the program has published a trachoma grading manual, a list of surgery protocols setting minimum standards of surgery care in program-sponsored surgical activities, and a wide variety of general information pamphlets about trachoma and the program's activities.

The program also lent its support to the development of community-based health-care systems in many areas it visited. It co-operated with such systems where they existed and sought to promote the establishment of such services where they did not.

The reason why the program believes that the further development of such services is essential to the improvement of eye health, and health generally, of rural Australians is outlined in the next chapter. Here, however, it is important to note that there were sound practical reasons for the championing and support of community health-care systems, especially in Aboriginal communities. These were that such services were invariably in closer contact with target communities, whatever their



At Jigalong, Western Australia, people learn about their eyes from the program's Trachoma Grading Manual.

operational deficiencies (these being frequently associated with limited resources), and that the program was thus able to reach more effectively into Aboriginal communities when it had the support and co-operation of such services. This applied to liaison, screening, the organisation of treatment programs, and the provision of on-going services. Associated with this was the fact that Aboriginal communities, in giving informed consent and support to the program's activities in their area, sought reassurance that the program's activities did not threaten their communities' structures and organisation, as had some other health-care activities. This reassurance could be given by showing that the program was willing and anxious to co-operate with the communities' own structures for delivering health-care.

Thus, in the program's own narrow aims of achieving a sound epidemiological picture of rural eye health, particularly among Aborigines, working closely with community-based health care systems made the program's task easier, and enabled it to move more effectively among the people of the communities it was visiting. Without such co-operation the achievement of the program's aims would have been considerably more difficult, and more expensive.

On-going eye-care programs have been planned with this in mind. With the close association between the program and structures within the community for health care which have been developed, such programs will succeed in reaching effectively into communities to provide services to those most in need.



Chapter 15:

Recommendations

Introduction

Previous sections of this report have shown the prevalence rates and the severity of certain ocular and other conditions which prevail in rural Australia. The difference between the Aboriginal and non-Aboriginal extent of these diseases has, for some, been expressed as the "avoidable overburden". Further, the anabatic, or moving upward effect, on prevalence rates by different climatic factors has been shown to apply significantly only to Aborigines. The catabatic, or downward movement, of prevalence rates of disease as hygiene improves has been shown for Aborigines. As their hygiene approaches that of non-Aborigines, so too does the prevalence rates of the diseases measured.

Other sections have shown the methods, qualifications, numbers and time allocations of resource personnel necessary to monitor and assist with direction of a change toward health as far as the measured parameters are concerned.

This section will deal firstly with the "health amenities" and "service facilities" needed in rural Australia, and secondly, the means of achieving the use of those amenities and services as they become available.

Recommended Health Amenities and Service Facilities

For all persons in rural Australia:

1. Housing sufficient to provide sufficient bed space, breathing space, cleanable surfaces and domiciliary shelter from sunlight for all persons living in the dwelling and to be appropriately screened to exclude those insects capable of transmitting disease.
2. Water within houses for the full range of its uses as a health amenity for drinking, cooking, bathing and showering, and for washing clothes and bedding.
3. A full range of food including fresh fruit and vegetables.
4. Facilities for appropriate storage of food — refrigeration and cupboard space.

1. Community and Child Health Services, Western Australia. Annual Report 1977, section 8.
2. Ibid: section 9.4.

5. Efficient water-based sewerage systems and garbage disposal for dwellings.
6. Continuation of the National Trachoma and Eye Health Program appropriately as its aims are achieved or being achieved to enable regular scheduled visits of skilled ophthalmologists (or other adequately trained personnel) to monitor the prevalence and severity of trachoma and reinstitute treatment where necessary and to provide other diagnostic services for eye conditions, including surgery and the provision of suitable sunglasses for those industrially at risk from sunlight-induced ocular disorders in areas with more than 8 hours of bright sunshine per day. Continuation of the NTEHP will require secretarial organisational liaison and possibly full time ophthalmological staff.
7. Regular scheduled visits of suitable medical (or paramedical) persons to monitor, treat, direct and advise on the prevention of skin disease, nasal discharge, otitis media and respiratory disease.

The Means of achieving the effective use of Health Amenities and Service Facilities

The substantial prevalence of avoidable eye disease and blindness, otitis media, nasal discharge, skin disease and respiratory disease, and the high incidence of leprosy¹ and the occurrence of asexually transmitted syphilis² exclusively among Aboriginal Australians is evidence of failure of delivery of the means of healthy living to this group. For all other Australian groups the delivery of the means of health is sufficient to avoid or greatly lessen these scourges.

Aboriginal groups suffering from high prevalences of these diseases are outside any effective Australian health system — they are alienated from whatever health system exists. This alienation exists in spite of the propinquity of Aboriginal groups and various health institutions, and despite a substantial Government investment in the development and maintenance of curative health in-

stitutions such as clinics and hospitals, and in the provision of medically trained health personnel in areas of poor health.

As an illustration of this alienation, the health situation at Mowanjum is considered. Mowanjum is an Aboriginal village a few kilometres from Derby — a town with a base hospital, doctors and other health persons. The Western Australian Aboriginal health audit describes the situation as follows:

"Altogether 221 of the estimated 243 permanent residents were examined (91% of the population).

Analysis of Findings

1. Approximately 30% of the patients had bowel infestations shown by stool examination (mainly *ancylostoma duodenale*; several patients had *salmonella* cultured).
2. 54% of females and 67% of males had low serum iron.
3. 79% of females and 86% of males had low folate.
4. 15% were hypocalcaemic.
5. 13% were hypercholesterolaemic.
6. 21% were chemically diabetic.
7. 27% were hypertensive.
8. There were the expected high numbers of *tinea corpus*, *scabies*, *otitis media*, *trachoma*, *caries*, etc., that are found in most Aboriginal communities.

Summary

Most of the problems of ill health encountered were due to poor standards of hygiene, crowded living, sub-standard housing, ignorance concerning health matters and alcohol abuse. The cause of the diabetes is multifactorial but the poor diet with high carbohydrate content must be largely to blame. It is not surprising under such conditions to have a high prevalence of bowel infestation."³

In spite of closeness to existing health structures, Aboriginal groups do not enjoy what is regarded as a product of these health care systems — freedom from avoidable ill health.

Perseverance with or strengthening of existing health structures that have already demonstrated failure in these regards is unlikely to alter Aboriginal health status.

The means of overcoming the alienation of health care systems have received much attention by health authorities and the guidelines are be-

coming clear. The World Health Organisation states some appropriate principles:

"A system of health care delivery... must reflect certain inherent characteristics of the community. It must, for example, evolve from the community it serves; it should involve the community in all aspects of its organisation, such as in the planning, delivery and evaluation of care; it must be interrelated with other operating social systems within the community; and it must support as well as be supported by the community for which it exists. Moreover, the health system must be flexible in its approach to health care: those responsible for operating it should be aware that the primary avenue to health may be through education, economic progress, legislation or other aspects of society rather than through organised health structures".⁴

These concepts are consistent with Government policy as expressed by the Hon. Ian Viner when as Minister for Aboriginal Affairs he said:

"One essential ingredient for success is the involvement of Aboriginal people themselves at every level and in the planning of every project which is undertaken, for without that involvement our hopes and theirs are doomed before they begin".⁵

He has further stated Government policy:

"In Aboriginal health we are committed to self-management, self-sufficiency and Aboriginalisation".⁶

and commented:

"We will make no headway until Aboriginal people themselves are involved in solutions to the basic health needs of their life at the grass-roots level".⁷

The Hon. Fred Chaney states:

"The cornerstone of Federal Government policy is that Aboriginal people should run their own affairs and should be in a position to make their own decisions about their lifestyles and futures just as non-Aborigines do".⁸

Our experience with screening programs, trachoma treatment campaigns and surgical excursions has verified for us the soundness of these ministerial statements.

Aboriginal people can no longer be dragged into a healthy system of living. The times when hygiene

could be imposed as part of the settlement/mission discipline are gone, never to return. Alteration of living patterns and the establishment of a disease-free environment in Aboriginal conurbations can now only occur with the active support of the Aboriginal people themselves.

The changes necessary are so substantial and need to occur at such a grass-roots level that passive submission is insufficient to effect them. Attempts to impose solutions from above are so vulnerable to subversion that they will not succeed.

The first phase of the process to accomplish this change is discussion, explanation and information transfer to Aborigines of the facts of their health situation. Most Aborigines do not know what illnesses they suffer from or why they suffer or how they can be avoided. The Aboriginal rules for healthy living all incorporated into the "tjurkkurpa" or dreaming refer to nomadic small group "hunter/gatherer" existence and efficiently maintain health under such situations. But Aboriginal medicine has very little information relevant to the health situations of immobile large groups in the settlements, fringe camps, missions and outstations. The rules for this sort of living are those that Caucasians and others learnt slowly over the centuries that it took for their conurbations to form and become as healthy as they are now.

For all these reasons then, the overburden of avoidable Aboriginal disease requires "Aboriginalisation" of health services for Aborigines.

Aboriginal people should be party to the planning of their health services and have directive, executive and advisory roles.

Are Aborigines able and ready to carry out these roles in their own health matters?

There is throughout rural Australia an awareness among Aborigines that their health is not good and they are ready to talk about it and be involved at all levels in efforts to change it.

We have found Aboriginal leaders including prominent males interested in discussing health matters. There is an Aboriginal tradition for health matters to be the concern of persons of authority and high community standing. In white Australia one expects females rather

3. Ibid: section 5.6.
4. H. Mahler, President WHO. Public Health Reports 93:107 1978.

5. Hon. Ian Viner. Address to National Press Club, 7 July 1977.

6. Ibid. 7. Ibid.

8. The Canberra Times, article — extract from Senator, the Hon. Fred Chaney, Minister for Aboriginal Affairs, March 12, 1979.

than males to volunteer an interest in health matters; Aboriginal males, especially the middle-aged, find it natural to be interested in the health of the group.

There are already 13 Community Based Aboriginal Medical Services (CBAMS) in Australia, situated at Sydney, Melbourne, Bairnsdale, Brisbane, Townsville, Alice Springs, Lypapa, Agarapa, Pitjantjatjara Homelands, Port Augusta, Perth, Broome and Durri.

In these CBAMS, Aborigines are directing and performing health activities and administering health organisations. They are involving their communities actively in disease alleviation programs. These examples and our experience suggest that WHO suggestions and government policy of "Aboriginalisation" is a reasonable course to pursue. There does not appear to be any cost-effective alternative.

Therefore, the 13 existing CBAMS should be actively supported, and others should be established in consultation with Aboriginal organisations currently extant and with groups called to health meetings from demographically suitable areas. The following locations are suggested as those that would be greatly benefited by the establishment and support of CBAMS:

Northern Territory

1. Finke
2. Maryvale
3. Hermannsberg
4. Areyonga
5. Santa Teresa
6. Yuendumu
7. Napperby
8. Willowra
9. Mt. Allen
10. Ti-Tree
11. Warrabri
12. Tennant Creek
13. Amaroo
14. Lake Nash
15. Lajamanu
16. Wave Hill Settlement
17. Dagaragu
18. Katherine
19. Bamyili
20. Ngukurr
21. Numbulwar
22. Port Keats
23. Peppimenarti
24. Daly River
25. Darwin
26. Bathurst Island
27. Elcho Island

28. Maningrida
29. Milingimbi
30. Yirrkala
31. Groote Eylandt
32. Borroloola

South Australia

33. Ernabella
34. Amata
35. Warburton
36. Coober Pedy
37. Oodnadatta
38. Yalata/Ceduna

Western Australia

39. Cundeelee
40. Kalgoorlie
41. Leonora
42. Laverton
43. Wiluna
44. Meekatharra
45. Mt. Magnet
46. Geraldton
47. Carnarvon
48. Onslow
49. Roebourne
50. Strelley
51. Yandeyarra
52. Jigalong
53. Marble Bar
54. La Grange
55. Noonkenbah
56. Looma
57. Beagle Bay
58. Derby
59. Lombardina
60. One Arm Point
61. Fitzroy Crossing
62. Halls Creek
63. Balgo Hills
64. Turkey Creek
65. Kununurra
66. Kalumburu
67. Oombulgarri
68. Wyndham

Queensland

69. Doomadgee
70. Mornington Island
71. Normanton
72. Kowanyama
73. Aurakun
74. Weipa
75. Thursday Island
76. Bamaga
77. Lockhardt River
78. Hopevale
79. Yarrabah
80. Cairns
81. Mt. Isa
82. Hughenden
83. Charleville

84. Cloncurry
85. Cunnamulla
86. Mungindi/St. George
87. Rockhampton
88. Woorabinda
89. Mackay
90. Cherbourg

New South Wales/Victoria

91. Bourke
92. Brewarrina
93. Walgett
94. Goodooga
95. Moree
96. Toomelah
97. Ivanhoe
98. Nambucca
99. Casino/Tabulam/Woodenbong
100. McLean/Grafton
101. Lismore
102. Coffs Harbour
103. Coraki
104. Purfleet
105. Armidale/Guyra
106. Tamworth
107. Glen Innes/Inverell/Tingha
108. Wilcannia
109. Menindee
110. Wellington(Nanima)
111. Yass
112. Wagga Wagga
113. Albury
114. Lake Cargellico
115. Dubbo
116. Condobolin
117. Cowra
118. Wallaga Lakes
119. Wentworth
120. Deniliquin
121. Griffith
122. Shepparton
123. Swan Hill
124. Horsham/Framlingham

Every Aboriginal group of more than 20 persons requires a health worker. Such health workers should be linked appropriately to regional community-based services, but the persons should come from and be selected by the local group.

CBAMS should be based according to the Aboriginal choice of locality.

Such services should automatically control local hospitals, clinics, health workers and all Aboriginal health amenity facilities. They should be able financially to employ what ever non-Aboriginal resource persons they need.

All non-Aboriginal health activity persons, organisations and facilities should be directed and authorised

by such Community Based Aboriginal Medical Services.

CBAMS should have all the facilities to enable function viz. salaries, secretarial services, transport, communication access, medical supplies and personnel.

With the CBAMS all linked to their outstation movements, a structure that can change Aboriginal morbidity patterns is possible.

Such a system presently and in the future requires an Aboriginal Central Support Service (ACSS).

The role of the ACSS will be to:

- 1: Act as a link between regional CBAMS.
- 2: Act as a broker for CBAMS with Federal bodies such as FHD and DAA.
- 3: Approach various health resource persons and organisations such as the vocational medical colleges and State health departments on behalf of CBAMS.
- 4: Control and direct research into Aboriginal health problems.
- 5: Play a national evocative role in eliciting local interest by Aboriginal groups in health matters.
- 6: Direct and advise on health education and instruction.
- 7: Plan and direct national campaigns to deal with special Aboriginal health problems.

- 8: Initiate the establishment of CBAMS.

The Aboriginal Central Support Service could well be situated in a national Aboriginal representative body with representatives of all existing CBAMS and, for areas where CBAMS do not as yet exist, NAC members.

SUMMARY of Recommendations

For rural Australians including Aborigines, the provision of:

- 1: Housing sufficient to provide sufficient bed space, breathing space, cleanable surfaces, and domiciliary shelter from sunlight for all persons living in the dwelling and to be appropriately screened to exclude those insects capable of transmitting disease.
- 2: Water within houses for the full range of its uses as a health amenity: for drinking, cooking, bathing, showering and washing clothes and bedding.
- 3: A full range of food including fruit and vegetables.
- 4: Facilities for appropriate storage of food — refrigeration and cupboard space.
- 5: Efficient water-based sewerage systems and garbage disposal for each dwelling.
- 6: Continuation of the NTEHP as described in Chapter 14.

- 7: That the NTEHP carry out two visits per year for each of three weeks at 24 locations listed in Chapt 13, p 174), and that this be done with the assistance of a full-time ophthalmologist with a supporting ophthalmic team.

- 8: That the NTEHP maintain and develop Aboriginal liaison which is directly responsible to it.

- 9: Regular scheduled visits of suitable medical (or paramedical) persons to monitor, treat, direct and advise on the prevention and treatment of skin disease, nasal discharge, otitis media and respiratory disease.

- 10: For each Aboriginal group of more than 20 persons the provision of a health worker, part or full-time.

- 11: Continuing support for the existing 13 community-based Aboriginal Medical Services (CBAMS) and expansion of this system to other localities as soon as local interest and willingness to participate in such services has been shown by those Aboriginal communities.

12. The establishment of an Aboriginal Central Support Service within a representative body constituted according to the guidelines noted earlier and for the functions listed herein.

APPENDIX 1

Royal Australian College of Ophthalmologists

AIMS OF THE NATIONAL TRACHOMA AND EYE HEALTH PROGRAM

- I The elimination of trachomatous blindness in Australia.
- II Presentation of the ocular health status of persons in rural Australia to interested agencies.
- III Provision of immediate eye care to persons in rural Australia.

In the light of the above and experience gained, that consideration be given to:

- IV Establishment of ongoing eye care programs for rural Australia.
- V Training of medical, paramedical and interested lay persons in the skills necessary to provide eye care in rural Australia.

TRACHOMA: Trachoma is an ocular condition with characteristic clinical signs, course and epidemiology. It characteristically has reactive signs in children and scarring signs in adults. Conjunctivides both chronic and acute frequently occur.

1. The elimination of trachomatous blindness in Australia

This involves:

- (a) Surgical relief of existing trachomatous blindness where possible;
- (b) Medical and surgical care to prevent trachoma proceeding to blindness;
- (c) Treatment of hyperendemic trachoma to eliminate pre-cicatricial disease;
- (d) The achievement of an environmental health status that prevents occurrence and reoccurrence of trachoma.

II. Presentation of the ocular health status of persons in rural Australia to interested agencies.

This involves:

- (a) Quantification of ocular function, visual acuity and blindness rates;
- (b) Description and quantification of ocular abnormalities present.

III. Provision of immediate eye care to persons in rural Australia.

The program should provide from its permanent field team or from temporary volunteers from the Australian College of Ophthalmologists, eye care of whatever nature is indicated by clinical examination and expressed patient desires. This service should augment existing services and assist these agencies to deal rapidly with any back-log of ocular conditions.

IV. The establishment of ongoing eye care programs for rural Australia.

Resulting from the presentation of the ocular status of rural Australians, and keeping in mind the possible recurrence of trachoma and the maldistribution of eye care personnel, the program sees as desirable the presentation and augmentation of a plan of continuing eye care for rural Australia.

V. The training of medical, paramedical and interested lay persons in those skills necessary to provide eye care in rural Australia.

Because of the distribution of eye care specialists, direct care of persons with ocular complaints in rural Australia requires that persons other than medical personnel also have the relevant skills, for instance an interested person on an outstation in the Northern Territory.

The College program and its team, together with its educational material, should co-operate to assist such persons to develop these required skills.